

SCHOOL OF HOTEL MANAGEMENT, CATERING & TOURISM

ACADEMIC HAND BOOK



+91-9897474598



www.iimtu.edu.in



O-Pocket, Ganga Nagar, Mawana Road, Meerut-250001

SCHOOL OF HOTEL MANAGEMENT CATERING AND TOURISM
DEPARTMENT OF COMMUNITY SCIENCE
ORDINANCE (CBCS) for
B.Sc. (HOME SCIENCE-FOOD SCIENCE, NUTRITION AND DIETETICS) 2025 Onwards
(Revised in light of NEP 2020 Guidelines)
(Established by Govt. of U.P. vide U.P. Act No. 32 of 2016)
(Academic Session 2025-26)

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1. PREAMBLE

The IIMT University has been established under Uttar Pradesh Act Number 32 of 2016. Gazette notified by the Government of Uttar Pradesh Dated 16 September, 2016. As per procedure for establishment of any state private university as outlined in the act, the university shall promulgate its ordinances and statutes/rules and regulations for conduct of various programs

Provisions of this ordinance shall be applicable to B.Sc.-HM Program to be run in School of Hotel Management Catering & Tourism, IIMT University, Meerut. These shall be applicable for regulation of Hotel Management Program w.e.f. session 2023 onwards. Not with standing anything in these regulations, the IIMT University Meerut shall have the right to modify any of the regulations from time to time in accordance of BOS approval.

2. DEFINITIONS AND NOMENCLATURE

In these Regulations, unless the context otherwise requires:

1. **“Programme”** means Degree Programme like Bachelor of Hotel Management and Catering Technology
2. **“Course”** means a theory or practical subject that is normally studied in a semester.
3. **“Vice – Chancellor of IIMT-University”** means the Head of the University.
4. **“Registrar”** is the Head of all academic and General Administration of the University.
5. **“Dean”** means the authority of the school that is responsible for all academic activities of various programmes and implementation of relevant rules of these Regulations pertaining to the Academic Programmes.
6. **“Controller of Examinations”** means the authority of the University who is responsible for all activities related to the University Examinations, publication of results, award of grade sheets and degrees.
7. **“Dean – Student Welfare”** is responsible for all student related activities including student discipline, extra and co – curricular activities, attendance and meetings with class representatives, Student Council, and parent – teacher meet.
8. **“HoD”** means the Head of the Department concerned.
9. **“University”** means IIMT-University, Meerut.
10. **“TCH”** means Total Contact Hours – refers to the teaching – learning periods.
11. **“DEC”** means Department Exam Committee.
12. **“BoS”** means Board of Studies.
13. **“ACM”** means Academic Council meeting the highest authoritative body for approval for all Academic Policies.
14. **“Class Coordinator”** is a faculty of the class who takes care of the attendance, academic performance, and the general conduct of the students of that class.
15. **“IA”** is Internal Assessment which is assessed for every student for every course during the semester.
16. **“ESE”** is End Semester Examination conducted by the University at the End of the Semester for all the courses of that semester.
17. **“UGC”** means University Grants Commission.
18. **“MHRD”** means Ministry of Human Resource Development, Govt. of India.
19. **“AICTE”** means All India Council of Technical Education.
20. **“HEI”** means Higher Education Institutions.

3. **VISION AND MISSION OF THE DEPARTMENT**

Vision: To evolve into centre of excellence imparting Hospitality and Tourism education promoting research and innovation, entrepreneurship and global leadership.

Mission: To convert the students into Hospitality professions with sound knowledge and skills of Hospitality operation meeting international standards. To mould future leaders or managers of Hospitality and Tourism industry by inculcating interpersonal skills, balanced knowledge, skill and industry exposure.

4. **PROGRAM EDUCATIONAL OBJECTIVES (PEO's):**

PEO1: IIMT Hospitality graduate students will be technically skilled to apply knowledge and accomplish expertise to keep momentum with global demand in the hospitality sectors.

PEO2: IIMT Hospitality graduate students will introduce critical thinking, creativity and the ability to innovate new products and services ideas to gratify the guests.

PEO3: IIMT Hospitality graduate students will empower the students to recognize & custom the highest standard of ethical behavior in the hospitality industry.

PEO4: IIMT Hotel and Hospitality graduate students will attain practical and technical entrepreneurial knowledge and skills in hospitality sector to create employment opportunity for the community and serve the society & nation.

5. **PROGRAM OUTCOME (POs)**

PO1: Apply the in-depth knowledge of hotel, hospitality and tourism industry, and a core area specialization to the solution of complex hotel management problems.

PO2: Understand the impact of the hotel, hospitality and tourism in society at local, regional, national, international level and environmental contexts, and demonstrate the knowledge of need for sustainable development.

PO3: Recognize the need for lifelong learning, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

PO4: Apply ethical & value-based principles and commit to professional ethics and responsibilities and norms of the management practice.

PO5: Students in the Hospitality & Tourism sector will be able to acquire knowledge, skills & expertise which makes them exceptionally employable in the Hospitality & Tourism industry as well as careers in Airlines, Travel and Tourism, Hotels, Cruise lines etc.

PO6: Students get skill through practical and enable them to get an opportunity to become an entrepreneur. They develop their ability to manage the professional approach in preparation, presentation as well as service of quality food.

6. **PROGRAM SPECIFIC OUTCOMES (PSOs):**

PSO1: Understand and demonstrate the core technical, analytical, and conceptual skills appropriate for hospitality industry.

PSO2: Demonstrate an ability to manage the professional preparation, presentation, and service of quality food.

PSO3: Apply the knowledge gained to manage and evaluate functional systems in hospitality and lodging operations.

PSO4: Demonstrate clear understanding and necessity of professional and ethical & environmental responsibilities in all aspects of conduct.

7. ADMISSION

Admission shall be made on total merit consisted of marks percentage in graduation or post-graduation degree and personal interview of the scholar, plus weightage permissible vide the government order of State government.

- a. The admission policy and procedure shall be decided from time to time by the board of Studies (BOS) of the University based on the guidelines issued by the UGC/NEP and Ministry of Education (MoE), Government of India. Seats are also made for Non-Resident Indians and foreign nationals, who satisfy the admission eligibility norms of the University. The number of seats in each of the hotel management degree/diploma program will be decided by the University as per the directives of UGC/ MOE, Government of India, considering the market demands.
- b. The University can take 10% additional admission, in view of the short fall expected in 2nd year due to failure of students or students leaving the University.

8. ELIGIBILITY FOR ADMISSION

1	Bachelor of Hotel Management & Catering Technology	4.0 years	Passed 12 th / Intermediate or Equivalent examination

Following prescriptions shall govern eligibility for the program:

Candidate Passed in 10th or equivalent or above will be eligible for certificate and/or Diploma courses. Candidate with at least Thirty Five percent (35%) marks either in 12th and/or 10+2 board or equivalent will be eligible for B.Sc. HM and BHMCT. Candidates having 35% marks in 12th or 10+2 board or equivalent will be eligible for integrated MHMCT Program (5 Years).

- a. Candidates belonging to SC/ST category must have passed marks in above or other equivalent examination.
- b. Reservation and relaxation, if any, for SC/ST/OBC/EWS and any other applicable categories shall be as per the rules of State government.

9. CURRICULUM

For the purpose of awarding degrees, the curriculum for all Hotel Management programs are structured to have a minimum of credits+ NCC (Non-credit Audit Courses) as specified in the evaluation scheme approved by the university's Board of Studies and spread out across eight semesters of study.

Under CBCS, the degree program will consist of the following categories of courses:

- a. Core courses
- b. Discipline specific Elective
- c. Ability Enhancement compulsory courses
- d. Practicum/skill enhancement cum School Observation and Internship Courses
- a. **Core Courses:** The core courses are divided into five years (1, 2,3,4,5 as Certificate,

Diploma, B.Sc. HM, BHMCT, and MHMCT respectively).

Transaction of theory courses shall be carried out through theory and practicum, which may include discussion-groups, workshops, presentation, seminars, assignments, reports, specified activities etc. to enhance professional skills and understanding of student(s). These shall be part of the teaching modality.

- b. **Discipline Specific Elective:** Discipline Centric Elective Courses are prescribed to enhance and develop the professional and teaching skills of pupil in their particular discipline.
- c. **Ability Enhancement Compulsory Course:** To fulfill the guidelines of NEP 2020, in the syllabi of Hotel Management Courses for Enhancing Professional ability Competencies have been incorporated as essential components with respect to developing professional competencies among pupil-teachers. Transaction of these courses will be carried out in activity-centered, interactive, workshop/ block programs mode of suitable duration, to be decided by Head of the Department in consultation with teacher(s) designated for teaching these courses.
- d. **Practicum/Skill Enhancement cum School Observation and Internship:** Specific course of school observation has been incorporated to provide opportunities to train the students to have professional skills before joining actual full-time internship. It is preparatory engagement with school functioning, requiring observation of various facets of hospitality sector. Industrial Internship shall provide for sustained, intensive full-time engagement with learners and Hospitality organizations. Interns shall be provided opportunities to learn in hospitality organizations/Hotels with systematic supervisory support and feedback from the Head of the Operations. Total duration of Internship shall be of twenty-two weeks or 6 months.

10. MEDIUM OF INSTRUCTION

The medium of instruction is **English** for all courses, examinations, seminar presentations and project reports.

11. CHOICE BASED CREDIT SYSTEM (CBCS)/LOCF/OBE)

The university follows a flexible Choice based Credit System and Slot based table. Accordingly, the students shall be given the option for selecting their courses, credits, teachers, slots and create their timetable. The student is given the option of selecting the number of credits to undergo in a semester, subject to the curriculum requirements of minimum and maximum. Except for the first-year courses, registration for a semester will be done during a specified week before the start of the semester as per the Academic Calendar. Late registration/enrolment will be permitted by the Dean of the School for genuine cases, on recommendation by the Head of the respective department, with a late fee as decided from time to time.

12. REGISTRATION FOR COURSES IN A SEMESTER

A student will be eligible for registration of courses only if he/she satisfies the regulation clause 7.0 (progression), and clause 10.0 (maximum duration) and has cleared all dues of the University, Hostel and Library up to the end of the previous semester if student is not debarred

from enrolment on disciplinary grounds.

13. ATTENDANCE

- a. Condonation of medical cases
- b. Additional Condonation

The faculty handling a course must finalize the attendance, calendar days before the last instructional day of the course and submit to the HoD through the class teacher.

- a. A student with less than 75% attendance (Total Contact Hours - "TCH") in any course will not be permitted to appear for the end-semester examination in that course, irrespective of the reason for the shortfall of the attendance. The student is however permitted to avail Academic Leave up to 10% for attending academic related activities like, Industrial Visits, Seminars, Conferences, Competitions etc., with the prior approval of the HoD. After the event, the student should submit the relevant documents for proof to the HoD for approval of the Academic Leave.
- b. The remaining 25% allowance in attendance is given to account for activities under NCC / NSS / Cultural / Sports/ Minor Medical exigencies etc.
- c. A student with an attendance ("TCH" – Total Contact Hours) between 40% and 75% in any course will fall under the category "CO (Carry Over)", which means repeat the Course during the summer / Winter break. Students under "CO (Carry Over)" category will not be permitted to attend the Regular End Semester Examinations for that course. During the summer / Winter break, the regular courses of the respective semester will be offered as Summer/Winter Courses, to enable the students to get required attendance and internal assessment marks to appear in the Repeat examination.
- d. Students under "CO (Carry Over)" category in any course shall attend the immediately following summer/winter course. The detailed schedule of the summer/winter courses offered in every semester will be announced during the end of that semester. The student who has obtained "CO (Carry Over)" has to select their appropriate slots and courses, optimally to attend the courses. The student, whose attendance falls below 40% for a course in any semester, will be categorized as "RA", meaning detained in the course for want of attendance and they will not be permitted to write the End semester exam for that course. The procedure for repeating the course categorized as "RA" is mentioned in Clause 9.2.

a. ADDITIONAL CONDONATION

Additional condonation may be considered in rare and genuine cases which includes, approved leave for attending select NCC/Sports Camps, cases requiring prolonged medical treatment and critical illness involving hospitalization. For such select NCC/Sports Camps prior permission for leave shall be obtained by the respective faculty coordinator/Director of sports from the designated authority, before deputing the students.

b. CONDONATION FOR MEDICAL CASES

For medical cases, submission of complete medical history and records with prior

information from the parent / guardian to Dean (Students Welfare) is mandatory. The assessment of such cases will be done by the attendance sub – committee on the merit of the case and put-up recommendations to the Vice – Chancellor. Such condonation is permitted only twice for a student in the entire duration of the program.

The Vice-Chancellor, based on the recommendation of the attendance sub - committee may then give condonation of attendance, only if the Vice-Chancellor deems it fit and deserving. But in any case, the condonation cannot exceed 10%.

14. ASSESSMENT PROCEDURE

- Internal Assessment (IA)
- External Assessment (EA)
- Practical Assessment

Table 3: Weightage of the IA and ES for various categories of the courses.

S. No.	Category of Courses	IA weightage	IA Minimum	ESE	ESE Minimum	Passing minimum (IA+ ESE)
1	Theory Course	25%	---	75%	30%	40%
2	Practical Course	40%	---	60%	---	50%
3	Theory Course with Practical Components	25%	---	75%	30%	40%
4	Design/ Semester Project	25%	---	75%	50%	50%
5	Student Discipline	100%	---	---	---	50%
6	Research Project (Major & Minor) and Viva Voce	25%	---	75%	50%	50%

a. THEORY COURSE ASSESSMENT WEIGHTAGES

The general guidelines for the assessment of Theory Courses shall be done on a continuous basis are given in Table 4.

Table 4 (a): Weightage for theory Assessment.

S. No.		Assessment Theory, DE, NE courses	Weightage Theory, DE, NE courses	Duration
1	IA	First Internal Assessment (Sessional Exam-I)	5%	Based on Credit
2		Second Internal Assessment (Sessional Exam- II)	5%	Based on Credit
3		Assignments (Sessional Exam-I)	5%	--
		Assignments (Sessional Exam-II)	5%	--
4		Seminar/Project (Thrice a Semester with equal weightage)	2%	--
5		Surprise Test / Quiz etc.,	3%	30 Mins.
6	ESE	End Semester Exam	75%	Based on Credit

b. PRACTICAL COURSE ASSESSMENT WEIGHTAGES

Practical course - Internal Assessment.

For practical courses, the assessment will be done by the course teachers as below:
Assignment/Observation/lab records and viva as approved by the Department Exam Committee

- a. Internal Assessment -- 40%
- b. End Semester Examination -- 60%

Table 4(b): Weightage for Practical course Assessment.

S. No.		Assessment Theory, DE, NE courses	Weightage Theory, DE, NE courses	Duration
1	IA	First Internal Assessment/ Sessional Exam-I (Inc: Viva-voice / Attendance)	10%	Based on Credit
2		First Internal Assessment/ Sessional Exam-II (Inc: Viva-voice / Attendance)	10%	Based on Credit
3		Presentation/ Case Study/ Seminar/Project.	20%	--
4	ESE	End Semester Exam	60%	Based on Credit

“DEC”

Hotel management course shall have two components of assessment namely,

- a. Internal Assessment Marks “IA”: This assessment will be carried out throughout the semester as per the Academic Schedule.
- b. End Semester Examination Marks “ES”: This assessment will be carried out at the end of the Semester as per the Academic Schedule.

Practical Assessment

Evaluation will contain internal as well as external evaluation. Under CBCS pattern Annual grade point average (AGPA) and cumulative grade point average (CGPA) will be calculated for each student.

- The AGPA is the ratio of sum of the product of the number of credits with the grade points score by the students in all the papers / courses taken by a student and the sum of the number of credits of all the courses undergone by a student.
- The CGPA is also calculated in similar manner taking into consideration all the courses undergone by a student over the year of a programme.
- Letter grade will be assigned to students as per their performances in courses. Letter grade is an index of performance of students and then denoted by letters such as:

S.N.	Letter	Percentage	Grade Point	Remarks
1	O	Above 90%	9-10	Extra Ordinary
2	E	80-90%	8-<9	Excellent
3	A+	70-79.99%	7-<8	Very Good
4	A	60-69.99%	6-<7	First
5	B	55-59.99%	5.5-<6	Good

6	C	50-54.99%	5-<5.5	Pass
7	D	Below 50%	<5	Not Success

- a. To pass and to complete the course the student is supposed to secure 40% marks in each theory paper, 50 % marks in Practical paper & 40% marks in aggregate.
- b. Mark sheet and Degree will be awarded as Masters in Hotel Management and Catering Technology after the successfully completion of the programme according to rules mentioned above.

The Board of Studies of School of Hotel Management Catering & Tourism, IIMT University Meerut frames the syllabi keeping in view the curriculum as developed by the

- a. Internal Assessment (IA)
- b. External Assessment (EA)
- c. Practical Assessment

Hotel management course shall have two components of assessment namely,

- a. Internal Assessment Marks “IA”: This assessment will be carried out throughout the semester as per the Academic Schedule.
- b. External Assessment Examination Marks “EA”: This assessment will be carried out at the end of the Semester as per the Academic Schedule.
- c. Practical Assessment

Awarding Grace Marks

Any examinee/student of the courses of university shall be eligible for getting Grace Marks, as per the following guidelines: -

1. The grace marks of maximum 5 marks shall be given in two subjects in a semester in semester-based programmes and three subjects in a year in annual programmes, if the student is failing only in two subjects in a semester in semester-based programmes and fail only in three subjects in annual programmes. Grace marks shall only be incorporated in the mark-sheet at the time of printing of final semester/year mark-sheet.
2. At the time of printing of final semester/ year mark-sheet, grace marks of maximum 10 marks on mercy ground can also be awarded in one subject if student has passed all other subjects.
3. If student will avail the facility of grace marks in final semester / year, that will be reflected in the mark-sheet.
4. Grace marks are not a matter of right of the student but the discretion of the University.
5. Further, benefit of grace marks may be given only to the candidate who will pass the entire concerned examination of the semester*/ year after awarding the grace marks and not for the purpose of promoting the student to next year with back papers or for improvement of division of percentage.

6. It is mandatory to pass in Theory, Practical or Sessional Examinations separately to get the benefit of grace marks which shall be given only in Theory examination.

15. RESEARCH PROJECT/ SEMESTER PROJECT ASSESSMENT CRITERIA

The general guidelines for assessment of Project are given in Table 5.

Table 5: Assessment pattern for Research Project Semester Project

S. No.	Review/Examination scheme	Broad Guidelines	Weightage
1	First Review	Concept	10%
2	Second Review	Design	10%
3	Third Review	Experiment/Analysis	20%
4	Final Review/ESM	Project report and Conclusion and Viva – Voce, Results	60%

* **Note – Novel Ideas shall be protected by IP Filling (Patent / Design / Copyright).**

16. INTERNSHIP –RESEARCH /INDUSTRIAL INTERNSHIP

Course Category	Course Code	Course Title	Contact Hours			Evaluation Scheme			Credits
			L	T	P	IA	EA	TOTAL	
Core Industrial Training	NBHM-241(T)	Industrial Training & Viva	0	0	0	150	225	375	15

• **NOTE:**

- Minimum 15 weeks working days i.e. 90 days is required to pursue training in the hotel to be awarded with requisite credits
- One week is equivalent to 1 credit.
- Maximum 24 weeks training is allowed in semester

A student has to compulsorily attend industrial training deciding as per their evaluation scheme during for a minimum period of 24 weeks. In lieu of industrial training/ internship, the student is permitted to register for undertaking case study / project work under a faculty of the University and carry out the project for minimum period of 24 weeks. In both the cases, the training/ internship report in the prescribed format duly certified by the faculty in-charge shall be submitted to the HoD. The evaluation will be done through Viva & presentation. The course will have a weightage as defined in the respective curriculum.

Table: Assessment pattern for Internship

S. No.	Category	Weightage
1	Performance Appraisal	20%
2	Log Book	20%
3	Training Report	20%
4	Presentation	15%
5	Viva-Voce	25%

17. FOR NON –CREDIT COURCES/ AUDIT COURCES

The assessment will be graded “Satisfactory/Not Satisfactory” and grades as Pass/Fail will be awarded. The Assessment will be done based on the respective assessment rubrics issued by the Head of the Department.

18. CREDIT WEIGHTAGE

Credit Weightage for Theory Classes Duration (Hour)	Credit (Theory)
One Hour	1 credit
Credit Weightage for Practical Classes Duration (Hour)	Credit (Practical)
Two Hour	1 credit

19. MAXIMUM DURATION OF PROGRAMME / PROMOTION POLICY

SUMMER / WINTER COURSE

For “CO (Carry Over)” Category

- a. Students under CO (Carry Over) category i.e.
 - i. Attendance between 40% and 75% in any course(s) OR
 - ii. IA marks less than the prescribed minimum as specified in any course(s) OR
 - iii. Falls under both 1 and 2 above are eligible for registering for the summer / Winter Course which will be conducted during the summer / Winter break, to improve their Attendance and/or IA marks in the courses, by paying the prescribed registration fee fixed from time to time as per University Norms.
- b. The Odd semester regular courses will be offered only in the winter and the even semester regular courses will be offered only in the summer.
- c. CO (Carry Over) students shall register by payment of prescribed Examination fee and attend the classes during the summer / winter break and take assessments to earn minimum internal marks and/or required attendance, to become eligible for writing the Repeat Examinations.
- d. The revised IA marks shall not exceed 60% of the total internal weightage for any repeat course.
- e. Re- Registration for ‘CO (Carry Over)’ category

The students under “CO (Carry Over)” category who fail to improve their attendance and/or IA marks and not become eligible to write the Repeat Examination through the immediate summer/winter.

20. MAXIMUM GAPS BETWEEN SEMESTER/ YEAR

A student may be permitted by the Vice-Chancellor to withdraw from the entire programme for a maximum of two semesters for reasons of ill health, start – up venture or other valid reasons as recommended by a committee consisting of Head of Department, Dean of School, and Dean (Student Welfare).

21. CREDIT SYSTEM & GRADING CGPA/SGPA

IIMT-University implemented the UGC guidelines to all Universities in 2015 for implementation of the choice-based credit system with a view to offer student's choice of courses within a program with a flexibility to complete the program by earning credits at a pace decided by the students themselves. The system allowed students to choose inter-disciplinary, intra-disciplinary courses according to their learning needs, interest and aptitude. It was considered as a cafeteria approach and was expected to provide mobility to students.

As per the Current credit system practiced in institutions needs comprehensive reforms as they offer very little flexibility, choice and are less learner centric. Degrees offered today are more self-contained focusing on a specialization area and depend a lot on knowledge available with the faculty from the department only. Though the most requisite credit system does exist, wherein students are given a wide choice and flexibility, these exist as small islands in the vast ocean of thousands of educational institutes in India. In such institutions, the curriculum is frequently designed which is learner centric and offering a wide specialization area for students to pick and choose courses from. The institutions shall make attempts wherein the design of the credit system and the teaching and evaluation modes shall be the responsibility of individual course teachers. The students should have the freedom to opt for courses from other specializations and not just from their core specialization. For this there has to be stronger collaborations between departments of the University and outside.

GRADING SYSTEM

Most institutions follow the absolute grading system which is a simple procedure wherein the marks obtained by students correspond to a specific grade and grade point. It reflects the individual performance in a particular subject without any reference to the group/class. The absolute grading system has limitations and may be susceptible to some inconsistencies.

The relative grading system on the other hand provides relative performance of a student to a group/class wherein the student is ranked in a group/class on basis of relative level of achievement. In this system decisions are made in advance by the faculty members as to what proportion of students would be awarded a particular grade on the basis of their relative performance and which is done by assigning grades on basis of a normal curve. This facilitates comparative performance and eliminates negative effect of pass or fail.

Relative grading system may be used if the number of students registered for the course is at least 30. For a class of smaller size, an absolute grading scheme may be used. The statistical method may be used with adjustments to calculate the mean (M), median (Md) and standard deviation (SD) of the total marks (TM) obtained by the students registered for the course. If the mean and median coincide, the mean may be used for further computations, otherwise the median may be used. If suppose the mean is used, then the letter grades may be awarded based on the ranges specified in table below. A grading system as shown in below given Table will be followed.

Table: Grading system

LetterGrade	Range
A+	TM>M+1.75SD

A	$M+1.25 SD \leq TM < M+1.75SD$
B+	$M+0.75 SD \leq TM < M+1.25SD$
B	$M+0.25 SD \leq TM < M+0.75 SD$
C+	$M-0.25 SD \leq TM < M-0.25 SD$
C	$M-0.75 SD \leq TM < M-0.25 SD$
D+	$M-1.25 SD \leq TM < M-0.75 SD$
D	$M-1.75 SD \leq TM < M-1.25 SD$
E+	$M-2.0 SD \leq TM < M-1.75 SD$
E	$M-2.25 SD \leq TM < M-2.0 SD$
F	$M-2.25 SD > TM$
CO	Carry Over (Summer / Winter) due to Attendance deficiency (between 40% and 75%) and/or I. Lack of minimum IA marks as specified in clause 10.0 Table 3.
RA	Repeat the course due to (i) Lack of minimum attendance (below 40%) in regular course.
--	DETAINED "RC" or "RA" or both in all registered theory courses of a semester. The student is detained and has to repeat the entire semester. Clause 12.3

Letter grades may be improved based on the following scheme: Use the table above to determine grade boundaries. Look for natural gaps in the neighborhood of grade boundaries. Choose the largest gap in the neighborhood and make this as the grade boundary.

An 'E', 'E+' and 'F' grade may not be a purely relative grade. These may be assigned on the following basis:

- A minimum, say 30/100, may be set as pass marks for the course. A fail grade may then be awarded only if the Total Marks for the course are less than 30. Otherwise, the students may be awarded the Just Pass Grade D.
- A fail grade may be awarded to students whose marks are below the prescribed minimum even if the table above leads to a pass grade.

Similarly, a lower limit may be set for the A grade also, for instance greater than or equal to 86. Students not achieving the prescribed minimum may be awarded a lower letter grade even if the table above indicates otherwise. A pass grade may be made mandatory for both internal as well as external examinations in the case of a separate internal and external assessment,

- Internal and External marks may be summed up with appropriate weightage to compute a total out of 100 marks. The letter grade may be assigned on this computed total.
- Internal and external marks may be graded separately and then the assigned grade points may be used, with appropriate weightage, to compute a final grade point and letter grade.

Grading in the case of Re-evaluations, Retests and Remedial Examinations may be based on the following guidelines:

- The ranges of marks once computed for awarding letter grades the first time, called the First Distribution (FD), will not be modified.

- b. If a re-evaluation leads to a change in marks, then FD will be used to award an appropriate letter grade.
- c. A retest may be permitted if: -
 - i. A student gets a letter grade of E+ or E. In this case, irrespective of the marks obtained, at most D grade may be awarded.
 - ii. A student is unable to complete course requirements because of certified illness or tragedy. In this case FD will be used to award an appropriate letter grade.

The use of relative grading system may be recommended in autonomous institutions, institutes of national importance and institutions with high ranking. The results of the relative grading system may be shared by such institutions later with other interested institutions to implement the same.

GPA AND CGPA

GPA is the ratio of the sum of the product of the number of credits C_i of course “i” and the grade points P_i earned for that course taken over all courses “i” registered and successfully completed by the student to the sum of C_i for all “i”. That is,

$$GPA = \frac{\sum_i C_i P_i}{\sum_i C_i}$$

CGPA will be calculated in a similar manner, in any semester, considering all the courses enrolled from the first semester onwards. The Grade card will not include the computation of GPA and CGPA for courses with letter grade CO, RC and U until those grades are converted to the regular grades. A course successfully completed cannot be repeated.

GRADE SHEET

LETTER GRADE

Based on the performance, each student is awarded a final letter grade at the end of the semester in each course. The letter grades and corresponding grade points are given in Table 8. A student is considered to have completed a course successfully and earned credits if he/she secures a letter grade other than F, CO, RA in that course. After results are declared, grade sheet will be issued to each student which will contain the following details:

- a. Program and discipline for which the student has enrolled.
- b. Semester of registration.
- c. The course code, name of the course, category of course and the credits for each course registered in that semester
- d. The letter grade obtained in each course

- e. Semester Grade Point Average (GPA)
- f. The total number of credits earned by the student up to the end of that semester in each of the course categories.
- g. The Cumulative Grade Point Average (CGPA) of all the courses taken from the first semester.
- h. Credits earned under Non CGPA courses.
- i. Medium of Instruction is English.
- j. Grade Equivalency.

22. CLASS/DIVISION

- (i) CLASSIFICATION IS BASED ON CGPA AND IS AS FOLLOWS: $CGPA \geq 8.0$:
First Class with distinction
 $6.5 \leq CGPA < 8.0$: First Class
 $5.0 \leq CGPA < 6.5$: Second Class.

FIRST CLASS WITH DISTINCTION

- (ii) Further, the award of 'First class with distinction' is subject to the candidate becoming eligible for the award of the degree having passed the examination in all the courses in his/her first appearance with effect from II semester, within the minimum duration of the program.
- (iii) The award of 'First Class' is further subject to the candidate becoming eligible for the award of the degree having passed the examination in all the courses within 4 years for undergraduate Hotel Management.
- (iv) The period of authorized break of the program (vide clause 11.0) will not be counted for the purpose of the above classification.

23. TRANSFER OF CREDITS

Within the broad framework of these regulations, the Academic Council, based on the recommendation of the Credit Transfer Committee so constituted may permit students to transfer part of the credit earned in other approved Universities of repute & status in the India or abroad.

The Academic Council may also approve admission of students who have completed a portion of course work in another approved Institute of repute under Multiple entry & Exit system, based on the recommendation of the credit transfer committee on a case-to-case basis.

Students' who have completed coursework, at least first year, at some university other than the university to which transfer is sought, may request for transfer of admission to this university.

A student may be granted admission only through an admission process that will follow the same policy as for fresh admissions. However, a uniform credit system must be followed by all universities to effect transfer of credits.

Credit Transfer request can be submitted only after the student has been admitted in the concerned program and the following conditions are met:

- i. The course work has been completed at a UGC approved and accredited University through fulltime formal learning mode.
- ii. The university accreditation grade/ ranking is not lower than that of the university to which the transfer is sought.
- iii. The courses prescribe to the common minimum syllabus under UGC CBCS system.
- iv. The letter grade obtained in the courses is “B” or better.
- v. The number of credits to be transferred does not exceed the prescribed limit.
- vi. The program in question must have a similar credit system, in particular, modular or semester and the same numeric and letter grading system along with common meaning of the term “credit” in numerical terms.

The aspect of shelf life of courses needs to be considered while accepting credits as obsolescence of knowledge of certain field in terms of its current relevance needs to be investigated. The time lapsed between successful completion of certain courses of the program and the admission to which program transfer is sought needs to be considered. The maximum number of credit points that may be considered under a credit transfer needs to be specified. Contextual variables such as teaching-learning approach adopted, learning facilities offered, use of evaluation modes may also be considered while preparing the credit transfer policy.

24. CHANGE OF DISCIPLINE

If the number of students in any discipline of Hotel Management program as on the last instructional day of the First Semester is less than the sanctioned strength, then the vacancies in the said disciplines can be filled by transferring students from other disciplines subject to eligibility.

If any Student of Hotel Management program wants to change from Hotel Management to any program/ any discipline as per their eligibility they are permitted to change on or before 30 calendar days from the first day of commencement of program as per academic calendar.

All students who have successfully completed the first semester of the course will be eligible for consideration for change of discipline subject to the availability of vacancies and as per norms.

All such transfers will be allowed based on merit of the students. The decision of the Vice-Chancellor shall be final while considering such requests.

25. USE OF TECHNOLOGICAL INTERVENTION

With the proliferation of different types of access devices, especially mobile access devices, technology has the potential to augment traditional classroom practices and revolutionize learning and evaluation methods. Technology, in fact can be an important driver to enable

lifelong learning. Learning and engagement of students is facilitated by use of technology through several modes such as synchronous learning, semi-synchronous learning, blended learning, collaborative learning, flipped classroom etc. MOOC's, especially provided through SWAYAM, are a window of opportunity for lifelong learning and are offered through technology-based platforms. Learning management systems (LMS) may be used by institutions to integrate the entire teaching, learning and evaluation process. The Learning Management System may be used by institutions to deliver academic content in blended form and to assess learning through thesis, assignments etc. Open-source learning management systems such as Moodle, Edmodo may be used for posting content in the form of videos, audios, e-learning modules, live class sessions etc. Use of plagiarism detection software will be highly recommended to check originality of content. In the conduct of examinations, universities face tremendous challenges such as need for trained manpower, distribution of question paper without delays and errors, delays in evaluation of answer scripts, lack of infrastructure to conduct examinations at a large scale, non-availability of faculty members for assessment, security issues faced during paper setting and paper distribution, tampering of certificates and answer scripts etc.

For a typical examination department of an institution will be an autonomous body right from registration of student to convocation through an integrated system. In fact, steps must be taken to implement a complete examination management system that considers the complete life cycle of examination process. The use of technology will reduce dependency on human intervention and be error free. The following functions will be automated:

- i. registration of students and generating unique PRN,
- ii. filling up of examination form,
- iii. generation of seat numbers and admit cards/hall tickets,
- iv. preparation of list of paper setter,
- v. use of question bank system to draw question sets, question paper generation,
- vi. online distribution of question papers on the day of examination with system of encryption,
- vii. Bar code system for answer books (this will eliminate issues related to errors, avoid malpractices etc.),
- viii. digitization of answer scripts and onscreen evaluation of answer sheets,
- ix. tracking of student's performance,
- x. Marks submission through online software,
- xi. viewing of result through online system,
- xii. online verification and revaluation system,

- xiii. digitization of certificates and mark sheets (to avoid tampering and easy retrieval),
- xiv. certificate authentication system,
- xv. Submission of various other applications through online system.

The above will lead to conduct of functions of the examination system in an efficient and transparent manner and timely availability of information to students.

26. STUDENT DISCIPLINE

Student is required to observe utmost discipline and decorum both inside and outside the campus and not to indulge in any activity which may affect adversely the prestige reputation of the University.

27. STUDENT WELFARE

Any act of indiscipline of a student reported to the Dean (Students Welfare) and Head of the Department will be referred to a Discipline Committee constituted for the purpose. The Committee will enquire into the charges and decide on a suitable punishment if the charges are substantiated. The committee will also authorize the Dean (Students Welfare) to recommend to the Vice-Chancellor for the implementation of the decision. The student concerned may appeal to the Vice-Chancellor, whose decision will be the final.

28. RAGGING

Ragging in any form is a criminal and non-bailable offence in our country. The current State and Central legislations provide stringent punishments including imprisonment. Once the involvement of a student(s) is established in ragging, offending fellow students/staff, harassment of any nature to the fellow students/staff etc. the student(s) will be liable to be dismissed from the University, as per the laid down procedures of the UGC / Govt. / Institute. Every senior student at the University, along with their parent, shall give an undertaking every year in this regard and the same should be submitted at the time of Registration.

29. POWER OF MODIFY

Notwithstanding all that has been stated above, the Academic Council is vested with powers to modify any or all the above regulations from time to time, if required, subject to the approval by the board of Studies and Final approval by Vice-Chancellor

30. EXIT POINT

CBCS: Statement of Credit distribution

College/School: School of Hotel Management Catering & Tourism Program: Bachelor of Hotel Management & Catering Technology Duration: 4 years Annual/Semester : Semester	Credit range: 160-190 (Suggested by CBCS Committee)

Attached guidelines to be followed:

Cou rse	Cre dit	Seme ster	Core (Th 4+P 2) Major	DSE (Th 4+P 2) Minor	AECC (Th 3)	SEC **	GE (Th 4) Interdisci plinary	Gen eral Elec tive (2)	Value Added Course (VAC) (2)	Indus trial Traini ng/ Surve y / Resea rch Projec t (4)	Tot al Cre dits
		Ist	C1(Th 4Cr+P1(P 2 Cr) FUNDAME	DSE 1- (Th-2 + P 1 Cr) LARDER-	AECC 1 (Th 2 Cr) FUNDAMEN TALS OF FRENCH	SEC-1 (Th.2 Cr + P . 1 Cr) FUNDAM	-----	---		----- -	23
Certificate Course in hotel management.....			NTALS OF FOOD PRODUCTI ON + FUNDAME NTALS OF FOOD PRODUCTI ON LAB C 2 (Th 4 Cr + P2 (P 1 Cr) FUNDAME NTALS OF FOOD AND BEVERAGE SERVICE + FUNDAME NTALS OF FOOD AND BEVERAGE SERVICE LAB C3 (P Th 2 Cr + P3 (P 1 Cr) FUNDAME NTALS OF ACCOMMO DATION OPERATIO NS + FUNDAME NTALS OF ACCOMMO DATION OPERATIO NS LAB	1/F&B SERVICE- 1/FUNDAM ENTALS OF FRONT OFFICE + BAKERY & CONFECTI ONARY LAB-I/F&B SERVICE LAB- 1/FUNDAM ENTALS OF FRONT OFFICE LAB-1		ENTALS OF COMPUTE RS + FUNDAM ENTALS OF COMPUTE RS LAB					
		2nd	C4 (Th 4 Cr + P4 (P 2 Cr) FOOD PRODUCTI ON + FOOD PRODUCTI ON LAB C5-(Th 4 Cr+ P5 (P 1	DSE -2 (Th 2 Cr + P 1 Cr) LARDER- II/F&B SERVICE- II/ FRONT OFFICE-II + BAKERY &	AECC-2 (Th 3 Cr) ENVIRONM ENT & ECOLOGY	SEC 2 (Th 2 Cr) FUNDAM ENTALS OF GERMAN			VAC-1 (Th 2 Cr) MOOCS/ NPTEL		25

			Cr) FOOD AND BEVERAGE SERVICE + FOOD AND BEVERAGE SERVICE LAB C6-(Th 2 Cr + P6 (P 1 Cr)) ACCOMMODATION OPERATIONS + ACCOMMODATION OPERATIONS LAB	CONFECTIONARY LAB-II/F&B SERVICE LAB-II/OFFICE LAB-II							
Entry and Exit point											
Diploma in hotel management	3rd/₄th		C7 (Th. 4 Cr.) + P7 (P. 2Cr.) FOOD PRODUCTI ON-I + FOOD PRODUCTI ON LAB-I C8 (Th 4 Cr) + P8 (P. 1 Cr) FOOD AND BEVERAGE SERVICE-I + FOOD AND BEVERAGE SERVICE LAB-I	DSE-3/4 (Th 2 Cr) RESORT MANAGEM ENT / SPA MANAGEM ENT	AECC 3/4-(Th.3 Cr) HUMAN VALUES & PROFESSIONAL ETHICS				VAC-2/3 (Th 2 Cr) MOOCS/ NPTEL		27
			C9 (Th 2 Cr) + P9 (P. 1 Cr) C10(Th.2 Cr) ACCOMMODATION OPERATION -I + ACCOMMODATION OPERATION LAB-I C10(Th 2 Cr +P 1 Cr) + FRONT OFFICE LAB-I C11 (Th 2 Cr) HOTEL ENGINEERING								

			Industrial Training (15 Cr)							15
Entry and Exit point										
Bachelor of Science (Hotel Management)		5th	C17 (Th. 4 Cr) + P10 (P.2 Cr.) FOOD PRODUCTION-II + FOOD PRODUCTION LAB II C18 (Th. 4 Cr) + P11 (P.1 Cr) FOOD & BEVERAGE SERVICE-II + FOOD & BEVERAGE SERVICE LAB-II C19 (Th. 2 Cr) + P12 (P.1 Cr) Front Office-II + Front Office LAB II C20 (Th. 2 Cr) + P12 (P.1 Cr) ACCOMMODATION OPERATION-II + ACCOMMODATION OPERATION LAB-II	DSE 5 (Th 2 Cr + P 1 Cr) INDIAN REGIONAL CUISINE/ BAKERY SCIENCE + INDIAN REGIONAL CUISINE LAB/ BAKERY SCIENCE LAB	AECC 5-(Th.2Cr) TOURISM ENTREPRENEURSHIP	SEC-3 (Th-2 Cr) FAST FOOD CHAIN MANAGEMENT, FOOD SAFETY AND HACCP				24
		6th	C21-(Th 4 Cr) + P 13 (P. 2 Cr) Food Production-III + Food Production LAB-III C22--(Th 4 Cr) + P 14 (P. 1 Cr) Food & Beverage-III + Food & Beverage LAB-III	DSE-6 (Th 2 Cr) TOURISM & HOTEL ECONOMICS/ FUNDAMENTALS OF HOSPITALITY ACCOUNTING		SEC 4 (Th 3 Cr) APPLICATION OF COMPUTERS & CYBER LAW	GE-1 (Th. 2 Cr)	VAC-4 (Th 2 Cr) MOOCS/ NPTEL		27

			C23 ((Th 2 Cr) +P 15 (P. 1 Cr) Accommodation operation-III + Accommodation operation LAB-III C24 ((Th 2 Cr) +P 16 (P. 1 Cr) Front Office-III/ Front Office LAB-III							
Bachelor of Hotel Management & Catering Technology		7th	C19 (Th.4 Cr+P19(P.2 Cr) Food Production-IV+ Food Production LAB-IV C20 (Th.4Cr+P20(P.1 Cr) Food & beverage Service-IV+ Food & beverage Service LAB-IV C21 (Th.2 Cr+P21(P. 1 Cr) Accommodation Operations-IV+ Accommodation Operations LAB-IV C22 (Th.2 Cr+P22(P. 1 Cr) Office IV + Front Office Lab-IV	DSE-7 th (Th.2Cr) Total Quality Management / Event Management	AECC-5 (Th 2 Cr) RESEARCH METHODOLOGY	SEC-5 (Th. 3Cr) HOSPITALITY SALES			(4 Credit)	27
		8th	C29 (Th.4Cr)+P24 (P.2 Cr) Food production-V/ Food production-V LAB C30 (Th.4Cr)+P25 (P.1 Cr) ND BEVERAGE SERVICE MANAGEMENT/ FOOD	DSE-8 (Th.2 Cr) ADVENTURE TOURISM/ Rural Tourism	AECC-6 (Th. 2 Cr) PERSONALITY DEVELOPMENT			VAC-5 (Th. 2 Cr) MOOCS/NPTL	RP2 (8 Credit) research project	30

			AND BEVERAGE SERVICE MANAGEMENT LAB C31 (Th.2 Cr)+P26(P.1 Cr) MANAGEMENT INFORMATION SYSTEM/ MANAGEMENT INFORMATION SYSTEM LAB C32 (Th.2 Cr)+P27(P.1 Cr) ACCOMMOD ATION MANAGEMENT/ ACCOMMOD ATION ELEMENT LAB								
		Total Credits	T- 84 P-47 P- 47	T-14 P-3	T-14	T-8	T-5		T-6 P-1	12	
			Grand Total	189							

31. NC/CREDIT COURSE

Following is the Non-Credit Courses in BHMCT.

Course Code	Course Title	Evaluation Scheme		
		IA	EA	Total
NECC-111/121/231/351/361/471/481	Industrial Visit / Presentation on Report Seminar	25	NC	
NECC-112/122/232/352/362/472/482	Universities Social Responsibilities–Community Outreach	25	NC	
MV-111/121/231/351/361/471/481	Sanskrit/ Spiritual	25	NC	
SPT-111/121/231/351/361/471/481	Sports	50	NC	

32. ANY OTHER HEADING AS PER YOUR PROGRAM



Evaluation Scheme

Bachelor of Hotel Management & Catering Technology										
Year: I / Semester: I										
S. NO.	COURSE CATEGORY	COURSE TITLE	COURSE CODE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
(THEORY)										
1	CORE THEORY-1	FUNDAMENTALS OF FOOD PRODUCTION	RHM-111	4	0	0	25	75	100	4
2	CORE THEORY-2	FUNDAMENTALS OF FOOD AND BEVERAGE SERVICE	RHM-112	4	0	0	25	75	100	4
3	CORE THEORY-3	FUNDAMENTALS OF ACCOMMODATION OPERATIONS	RHM-113	2	0	0	15	35	50	2
4	DSE-1	LARDER-I	RHM-114 A	2	0	0	15	35	50	2
5		F&B SERVICE-I	RHM-114 B							
6		FUNDAMENTALS OF FRONT OFFICE	RHM-114 C							
7	SEC-1	FUNDAMENTALS OF COMPUTERS	SEC-RHM-111	2	0	0	15	35	50	2
8	AECC-1	FUNDAMENTALS OF FRENCH	NHU-111F	2	-	-	15	35	50	2
9	NC	INDUSTRIAL VISIT/SEMINAR/PRESENTATION ON THE REPORT	NECC-111	-	-	-	25	-	-	NC
10	NC	UNIVERSITY SOCIAL RESPONSIBILITIES – COMMUNITY OUTREACH	NECC-112	-	-	-	25	-	-	NC
11	NC	SANSKRIT / SPIRITUAL	MV-111	-	-	-	25	-	-	NC
12	NC	SPORTS	SPT-111	-	-	1	50	-	-	NC
(PRACTICAL)										
13	CORE LAB-1	FUNDAMENTALS OF FOOD PRODUCTION LAB	RHM-111P	0	0	4	20	30	50	2
14	CORE LAB-2	FUNDAMENTALS OF FOOD AND BEVERAGE SERVICE LAB	RHM-112P	0	0	2	10	15	25	1
15	CORE LAB-3	FUNDAMENTALS OF ACCOMMODATION OPERATIONS LAB	RHM-113P	0	0	2	10	15	25	1
16	SEC LAB	FUNDAMENTALS OF COMPUTERS LAB	SEC-111NP	0	0	2	10	15	25	1
17	DSE LAB	BAKERY & CONFECTIONARY LAB-I	RHM-114 AP	0	0	2	10	15	25	1
18		F&B SERVICE LAB-1	RHM-114 BP							
19		FUNDAMENTALS OF FRONT OFFICE LAB	RHM-114 CP							
		TOTAL							575	23

Bachelor of Hotel Management & Catering Technology										
Year: I / Semester: II										
S. NO.	COURSE CATEGORY	COURSE TITLE	COURSE CODE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
(THEORY)										
1	CORE THEORY-4	FOOD PRODUCTION	RHM-121	4	0	0	25	75	100	4
2	CORE THEORY-5	FOOD AND BEVERAGE SERVICE	RHM-122	4	0	0	25	75	100	4
3	CORE THEORY-6	ACCOMMODATION OPERATION	RHM-123	2	0	0	15	35	50	2
5	DSE-2	LARDER-II	RHM-125A	2	0	0	15	35	50	2
6		F&B SERVICE-II	RHM-125B							
7		FRONT OFFICE	RHM-125C							
8	VAC	MOOCS/NPTEL	SEC-122N	2	0	0	15	35	50	2
9	AECC-2	ENVIRONMENT & ECOLOGY	NHU-NPR-122	3	0	0	25	75	100	3
10	SEC	FUNDAMENTALS OF GERMAN	SEC-121G	3	0	0	25	75	100	3
11	NC	INDUSTRIAL VISIT / SEMINAR/ PRESENTATION ON THE REPORT	NECC-121	-	-	-	25	-	-	NC
12	NC	UNIVERSITY SOCIAL RESPONSIBILITIES –COMMUNITY OUTREACH	NECC-122	-	-		25	-		NC
13	NC	SANSKRIT/ SPIRITUAL	MV-122	-	-	1	25	-	25	NC
	NC	SPORTS	SPT-PC-211	-	-	1	50	-	-	1
(PRACTICAL)										
14	CORE LAB-4	FOOD PRODUCTION-LAB	RHM-121P	0	0	4	20	30	50	2
15	CORE LAB-5	FOOD AND BEVERAGE SERVICE LAB	RHM-122P	0	0	2	10	15	25	1
16	CORE LAB-6	ACCOMMODATION OPERATION LAB	RHM-123P	0	0	2	10	15	25	1
17	DSE -2 LAB	BAKERY & CONFECTIONARY LAB-II	RHM-125AP							
18		F&B SERVICE LAB-II	RHM-125BP							
19		FRONT OFFICE LAB	RHM-125CP	0	0	2	10	15	25	1
		TOTAL							625	25

Bachelor of Hotel Management & Catering Technology										
Year: II / Semester: III/IV										
S. NO.	COURSE CATEGORY	COURSE TITLE	COURSE CODE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
1	CORE INDUSTRIAL TRAINING	INDUSTRIAL TRAINING & VIVA	NBHM-241 (T)	0	0	0	150	225	375	15

Bachelor of Hotel Management & Catering Technology										
Year: II / Semester: III/ IV										
S. NO.	COURSE CATEGORY	COURSE TITLE	COURSE CODE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
(THEORY)										
1	CORE THEORY-8	FOOD PRODUCTION-I	RHM-231	4	0	0	25	75	100	4
2	CORE THEORY-9	FOOD AND BEVERAGE SERVICE-I	RHM-232	4	0	0	25	75	100	4
3	CORE THEORY-10	FRONT OFFICE -I	RHM-233	2	0	0	15	35	50	2
4	CORE THEORY-11	ACCOMMODATION OPERATION-I	RHM-234	2	0	0	15	35	50	2
	CORE THEORY-12	HOTEL ENGINEERING	NHU-231H	3	0	0	25	75	100	3
5	DSE-3	RESORT MANAGEMENT	RHM-235A	2	0	0	15	35	50	2
6		SPA MANAGEMENT	RHM-235B							
7	SEC-3	Moocs/ NPTEL	VAC-RHM-002	2	0	0	15	35	50	2
8	AECC-3	HUMAN VALUES AND PROFESSIONAL ETHICS	UVE-301	3	0	0	25	75	100	3
9	NC	INDUSTRIAL VISIT / SEMINAR / PRESENTATION ON THE REPORT	NECC-231	-	-	-	25	-	-	NC
10	NC	UNIVERSITY SOCIAL RESPONSIBILITIES –COMMUNITY OUTREACH	NECC-232	-	-		25	-		NC
11	NC	SANSKRIT/ SPIRITUAL	MV-231	-	-	1	25	-	25	NC
12	NC	SPORTS	SPT-PC-311	-	-	1	50	-	-	NC
(PRACTICAL)										
13	CORE LAB-7	FOOD PRODUCTION-LAB-I	RHM-231P	0	0	4	20	30	50	2
14	CORE LAB-8	FOOD AND BEVERAGE SERVICELAB-I	RHM-232P	0	0	2	10	15	25	1

NAAC Accredited with A GRADE

15	CORE LAB-9	FRONT OFFICE-I	RHM-233P	0	0	2	10	15	25	1
16	CORE LAB-10	ACCOMMODATION OPERATION LAB-I	RHM-234P	0	0	2	10	15	25	1
		TOTAL							625	27

Bachelor of Hotel Management & Catering Technology Year: III / Semester: V										
S. NO.	COURSE CATEGORY	COURSE TITLE	COURSE CODE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
(THEORY)										
1	CORE THEORY-12	FOOD PRODUCTION-II	NBHM-351	4	0	0	25	75	100	4
2	CORE THEORY-13	FOOD AND BEVERAGE SERVICE–II	NBHM-352	4	0	0	25	75	100	4
3	CORE THEORY-14	FRONT OFFICE –II	NBHM-353	2	0	0	15	35	50	2
4	CORE THEORY-15	ACCOMMODATION OPERATION-II	NBHM-354	2	0	0	15	35	50	2
5	SEC-4	FAST FOOD CHAIN MANAGEMENT	NBHM-355A	2	0	0	15	35	50	2
6		FOOD SAFETY AND HACCP	NBHM-355B							
7	DSE-4	INDIAN REGIONAL CUISINE	NBHM-356A	2	0	0	15	35	50	2
8		BAKERY SCIENCE	NBHM-356B							
9	AECC-4	TOURISM ENTREPRENEURSHIP	NHU-351N	3	0	0	25	75	100	3
10	NC	INDUSTRIAL VISIT/SEMINAR/ PRESENTATION ONTHE REPORT	NECC-351	-	-	-	25	-	-	NC
11	NC	UNIVERSITY SOCIAL RESPONSIBILITIES – COMMUNITYOUTREACH	NECC-352	-	-	-	25	-	-	NC
12	NC	SANSKRIT/ SPIRITUAL	NECC-353	-	-	1	25	-	25	NC
13	NC	SPORTS	SPT-351	-	-	1	50	-	-	NC
(PRACTICAL)										
14	CORE LAB-11	FOOD PRODUCTION-LAB-II	NBHM-351P	0	0	4	20	30	50	2
15	CORE LAB-12	FOOD AND BEVERAGE SERVICE LAB-II	NBHM-352P	0	0	2	10	15	25	1
16	CORE LAB-13	FRONT OFFICE LAB-II	NBHM-353P	0	0	2	10	15	25	1
17	CORE LAB-14	ACCOMMODATION OPERATION LAB-II	NBHM-354P	0	0	2	10	15	25	1
18	DSE LAB-4	Indian Regional Cuisine Lab	NBHM-356AP	0	0	2	10	15	25	1
		Bakery Science Lab	NBHM-356BP							
		TOTAL							625	25

Bachelor of Hotel Management & Catering Technology										
Year: III / Semester: VI										
S. NO.	COURSE CATEGORY	COURSE TITLE	COURSE CODE	CONTACTHOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
(THEORY)										
1	CORE THEORY-16	FOOD PRODUCTION-III	NBHM-361	4	0	0	25	75	100	4
2	CORE THEORY-17	FOOD AND BEVERAGE SERVICE–III	NBHM-362	4	0	0	25	75	100	4
3	CORE THEORY-18	FRONT OFFICE -III	NBHM-363	2	0	0	15	35	50	2
4	CORE THEORY-19	ACCOMMODATION OPERATION-III	NBHM-364	2	0	0	15	35	50	2
5	SEC-5	MOOCS/NPTEL	VAC-RHM-004	2	0	0	15	35	50	2
6	DSE-5	TOURISM & HOTEL ECONOMICSS	NBHM-365A	2	0	0	15	35	50	2
		FUNDAMENTALS OF HOSPITALITY ACCOUNTING	NBHM-365B							
7	AECC-5	APPLICATION OF COMPUTERS & CYBER LAW	SEC-NBHM-361	3	0	0	25	75	100	3
8	NC	INDUSTRIAL VISIT/SEMINAR/ PRESENTATION ON THE REPORT	NECC-361	-	-	-	25	-	-	NC
9	NC	UNIVERSITY SOCIAL RESPONSIBILITIES–COMMUNITY OUTREACH	NECC-362	-	-		25	-		NC
10	NC	SANSKRIT/ SPIRITUAL	NECC-363N	-	-	1	25	-	25	NC
11	NC	SPORTS	SPT-361	-	-	1	50	-	-	NC
(PRACTICAL)										
12	CORE LAB-15	FOOD PRODUCTION-LAB III	NBHM-361P	0	0	4	20	30	50	2
13	CORE LAB-16	FOOD AND BEVERAGE SERVICE LAB-III	NBHM-362P	0	0	2	10	15	25	1
14	CORE LAB-17	FRONT OFFICE-III	NBHM-363P	0	0	2	10	15	25	1
15	CORE LAB-18	ACCOMMODATION OPERATION LAB-III	NBHM-364P	0	0	2	10	15	25	1
		TOTAL							625	24

Bachelor of Hotel Management & Catering Technology										
Year: IV / Semester: VII										
S. NO.	COURSE CATEGORY	COURSE TITLE	COURSECODE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
(THEORY)										
1	CORE THEORY-22	FOOD PRODUCTION-IV	NBHM-471	4	0	0	25	75	100	4
2	CORE THEORY-23	FOOD AND BEVERAGE SERVICE–IV	NBHM-472	4	0	0	25	75	100	4
3	CORE THEORY-24	FRONT OFFICE -IV	NBHM-473	2	0	0	15	35	50	2
4	CORE THEORY-25	ACCOMMODATION OPERATION-IV	NBHM-474	2	0	0	15	35	50	2
5	DSE-5	Total Quality Management	NBHM-475A	2	0	0	15	35	50	2
		Event Management	NBHM-475B							
6	AECC-6	HOSPITALITY SALES	SEC-NBHM-476	2	0	0	15	35	50	2
		MOOCS/NPTEL	VAC-NBHM-005	2	0	0	15	35	50	2
7	NC	INDUSTRIAL VISIT / SEMINAR / PRESENTATION ON THE REPORT	NECC-471	-	-	-	25	-	-	NC
8	NC	UNIVERSITY SOCIAL RESPONSIBILITIES – COMMUNITY OUTREACH	NECC-472	-	-		25	-		NC
9	NC	SPORTS	SPT-471	-	-	1	50	-	-	NC
(PRACTICAL)										
10	CORE LAB-19	FOOD PRODUCTION-LAB-IV	NBHM-471P	0	0	4	25	25	50	2
11	CORE LAB-20	FOOD AND BEVERAGE SERVICE LAB-IV	NBHM-472P	0	0	2	10	15	25	1
12	CORE LAB-21	FRONT OFFICE-IV	NBHM-473P	0	0	2	10	15	25	1
13	CORE LAB-22	ACCOMMODATION OPERATION LAB-IV	NBHM-474P	0	0	2	10	15	25	1
14	CORE LAB-23	PROJECT	NBHM-477P	0	0	4	30	70	100	2
		TOTAL							500	23

Bachelor of Hotel Management & Catering Technology										
Year: IV / Semester: VIII										
S. NO.	COURSE CATEGORY	COURSE TITLE	COURSECODE	CONTACTHOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
(THEORY)										
1	CORE THEORY-26	FOOD PRODUCTION-V	NBHM-481	4	0	0	25	75	100	4
2	CORE THEORY-27	FOOD AND BEVERAGE SERVICE MANAGEMENT	NBHM-482	4	0	0	25	75	100	4
3	CORE THEORY-28	MANAGEMENT INFORMATION SYSTEM	NBHM-483	2	0	0	15	35	50	2
4	CORE THEORY-29	ACCOMMODATION MANAGEMENT	NBHM-484	2	0	0	15	35	50	2
5	CORE THEORY-30	RESEARCH METHODOLOGY	NBHM-485	2	0	0	15	35	50	2
6	DSE-6	ADVENTURE TOURISM	NBHM-486A	2	0	0	15	35	50	2
7		Rural Tourism	NBHM-486B							
7	AECC-6	REVENUE MANAGEMENT	NHU-481	3	0	0	25	75	100	3
8	NC	INDUSTRIAL VISIT / SEMINAR / PRESENTATION ON THE REPORT	NECC-481	-	-	-	25	-	-	NC
9	NC	UNIVERSITY SOCIAL RESPONSIBILITIES –COMMUNITY OUTREACH	NECC-482	-	-	-	25	-	-	NC
10	NC	SPORTS	SPT-481	-	-	1	50	-	-	NC
(PRACTICAL)										
11	CORE LAB-24	FOOD PRODUCTION-LAB-V	NBHM-481P	0	0	4	25	25	50	2
	CORE LAB-25	FOOD AND BEVERAGE SERVICE MANAGEMENT LAB	NBHM-482P	0	0	2	10	15	25	1
	CORE LAB-26	MANAGEMENT INFORMATION SYSTEM LAB	NBHM-483P	0	0	2	10	15	25	1
	CORE LAB-27	ACCOMODATION MANAGEMENT LAB	NBHM-484P	0	0	2	10	15	25	1
	CORE LAB-28	RESEARCH PROJECT	NBHM-485P	0	0	6	30	70	100	6
		TOTAL							625	30



Format-1

Format-1

CBCS: Statement of Credit distribution

College/School: School of Hotel Management Catering & Tourism Program: Bachelor of Hotel Management & Catering Technology Duration: 4 years Annual/Semester : Semester	Credit range: 160-190 (Suggested by CBCS Committee)

Attached guidelines to be followed:

Course	Credit	Semester	CORE (Th 4+P 2) Major	DSE (Th 4+P 2) Minor	AECC (Th 3)	SEC **	GE (Th 4) Interdisciplin ary	General Elective (2)	Value Added Course (VAC) (2)	Industrial Training/ Survey / Research Project (4)	Total Credits
Certificate Course in hotel management.....		Ist	C1(Th 4Cr+P1(P 2 Cr) FUNDAMENTALS OF FOOD PRODUCTION + FUNDAMENTALS OF FOOD PRODUCTION LAB C 2 (Th 4 Cr + P2 (P 1 Cr) FUNDAMENTALS OF FOOD AND BEVERAGE SERVICE +	DSE 1- (Th-2 + P 1 Cr) LARDER-1/F&B SERVICE-1/FUNDAMENTALS OF FRONT OFFICE +	AECC 1 (Th 2 Cr) FUNDAMENTALS OF FRENCH	SEC-1 (Th.2 Cr + P . 1 Cr) FUNDAMENTALS OF COMPUTERS + FUNDAMENTALS OF COMPUTERS LAB	-----	---		-----	23
			FUNDAMENTALS OF FOOD AND BEVERAGE SERVICE LAB C3 (P Th 2 Cr + P3 (P 1 Cr) FUNDAMENTALS OF ACCOMMODATION OPERATIONS + FUNDAMENTALS OF ACCOMMODATION OPERATIONS LAB	BAKERY & CONFECTIONARY LAB-1/F&B SERVICE LAB-1/FUNDAMENTALS OF FRONT OFFICE LAB-1							

		2nd	C4 (Th 4 Cr + P4 (P 2 Cr) FOOD PRODUCTION + FOOD PRODUCTION LAB C5-(Th 4 Cr+ P5 (P 1 Cr) FOOD AND BEVERAGE SERVICE + FOOD AND BEVERAGE SERVICE LAB C6-(Th 2 Cr + P6 (P 1 Cr) ACCOMMODATION OPERATIONS + ACCOMMODATION OPERATIONS LAB	DSE -2 (Th 2 Cr + P1 Cr) LARDER-II/F&B SERVICE-II/ FRONT OFFICE-II + BAKERY & CONFECTION ARY LAB-II/F&B SERVICE LAB-II/ OFFICE LAB-II	AECC-2 (Th 3 Cr) ENVIRONMENT & ECOLOGY	SEC 2 - (Th 2 Cr) FUNDAMEN TALS OF GERMAN			VAC-1 (Th 2 Cr) MOOCS/NPTEL	25
Entry and Exit point										

Diploma in hotel management		3 rd /4 th	C7 (Th. 4 Cr.) + P7 (P. 2Cr.) FOOD PRODUCTION-I + FOOD PRODUCTION LAB-I C8 (Th 4 Cr) + P8 (P. 1 Cr) FOOD AND BEVERAGE SERVICE-I + FOOD AND BEVERAGE SERVICE LAB-I C9 (Th 2 Cr) + P9 (P. 1 Cr) C10(Th.2 Cr) ACCOMMODATION OPERATION-I + ACCOMMODATION OPERATION LAB-I C10 (Th 2 Cr +P 1 Cr) + FRONT OFFICE LAB-I C11 (Th 2 Cr) HOTEL ENGINEERING	DSE-3/4 (Th 2 Cr) RESORT MANAGEMEN NT / SPA MANAGEMEN NT	AECC 3/4-(Th.3 Cr) HUMAN VALUES & PROFESSIONAL ETHICS				VAC-2/3 (Th 2 Cr) MOOCS/NPTEL	27
		3 rd /4 th	Industrial Training (15 Cr)							15
Entry and Exit point										

Bachelor of Science (Hotel Management)		5 th	C17 (Th. 4 Cr) + P10 (P.2 Cr.) FOOD PRODUCTION-II + FOOD PRODUCTION LAB II C18 (Th 4 Cr) +P11 (P 1 Cr) FOOD & BEVERAGE SERVICE-II + FOOD & BEVERAGE SERVICE LAB-II C19 (Th. 2 Cr) +P12 (P.1 Cr) Front Office-II + Front Office LAB II C20 (Th. 2 Cr) +P12 (P.1 Cr) ACCOMMODATION OPERATION-II + ACCOMMODATION OPERATION LAB-II	DSE 5 (Th 2 Cr + P 1 Cr) INDIAN REGIONAL CUISINE/ BAKERY SCIENCE + INDIAN REGIONAL CUISINE LAB/ BAKERY SCIENCE LAB	AECC 5-(Th.2Cr) TOURISM ENTREPRENEURS HIP	SEC-3 (Th-2 Cr) FAST FOOD CHAIN MANAGEMENT / FOOD SAFETY AND HACCP					24

		6 th	C21-(Th 4 Cr) +P 13 (P. 2 Cr) Food Production-III + Food Production LAB-III C22--(Th 4 Cr) +P 14 (P. 1 Cr) Food & Beverage-III + Food & Beverage LAB-III C23 ((Th 2 Cr) +P 15 (P. 1 Cr) Accommodation operation-III + Accommodation operation LAB-III C24 ((Th 2 Cr) +P 16 (P. 1 Cr) Front Office-III/ Front Office LAB-III	DSE-6 (Th 2 Cr) TOURISM & HOTEL ECONOMICSS/ FUNDAMENT ALS OF HOSPITALITY ACCOUNTING		SEC 4 (Th 3 Cr) APPLICATION OF COMPUTERS & CYBER LAW	GE-1 (Th. 2 Cr)		VAC-4 (Th 2 Cr) MOOCS/ NPTEL	27
Bachelor of Hotel Management & Catering Technology		7 th	C19 (Th.4 Cr+P19(P.2 Cr) Food Production-IV+ Food Production LAB-IV C20 (Th.4Cr+P20(P.1 Cr) Food & beverage Service-IV+ Food & beverage Service LAB-IV C21 (Th.2 Cr+P21(P. 1 Cr) Accommodation Operations-IV+ Accommodation Operations LAB-IV C22 (Th.2 Cr+P22(P. 1 Cr) Front Office IV + Front Office Lab-IV	DSE-7th (Th.2Cr) Total Quality Management/ Event Management	AECC-5 (Th 2 Cr) RESEARCH METHODOLOGY	SEC-5 (Th. 3Cr) HOSPITALITY SALES			RP1 (4 Credit) DISSERTATION	27

		8 th	C29 (Th.4Cr)+P24 (P.2 Cr) Food production-V/ Food production-V LAB C30 (Th.4Cr)+P25 (P.1 Cr) FOOD AND BEVERAGE SERVICE MANAGEMENT/ FOOD AND BEVERAGE SERVICE MANAGEMENT LAB C31 (Th.2 Cr)+P26(P.1 Cr) MANAGEMENT INFORMATION SYSTEM/ MANAGEMENT INFORMATION SYSTEM LAB C32 (Th.2 Cr)+P27(P.1 Cr) ACCOMMODATION MANAGEMENT/ ACCOMMODATION MANAGEMENT LAB	DSE-8 (Th.2 Cr) ADVENTURE TOURISM/ Rural Tourism	AECC-6 (Th. 2 Cr) PERSONALITY DEVELOPMENT				VAC-5 (Th. 2 Cr) MOOCS/NPTEL	RP2 (8 Credit) Research project	30
		Total Credits	T- 84 P-47P- 47	T-14 P-3	T-14	T-8	T-5		T-6 P-1	12	
		Grand Total		189							



Format-2

HMTU-NEP Implementation: Exit Points

Programme	Year	Semester (15 weeks)	Paper	Credit	Periods per Week	Periods (Hours) per Semester	Paper Title	Unit (Periods per semester)	Prerequisite	Elective (For other faculty)
CERTIFICATE COURSES	FIRST YEAR	SEMESTER -I	i) C1(Th.4 Cr.+ P2 Cr)	6	8	96	FUNDAMENTALS OF FOOD PRODUCTION + FUNDAMENTALS OF FOOD PRODUCTION LAB	4		
			C2 (Th.4 Cr.+ P1 Cr)	5	6	72	FUNDAMENTALS OF FOOD AND BEVERAGE SERVICE + FUNDAMENTALS OF FOOD AND BEVERAGE SERVICE LAB	4		
			C3 (Th.2 Cr.+ P1 Cr)	3	4	48	FUNDAMENTALS OF ACCOMMODATION OPERATIONS + FUNDAMENTALS OF ACCOMMODATION OPERATIONS LAB	4		
			ii) AECC-2 (Th.3 Cr)	2	2	24	FUNDAMENTALS OF FRENCH	5		
			iii) SEC (Th.2 Cr + P1 Cr)	2	2	24	FUNDAMENTALS OF COMPUTERS + FUNDAMENTALS OF COMPUTERS LAB	4		
			iv) DSE-1 (Th.2 Cr+ P1 Cr)	3	4	48	LARDER-1/F&B SERVICE-1/FUNDAMENTALS OF FRONT OFFICE + BAKERY & CONFECTIONARY LAB-I/F&B SERVICE LAB-1/FUNDAMENTALS OF FRONT OFFICE LAB-1	4		
			Sports, Spiritual	NC	1	15	NC			
			Research project/ Industry Training/ Internship Survey							

SEMESTER - II	V) C4(Th.4 Cr.+ P2 Cr)	6	8	96	FOOD PRODUCTION + FOOD PRODUCTION LAB	4		
	C5(Th.4 Cr.+ P1 Cr)	5	6	72	FOOD AND BEVERAGE SERVICE + FOOD AND BEVERAGE SERVICE LAB	5		
	C6 (Th.2 Cr.+ P1 Cr)	3	4	48	ACCOMMODATION OPERATIONS + ACCOMMODATION OPERATIONS LAB	4		
	ii) AECC-2 (Th.3 Cr)	3	3	36	ENVIRONMENT & ECOLOGY	5		
	iii) SEC-2 (Th.2 Cr)	2	2	24	Fundamentals of German	2		
	iv) DSE-2 (Th.2 Cr+ P1 Cr)	3	4	48	LARDER-II/F&B SERVICE-II/ FRONT OFFICE-II + BAKERY & CONFECTIONARY LAB-II/F&B SERVICE LAB-II/ OFFICE LAB-II	4		
	v) VAC-1 (Th. 2 Cr)	2	2	24	Moocs/ NPTEL	2		
	Sports, Spiritual	1	1	15	Sports	1		
	Research project/ Industry Training/ Internship Survey							

Programme Outcome:

PO1: Apply the in-depth knowledge of hotel, hospitality and tourism industry, and a core area specialization to the solution of complex hotel management problems.

PO2: Understand the impact of the hotel, hospitality and tourism in society at local, regional, national, international level and environmental contexts, and demonstrate the knowledge of need for sustainable development.

PO3: Recognise the need for lifelong learning, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

PO4: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Apply ethical & value-based principles and commit to professional ethics and responsibilities and norms of the management practice

PO6: Students get skill through practical and enable them to get an opportunity to become an entrepreneur. They develop their ability to manage the professional approach in preparation, presentation as well as service of quality food

Programme Specific Outcome:

PSO1: Understand and demonstrate the core technical, analytical, and conceptual skills appropriate for hospitality industry.

PSO2: Understand and demonstrate the core technical, analytical, and conceptual skills appropriate for hospitality.

PSO3: Demonstrate an ability to manage the professional preparation, presentation, and service of quality food.

PSO4: Apply the knowledge gained to manage and evaluate functional systems in hospitality and lodging operations.

PSO5: Demonstrate clear understanding and necessity of professional and ethical & environmental responsibilities in all aspects of conduct.

Programme	Year	Semester (15 weeks)	Paper	Credit	Periods per Week	Periods (Hours) per Semester	Paper Title	Unit (Periods per semester)	Prerequisite	Elective (For other faculty)
DIPLOMA COURSE (92 Credits)	SECOND YEAR	SEMESTER - III	i) C7 (Th. 4 Cr. + P 2Cr.)	6	8	96	FOOD PRODUCTION-I + FOOD PRODUCTION LAB-I	4		
			C8 (Th 4 Cr + P 1 Cr)	5	6	72	FOOD AND BEVERAGE SERVICE–I + FOOD AND BEVERAGE SERVICE LAB-I	4		
			C9 (Th 2 Cr + P 1 Cr)	3	4	48	ACCOMMODATION OPERATION-I + ACCOMMODATION OPERATION LAB-I	4		
			C10(Th 2 Cr +P 1 Cr)	3	4	48	FRONT OFFICE –I + FRONT OFFICE LAB-I	4		
			C11 (Th.2 Cr)	3	4	48	HOTEL ENGINEERING	4		
			ii) AECC-3 (Th.3 Cr)	3	3	36	HUMAN VALUES & PROFESSIONAL ETHICS	4		
			iii) DSE-3 (Th 4 Cr)	4	3	36	MANAGEMENT / SPA MANAGEMENT	4		
			iv) VAC-2 (Th 2 Cr)	2	2	24	Moocs/ Nptel	2		
			SEMESTER -IV	Industrial Training	15					
		Programme Outcome: PO1: Apply the in-depth knowledge of hotel, hospitality and tourism industry, and a core area specialization to the solution of complex hotel management problems. PO2: Understand the impact of the hotel, hospitality and tourism in society at local, regional, national, international level and environmental contexts, and demonstrate the knowledge of need for sustainable development. PO3: Recognize the need for lifelong learning, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change. PO4: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. PO5: Apply ethical & value-based principles and commit to professional ethics and responsibilities and norms of the management practice PO6: Students get skill through practical and enable them to get an opportunity to become an entrepreneur. They develop their ability to manage the professional approach in preparation,						Programme Specific Outcome: PSO1: Understand and demonstrate the core technical, analytical, and conceptual skills appropriate for hospitality industry. PSO2: Understand and demonstrate the core technical, analytical, and conceptual skills appropriate for hospitality. PSO3: Demonstrate an ability to manage the professional preparation, presentation, and service of quality food. PSO4: Apply the knowledge gained to manage and evaluate functional systems in hospitality and lodging operations. PSO5: Demonstrate clear understanding and necessity of professional and ethical & environmental responsibilities in all aspects of conduct.		

presentation as well as service of quality food

Programme	Year	Semester (15 weeks)	Paper	Credit	Periods per Week	Periods (Hours) per Semester	Paper Title	Unit (Periods per semester)	Prerequisite	Elective (For other faculty)
UNDER GRADUATE DEGREE (132 Credits)	THIRD YEAR	SEMESTER -V	i) C12 (Th. 4 Cr.) + P10 (P.2 Cr.)	6	8	96	FOOD PRODUCTION-II + FOOD PRODUCTION LAB II	4		
			C13 (Th.4 Cr) + P11 (P 1 Cr)	5	6	72	FOOD & BEVERAGE SERVICE-II + FOOD & BEVERAGE SERVICE LAB-II	4		
			C14 (Th.2 Cr)+P12(P 1 Cr)	3	5	60	ACCOMMODATION OPERATION-II + ACCOMMODATION OPERATION LAB-II	4		
			C15 (Th.2 Cr)+P12(P 1 Cr)				Front Office-II + Front Office LAB II	4		
			ii) DSE-5(Th-2+P1 Cr)	2	2	24	INDIAN REGIONAL CUISINE/ BAKERY SCIENCE + INDIAN REGIONAL CUISINE LAB/ BAKERY SCIENCE LAB	3		
				3	5	60				
			iv) AECC-4(Th-3)				TOURISM ENTREPRENEURSHIP	4		
			v) SEC-3 (Th 2 Cr)	3	3	36	FAST FOOD CHAIN MANAGEMENT / FOOD SAFETY AND HACCP			
				2	2	24				
			*Research project/ Industry Training/ Internship Survey							

SEMESTER - VI	i) C15 (Th. 4 Cr. + P 2Cr.)	6	8	96	Food Production-III + Food Production LAB-III	4		
	C16 (Th.4Cr + P1 Cr)	5	6	72	Food & Beverage-III + Food & Beverage LAB-III	4		
	C17 (Th-2Cr+P1Cr)	3	4	48	Accommodation operation-III + Accommodation operation LAB-III	4		
	C18 (Th-2Cr+P1Cr)	2	2	24	Front Office-III/ Front Office LAB-III	4		
	ii) DSE-5 (Th.2 Cr)	3	3	36	TOURISM & HOTEL ECONOMICSS/ FUNDAMENTALS OF HOSPITALITY ACCOUNTING APPLICATION OF COMPUTERS & CYBER LAW	4		
	iii) AECC-5(Th.3Cr)	3	3	36	General Elective Moocs/Nptel	4		
	GE-2	2	2	24				
	SEC-3 (Th 2 Cr)	2	2	24				
	*Research project/ Industry Training/ Internship Survey							

Programme Outcome: PO1: Apply the in-depth knowledge of hotel, hospitality and tourism industry, and a core area specialization to the solution of complex hotel management problems. PO2: Understand the impact of the hotel, hospitality and tourism in society at local, regional, national, international level and environmental contexts, and demonstrate the knowledge of need for sustainable development. PO3: Recognize the need for lifelong learning, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change. PO4: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. PO5: Apply ethical & value-based principles and commit to professional ethics and responsibilities and norms of the management practice. PO6: Students get skill through practical and enable them to get an opportunity to become an entrepreneur. They develop their ability to manage the professional approach in preparation, presentation as well as service of quality food Note: Correlation between CO/PO/PSO3 are to be established by bloom taxonomy:	Programme Specific Outcome: PSO1: Understand and demonstrate the core technical, analytical, and conceptual skills appropriate for hospitality industry. PSO2: Understand and demonstrate the core technical, analytical, and conceptual skills appropriate for hospitality. PSO3: Demonstrate an ability to manage the professional preparation, presentation, and service of quality food. PSO4: Apply the knowledge gained to manage and evaluate functional systems in hospitality and lodging operations. PSO5: Demonstrate clear understanding and necessity of professional and ethical & environmental responsibilities in all aspects of conduct.

Programme	Year	Semester (15 weeks)	Paper	Credit	Periods per Week	Periods (Hours) per Semester	Paper Title	Unit (Periods per semester)	Prerequisite	Elective (For other faculty)
UNDER GRADUATE DEGREE (R) (184 Credits)	FOURTH YEAR	SEMESTER -VII	i) C16 (Th.4Cr)+P16 (P.2Cr)	6	8	96	Food Production-IV+ Food Production LAB-IV	4		
			C17 (Th.4Cr)+P17(P.1 Cr)	5	6	72	Food & beverage Service-IV+ Food & beverage Service LAB-IV	4		
			C18 (Th.2 Cr)+P18(P.1 Cr)	3	4	48	Accommodation Operations-IV+ Accommodation Operations LAB-IV	4		
			C19 (Th.2 Cr)+P19(P.1 Cr)	2	2	24	Front Office IV + Front Office Lab-IV	4		
			ii) SEC-6 (Th.2 Cr)	2	2	24	MOOCS/NPTEL	4		
			iii) DSE-5 (Th.2 Cr)	3	4	48	Total Quality Management/ Event Management HOSPITALITY SALES	4		
			VAC-4 (Th. 2 Cr + P 1 Cr)	2	2	24				
			*Research project/ Industry Training/ Internship Survey	6	8	96	DISSERTATION			
		SEMESTER - VIII	C24 ((Th.4Cr+P2Cr)	6	8	96	Food production-V	4		
			C25 (Th.4Cr+P1 Cr)	5	6	72	FOOD AND BEVERAGE SERVICE MANAGEMENT	4		
			C26 (Th.2 Cr+P 1 Cr)	3	4	48	MANAGEMENT INFORMATION SYSTEM	4		
			C27 (Th.2 Cr+ P 1 Cr)	3	4	48	ACCOMMODATION MANAGEMENT	4		
			SEC-7(Th.2Cr)	2	2	24	RESEARCH METHODOLOGY	4		
			DSE-6 (Th.2 Cr)	2	2	24	ADVENTURE TOURISM/ Rural Tourism	4		
			AECC-6 (Th.3 Cr)	3	3	36	PERSONALITY DEVELOPMENT	4		

			*Research project/ Industry Training/ Internship Survey	6	8	96	RESEARCH PROJECT	6		
*Dissertation report will be evaluated by external & internal examiners & Research topic may be selected from the main core paper										

Programme Outcome: PO1: Apply the in-depth knowledge of hotel, hospitality and tourism industry, and a core area specialization to the solution of complex hotel management problems. PO2: Understand the impact of the hotel, hospitality and tourism in society at local, regional, national, international level and environmental contexts, and demonstrate the knowledge of need for sustainable development. PO3: Recognize the need for lifelong learning, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change. PO4: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. PO5: Apply ethical & value-based principles and commit to professional ethics and responsibilities and norms of the management practice. PO6: Students get skill through practical and enable them to get an opportunity to become an entrepreneur. They develop their ability to manage the professional approach in preparation, presentation as well as service of quality food	Programme Specific Outcome: PSO1: Understand and demonstrate the core technical, analytical, and conceptual skills appropriate for hospitality industry. PSO2: Understand and demonstrate the core technical, analytical, and conceptual skills appropriate for hospitality. PSO3: Demonstrate an ability to manage the professional preparation, presentation, and service of quality food. PSO4: Apply the knowledge gained to manage and evaluate functional systems in hospitality and lodging operations. PSO5: Demonstrate clear understanding and necessity of professional and ethical & environmental responsibilities in all aspects of conduct.

Format-3

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 4		Subject: FUNDAMENTALS OF FOOD PRODUCTION
Theory: 4		
Practical: 0		
Course Code: RHM-111		Title: FUNDAMENTALS OF FOOD PRODUCTION
Course Objectives: The students will get knowledge about:- 1. History of cooking, Culinary History & Hierarchy of Kitchen department 2. Various methods of cooking food and types of sauces 3. Basic principles of food production: Vegetable, Stocks & soups 4. Commodities: Fats & oils, raising agents and thickening agents		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	INTRODUCTION TO COOKERY: Levels of skills and experiences, Attitudes and behaviour in the kitchen, Personal hygiene in kitchen, Cleaning and up keep of working area, Various uniforms & protective clothing, Importance and use of safety procedure in handling equipment CULINARY HISTORY: Origin of modern cookery HIERARCHY OF KITCHEN: Classical Brigade, modern staffing of kitchen personnel in various category hotels Roles and duties of executive chef, Duties and responsibilities of various chefs, Co-operation with other departments. AIMS & OBJECTS OF COOKING FOOD: Aims and objectives of cooking food, Techniques used in pre-preparation of food, Techniques used in preparation of food	15
II	METHODS OF COOKING FOOD: Principles of: Grilling, Roasting, Frying, Broiling, Poaching, Boiling, Baking, Care and precautions to be taken, Selection of food for each type of cooking SAUCES: Classification of sauces, Recipes for mother sauces and their derivatives, Storage & precautions while making sauces	10
III	BASIC PRINCIPLES OF FOOD PRODUCTION VEGETABLE COOKERY: Introduction – classification of vegetables, Cuts of vegetables, Classification of fruits, Uses of fruits & vegetables in cookery STOCKS: Definition of stock, Types of stock, Preparation of various	10

	stocks, Recipes of various stocks , Storage of stocks, Uses of stocks, Care and precautions to be taken while preparing stocks. SOUPS: Classification with examples, Basic recipes of Consommé with 10 Garnishes	
IV	COMMODITIES: Shortenings (Fats & Oils) Role of Shortenings, Varieties of Shortenings, Advantages and Disadvantages of using various, Shortenings, Fats & Oil – Types, varieties Raising Agents Classification of Raising Agents, Role of Raising Agents Actions and Reactions Thickening Agents: Classification of thickening agents B. Role of Thickening agents Eggs- uses of eggs in cooking, characteristics of fresh eggs, deterioration of eggs, storage of Eggs.	10
REFERENCE BOOKS: 1. Theory of Cookery- K. Arora 2. The Art of Culinary Preparations 3. Modern Cookery :Thangam E Phillip Vol-1 & Vol-2		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/ Sessional Examination		15
2) Presentations /Seminar		5
3) Assignments		5
4) Research Project Report/ Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcomes: CO1: Students will be able to demonstrate essential skills and knowledge in cookery, including proper personal hygiene practices CO2: Interpret of the culinary history and the origin of modern cookery; comprehend the hierarchy of kitchen personnel in various categories of hotels. CO3: Recognize the roles and responsibilities of kitchen staff along with the importance of effective cooperation with other departments CO4: Students will be able to proficiently utilize different cooking methods and classify the mother sauces CO5: Classify and utilize vegetables, fruits and eggs in cookery, prepare various stocks, egg dishes and demonstrate knowledge of soup & Consommé CO6: Identify and evaluate different shortenings, fats, and oils, classification and role of raising agents, thickening agents.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 4		Subject: FUNDAMENTALS OF FOOD AND BEVERAGE SERVICE
Theory: 4		
Practical: 0		
Course Code: RHM-112		Title: FUNDAMENTALS OF FOOD AND BEVERAGE SERVICE
Course Objectives: The Student will get knowledge about: 1) Introduction and growth of hospitality in India and types of catering, Departmental Organization and attributes of a waiter. 2) Familiarization & Selection of various equipment’s used in service 3) Various F&B Outlets and ancillary departments 4) Different non-alcoholic beverages with their preparation and services.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 Credits T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	THE HOTEL & CATERING INDUSTRY Introduction to the Hotel Industry and its growth in India. Role of various Catering establishments in the travel/tourism industry. Types of F&B operations Classification of catering: Residential & Non-residential, Commercial, Welfare Catering - Industrial/Institutional and Transport catering such as air, road, rail, sea, etc. DEPARTMENTAL ORGANISATION & STAFFING Organisation structure of F&B department of 5 star hotel, Key staff of various types of F&B operations, French terms related to F&B staff, Duties & responsibilities of F&B staff, Attributes of a waiter Personal hygiene, Grooming of F & B staff, Inter-departmental relationships	15
II	F & B SERVICE EQUIPMENT and THEIR USES Familiarization & Selection factors of: Crockery, Cutlery, Hollowware, Flatware, Glassware, All other equipment used in F&B Service	10
III	FOOD SERVICE AREAS (F & B OUTLETS) Coffee Shop, Fast Food (Quick Service Restaurants), Specialty Restaurants, Cafeteria, Grill Room, Bar, Vending Machines, Discotheque, Banquets, Kiosks, IRD etc. ANCILLIARY DEPARTMENTS F&B Store, Pantry, Linen room, Food pick-up area, Kitchen stewarding (KST)	10

IV	NON-ALCOHOLIC BEVERAGES Classification (Nourishing, Stimulating and Refreshing beverages) Juices, Soft Drinks Mocktails Coffee –Its Origin & Manufacturing, Types of coffee & Brands Tea - its Origin & Manufacturing, Types of tea & its Brands Cocoa & Malted Beverages - Their origin & Manufacture	10
Reference / Text Books: 1. Food & beverage training manual-Sudhir Andrews 2. Food & Beverage Service – Singaravelavan 3. Food & Beverage Service – S N Bagchi 4. Food and beverage service- D.R. Liilicrap 5. Lexicon of Hospitality – Deepanshu Nitin		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/ Sessional Examination		15
2) Presentations /Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcomes: At the end of course the student will learn about:- CO1: Demonstrate a comprehensive understanding of the hotel industry and its growth in India. CO2: Review the significant role of different catering establishments in the travel/tourism industry CO3: Students will be able to illustrate and select suitable crockery, cutlery, and other F&B service equipment, while also recognizing the corresponding French terms CO4: Students will be able to identify and comprehend a wide range of food service areas in the F&B industry and their unique features CO5: Capable to manage and coordinate ancillary departments in F&B operations and interdepartmental coordination for efficient F&B service operations. CO6: Students will be able to classify and differentiate beverages and by understanding their origins.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree	Year: I	
Class: Hotel Management	Semester: I	
Credits: 2	Subject: FUNDAMENTALS OF ACCOMMODATION OPERATIONS	
Theory: 2		
Practical: 0		
Course Code: RHM-113	Title: FUNDAMENTALS OF ACCOMMODATION OPERATIONS	
Course Objectives: The students will get knowledge about: 1. Importance and Responsibility of Housekeeping department and its different sections and organization structure 2. Type of guest rooms with their sizes and facilities provided. 3. Procedure of cleaning different status of room. 4. Classification and selection criteria of cleaning equipment's and cleaning agent.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Housekeeping As A Department: Importance of housekeeping department. Responsibilities of housekeeping department and layout of housekeeping department. Different sections of Housekeeping departments. Organization Structure Of Housekeeping Department: Small hotels, Medium hotels, large hotels. Duties & responsibilities of Executive Housekeeping. Duties & responsibilities of various Housekeeping Staff.	
II	Interdepartmental Relationship- a. With Front Office b. With Maintenance c. With Security d. With Stores e. With Accounts f. With personnel Use of Computer in Housekeeping department	5
III	Cleaning Organization Principles of cleaning, Method of organizing cleaning, Frequency of cleaning daily, periodic and special. Design features that simplify cleaning.	5
IV	Cleaning equipment: General considerations & selections, Classification & Types of equipments,	

	Floor trolley, Vacuum Cleaner etc. Method of use & mechanism for each type, Care & maintenance. Cleaning agents: General criteria for selection, Classification.	10
Reference books: 1. Sudhir Andrews: Hotel Housekeeping 2. Joan C. Branson: Hotel, Hostel & Hospital Housekeeping 3. Georgira Tucker: The Professional Housekeeper 4. Rose Mary & Heinemann: Housekeeping Management for Hotels 5. Devid Allen, Hutchinson: Accommodation & Cleaning Services 6. G. Raghubalan – Hotel Housekeeping		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/ Sessional Examination		10
2) Presentations /Seminar		2
3) Assignments		3
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: At the end of course the student will learn about: CO1: Discuss the importance and responsibilities of the Housekeeping department in a hospitality organization. CO2: Familiarize with the different sections and organizational structure of the Housekeeping department. CO3: Identify and describe the types of guest rooms and their facilities CO4: Recognize the cleaning procedures for different room statuses. CO5: Illustrate the classification and selection criteria of cleaning equipment and agents. CO6: Build practical knowledge to maintain cleanliness, hygiene, and guest satisfaction in the Housekeeping department.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 2		Subject: LARDER-I
Theory: 2		
Practical: 0		
Course Code: RHM 114A		Title: LARDER-I
Course Objectives: The students will get knowledge about:- 1. Staff organization & Layout of Larder Department 2. Maintenance & care of Larder Equipment's 3. Classification of Hors d'oeuvre and salad 4. Various types of forcemeat and Carving		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credit		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Organization and Layout of Larder department. Functions of Larder department. Duties and responsibilities of Larder hierarchy.	10
II	Larder control Maintenance & upkeep of larder equipment and supplies, Cleaning and care of Larder equipment.	5
III	Introduction and classification of Hors d'oeuvre and salads. Uses and examples of Hors d'oeuvre and salads	5
IV	Forcemeat- Introduction, Types and uses. Sausages- Introduction, Types and uses.	10
Reference / Text Books: Reference books: 1. Cold Kitchen –DD Sharma 2. Theory of catering- Ronald Kinton		
If the course is available as Generic Elective then the students of following departments may opt it. 1. Anyone can opt		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		2
3) Assignments		3
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50

Prerequisites for the course:

Course Learning Outcomes:

At the end of course the student will learn about:

CO1: Summarize the organization and layout of the Larder Department, including staff roles and workstation setup

CO2: Express proper maintenance and care techniques for larder equipment.

CO3: Classify and identify different types of Hors d'oeuvre, salads, forcemeat, and carving techniques.

CO4: Develop practical skills in preparing and presenting Hors d'oeuvre, salads, forcemeat, and carving.

CO5: Recognize the importance of attention to detail and creativity in the Larder Department's operations.

CO6: Invent a comprehensive understanding of the significance of the Larder Department in a professional kitchen environment.

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 2		Subject: Food &Beverage Service- I
Theory: 2		
Practical: 0		
Course Code: RHM-114B		Title: Food &Beverage Service- I
Course Objectives: The students will get knowledge about: 1. Various methods of KOT flow system and order taking 2. Various type of Breakfast 3. Buffet layout and toasting procedure 4. Room service operations and bar operations		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credit		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Simple methods of restaurant sales, controls - K.O.T. flow and billing. Computerized order taking and billing	10
II	Breakfast - English, American, Continental and Indian Breakfast (laying & service). Ice creams/Sundaes! Shakes Different types and their service.	5
III	Knowledge – Buffet, Layout, Display & Service Banquets, inquiry forms, sitting space, seating arrangements, service formalities, toast procedures.	5
IV	Room Service – Centralized and decentralized, Types of dishes served in room service ,Night Menu , Room service of breakfast, snacks, lunch, dinner, Beverages alcoholic or non-alcoholic, Room Service flow chart.	10
Reference / Text Books: 1. Food and beverage service- Singarabelavan 2. Food and beverage service- Lily crap		
If the course is available as Generic Elective then the students of following departments may opt it. 1.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		2
3) Assignments		3
4) Research Project Report Seminar On Research Project Report		-

5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: At the end of course the student will be able to: CO1: Understand different methods of KOT flow and order taking. CO2: Identify various types of breakfast offerings. CO3: Learn buffet layout and toasting procedures. CO4: Gain knowledge of room service and bar operations. CO5: Develop practical skills in managing KOT flow, breakfast preparation, buffet setup, and room service and bar operations. CO6: Enhance understanding of efficient and personalized service in the hospitality industry.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 2		Subject: FUNDAMENTALS OF FRONT OFFICE OPERATIONS
Theory: 2		
Practical: 0		
Course Code: RHM-114C		Title: FUNDAMENTALS OF FRONT OFFICE OPERATIONS
Course Objectives: The students will get knowledge about: 1. Introduction to Tourism, Hospitality and Hotel Industry and its Evolution. 2. Classification of Hotels. 3. Types of rooms, food plan, Tariff and room rent. 4. Front Office Organization. 5. Basic Terminologies of front office.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credit		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	INTRODUCTION TO TOURISM, HOSPITALITY & HOTEL INDUSTRY Tourism and its importance, Hospitality and its origin Hotels, their evolution and growth	5
II	CLASSIFICATION OF HOTELS Size, Star, Location & clientele, Ownership, basis, Independent hotels Management contracted hotel, Chains, Franchise/Affiliated, Supplementary accommodation Time shares and condominium	10
III	TELECOMMUNICATIONS Equipment's, procedure, hierarchy, roles and responsibilities, operator, telephonic queries Communicating with various sections: verbal, written & verbal, Interdepartmental Coordination with other departments: Housekeeping, Engineering and Maintenance, Revenue Centers, Marketing and Public Relations, Communications: Log Book, Information Directory, Mail and Package Handling, Telephone Services	5
IV	FRONT OFFICE ORGANIZATION Brief Introduction to hotel core area with a special reference to Front office. Function areas, Front office hierarchy, Duties and responsibilities, Personality traits, Layout Job specifications, job description, front office manager, duty manager and Guest Relations Executive	10

Reference / Text Books:

REFERENCE BOOKS

1. Hotel Front Office Management – James. A. Bardi
2. Front Office Management – S.K. Bhatnagar

If the course is available as Generic Elective then the students of following departments may opt it.
1.

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	2
3) Assignments	3
4) Research Project Seminar On Research Project Report	-
5) ESE	35
Total:	50

Prerequisites for the course:

Course Learning Outcomes:

At the end of course the student will be able to:

- CO1: Contrast the tourism, hospitality, and hotel industry and its evolution.
 CO2: Identify and classify hotels based on their characteristics.
 CO3: Categorize about different room types, food plans, tariffs, and rates.
 CO4: Design the organization and structure of the front office department.
 CO5: Identify with basic front office terminologies.
 CO6: Develop practical skills in front office procedures and customer service.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 2		Subject: FUNDAMENTALS OF COMPUTERS
Theory: 2		
Practical: 0		
Course Code: SEC-RHM-111		Title: FUNDAMENTALS OF COMPUTERS
Course Objectives: 1. Computer components and classification, Generation of Computers. 2. Concept and user interface of operating systems 3. Basics of Office suite 4. Basics of computer network and applications of internet		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 40% Marks / 1 Credit		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Knowing computer: What is Computer, Basic Applications of Computer; Components of Computer System, Classification of Computers, Generation of Computers, Central Processing Unit (CPU), Keyboard and Mouse, Other input/output Devices, Computer Memory, Concepts of Hardware and Software; Connecting keyboard, mouse, monitor and printer to CPU and checking power supply.	5
II	Operating Computer using GUI Based Operating System: What is an Operating System; Basics of Popular Operating Systems; The User Interface, Using Mouse; Using right Button of the Mouse and Moving Icons on the screen, Use of Common Icons, Status Bar, Using Menu and Menu-selection, Running an Application, Viewing of File, Folders and Directories, Creating and Renaming of files and folders, Opening and closing of different Windows; Using help; Creating Short cuts, Basics of O.S Setup; Common utilities	5
III	Understanding Word Processing: Word Processing Basics; Opening and Closing of documents; Text creation and Manipulation; Formatting of text; Table handling; Spell check, language setting and thesaurus; Printing of word document. Creating various labels and brochures Using Spread Sheet: Basics of Spreadsheet; Manipulation of cells; Formulas and Functions; Editing of Spread Sheet, formatting of content, creation of table and charts, Printing of Spread Sheet. Use of Pivot table Making Small Presentation: Basics of presentation software; Creating Presentation; Preparation and Presentation of Slides; Slide Show; Taking printouts of presentation / handouts. Inserting tables and charts in slide.	15

IV	Introduction to Internet , WWW and Web Browsers: Basic of Computer networks; LAN, WAN; Concept of Internet; Applications of Internet; connecting to internet; What is ISP; Knowing the Internet; Basics of internet connectivity related troubleshooting, Web Browsing software, Search Engines; Understanding URL; Domain name; IP Address; Using e-governance website	5
Reference / Text Books: • Management Information Systems, Effy Oz. • The Complete Reference 200. • Computer Fundamentals Goel, Anita Pearson • Computer Fundamentals: Concepts, Systems & Applications Sinha, P. K/ Sinha, P. 3rd ed BPB		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		2
3) Assignments		3
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: CO1: Demonstrate computer components, their classification, and the evolution of computers. CO2: Discuss with operating systems and their user interfaces. CO3: Develop proficiency in using office suite software. CO4: Generate a basic understanding of computer networks and internet applications. CO5: Apply knowledge to effectively utilize computer systems for various tasks. CO6: Assess common computer issues and perform basic maintenance tasks.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate		Year: I
Class: Hotel Management		Semester: I
Credits: 2		Subject: FUNDAMENTALS OF FRENCH
Theory: 2		
Practical: 0		
Course Code: NHU-111F		Title: FUNDAMENTALS OF FRENCH
Course Objectives: The students will get knowledge about:- 1. Letter, Numbers, Months and Weeks in French 2. Knowledge of verbs and how to make sentences 3. How to converse in French		
Nature of Paper: AECC-2		
Minimum Passing Marks/Credits: 40%Marks / 1 Credit		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Pronunciation - The Alphabet - The Accents; ‘Formulas de politesse’; The numbers: Cardinal– Ordinal; Time (only 24hr clock); Weights & Measures; The subjective pronouns; Auxiliary verbs: etre and avoir	10
II	Self-introduction; presenting and introducing other person; Name of vegetables and fruits; Conjugation of first group of verbs; Days of the week; Months of the year; Date; The definite and indefinite articles	10
III	Name of the Countries and their Nationalities; Conjugation of second group of verbs; Adjectives of place; Preposition of place; Describing a place (your city/ tourist place)	10
IV	Vocabulary describing family; Describe your family; Name of dairy products and Cereals; Negation; Conjugation of irregular verbs: venir, aller; Demonstrative Adjectives, Simple translation	10
REFERENCE BOOKS: 1. G Mauger Blue - Cours de Langue et de Civilization Francaise 1 with Cd (Lecon 1-14) (French) (Prescribed book) 2. Larousse compact Dictionary: French-English/ English-French 3. Conjugaison - Le Robert & Nathan 4. Larousse French Grammar 5. Grammaire Collection "Le Nouvel Entraenezvous" level debutant 6. Parlez à l’hotel by A. Talukdar 7. A Votre Service 1 8. French for Hotel and Torism Industry by S. Bhattacharya		

9. Basic French Course for The Hotel Industry by Catherine Lobo & Sonali Jadhav	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: CO1: Identify & use French Alphabet, numbers, time & auxiliary verbs CO2: Read & Recite basic French introduction, fruits, vegetables & 1st group French verbs. CO3: Describe places, Use adjectives & 2 nd group verbs. CO4: Constructs negative sentences & use irregular verbs.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: NC		Subject: Industrial Visit/Seminar/Presentation On The Report
Theory: NC		
Practical: NC		
Course Code: NECC-111		Title: Industrial Visit/Seminar/Presentation On The Report
Course Objectives:		
To get industrial exposure		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS HAVE TO GIVE A PRESENTATION ON THEIR OBSERVATIONS DURING THEIR INDUSTRIAL VISITS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		25
2) Presentations/Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
STUDENTS HAVE TO GIVE A PRESENTATION ON THEIR OBSERVATIONS DURING THEIR INDUSTRIAL VISITS.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I	
Class: Hotel Management		Semester: I	
Credits: NC		Subject: University Social Responsibilities–Community Outreach	
Theory: NC			
Practical: NC			
Course Code: NECC-112		Title: University Social Responsibilities–Community Outreach	
Course Objectives:			
To develop intention of giving back to society			
Nature of Paper: NECC			
Minimum Passing Marks/Credits: NC			
L: 2			
T: 0			
P: 0 (In Hours/Week)			
Theory - 1 Hr. = 1 Credit			
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)			
Unit	Contents		No. of Lectures Allotted
I	THIS ACTIVITY IS AN ESSENTIAL PART OF THE CURRICULAM WHICH BELIEVES THAT WHAN WE ARE TAKING FROM THE SOCIETY THEN IT IS OUR MORAL DUTY TO GIVE SOMETHING BACK TO THE SOCIETY. IT ALSO DEVELOPS HABIT OF HELPING OTHERS IN THE STUDENTS.		
Reference / Text Books:			
If the course is available as Generic Elective then the students of following departments may opt it. NIL			
Evaluation/Assessment Methodology			
			Max. Marks
1) Class tasks/Sessional Examination			-
2) Presentations/Seminar			25
3) Assignments			-
4) Research Project Report Seminar On Research Project Report			-
5) ESE			-
Total:			25
Prerequisites for the course:			
Course Learning Outcomes:			
To develop moral values in students			

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: NC		Subject: Sanskrit / Spiritual
Theory: NC		
Practical: NC		
Course Code: MV-111		Title: Sanskrit / Spiritual
Course Objectives:		
To teach Sanskrit to students		
Nature of Paper: MV		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE TAUGHT THE BASICS OF SANSKRIT / SPIRITUAL TEACHING FROM BHAGWAT GEETA. THE MAIN MOTIVE OF THIS COURSE IS TO DEVELOP MORAL VALUES IN STUDENTS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
TO DEVELOP MORAL VALUES IN STUDENTS.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: NC		Subject: Sports
Theory: NC		
Practical: NC		
Course Code: SPT-111		Title: Sports
Course Objectives: To engage students in sports		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE ENCOURAGED TO PLAY VARIOUS GAMES OF THEIR CHOICE WHETHER INDOOR OR OUTDOOR. LIKE; CARROM, CHESS, TABLE TENNIS, FOOTBALL, BASKETBALL ETC.	
Reference / Text Books: Nil		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: Students can play various games		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree	Year: I	
Class: Hotel Management	Semester: I	
Credits: 2	Subject: FUNDAMENTALS OF FOOD PRODUCTION LAB	
Theory: 0		
Practical: 2		
Course Code: RHM –111P	Title: FUNDAMENTALS OF FOOD PRODUCTION LAB	
Course Objectives: The student will get knowledge about: 1. Identification of various kitchen equipment. 2. Classification and various vegetable cuts. 3. Preparation of various kind of stock and Identification of cooking ingredients 4. Basic cooking techniques. 5. Preparation of Mother Sauces. 6. Bread Making.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credit		
L: 0 T: 0 P: 4 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	- Equipments - Identification, Description, Uses & handling - Hygiene - Kitchen etiquettes, Practices & knife handling - Safety and security in kitchen	
II	- Vegetables - classification - Cuts - julienne, jardinière, Macedonia’s, brunoise, payssane, mignonnete, dices, cubes, shred, mirepoix - Preparation of salad dressings	5
III	Identification and Selection of Ingredients - Qualitative and quantitative measures – Market Surveys - Stocks - Types of stocks (White and Brown stock) - Fish stock	5
IV	- Basic Cooking methods and pre-preparations - Blanching of Tomatoes and Capsicum - Preparation of concasse - Boiling (potatoes, Beans, Cauliflower, etc) - Frying - (deep frying, shallow frying, sautéing) - Aubergines, Potatoes, etc. - Braising - Onions, Leeks, Cabbage - Starch cooking (Rice, Pasta, Potatoes)	5

V	SAUCES -Basic mother sauces Béchamel, Espagnole, Veloute, Hollandaise, Mayonnaise, Tomato Preparation of various egg dishes like scrambled, sunny side up, omelette etc.	5
VI	BREAD MAKING Demonstration & Preparation of Simple and enriched bread recipes, Bread Loaf (White and Brown), Bread Rolls (Various shapes), French Bread, Brioche	5
Reference / Text Books: Theory of Cookery, the Art of Culinary Preparations		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		10
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		30
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: By the end of this course student would be able to:- CO1: Identify and utilize the various kitchen equipment effectively. CO2: Classify and execute different vegetable cuts with precision. CO3: Prepare a variety of stocks and identify cooking ingredients accurately. CO4: Apply basic cooking techniques to achieve desired results. CO5: Design and utilize mother sauces in culinary preparations. CO6: Develop skills in bread making for producing quality bread products.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 1		Subject: Fundamentals Of Food And Beverage Service Lab-I
Theory: 0		
Practical: 1		
Course Code: RHM-112P		Title: Fundamentals Of Food And Beverage Service Lab-I
Course Objectives: The student will get knowledge about: 1) Various equipment used in restaurant service. 2) Various cleaning and polishing methods. 3) Basic service techniques.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credit		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Food Service areas – Induction & Profile of the areas Ancillary F&B Service areas – Induction & Profile of the areas Familiarization of F&B Service equipment Care & Maintenance of F&B Service equipment	3
II	Cleaning / polishing of EPNS items by: Plate Powder method, Polivit method, Silver Dip method, Burnishing Machine	2
III	Basic Technical Skills Task-1: Holding Service Spoon & Fork Task-2: Carrying a Tray / Salver Task-3: Laying a Table Cloth Task-4: Changing a Table Cloth during service Task-5: Placing meal plates & Clearing soiled plates Task-6: Stocking Sideboard Task-7: Service of Water Task-8: Using Service Plate & Crumbing Down Task-9: Napkin Folds Task-10: Changing dirty ashtray Task-11: Cleaning & polishing glassware	5
IV	Tea – Preparation & Service Coffee - Preparation & Service Juices & Soft Drinks - Preparation & Service, Mocktails Juices, Soft drinks, Mineral water, Tonic water Cocoa & Malted Beverages – Preparation & Service	5

Reference / Text Books:

1. Mastering restaurant service-H.L. craschnell and G Nobis
2. Food and beverage training manual-Sudhir Andrews
3. The waiter-fuller and curie
4. Food and beverage service-D.R. Liilicrap
5. Modern restaurant service –John fuller
6. Essential table service-John fuller

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	-
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	15
Total:	25

Prerequisites for the course:

Course Learning Outcomes:

By the end of this course student would be able to:-

CO1- Discuss the purpose and profile of food service and ancillary F&B service areas.

CO2- Review with F&B service equipment and learn proper care and maintenance techniques.

CO3- Develop proficiency in cleaning and polishing EPNS (Electroplated Nickel Silver) items using various methods.

CO4- Develop proficiency in basic technical skills essential for food and beverage service.

CO5- Determine comprehensive knowledge and skills in the preparation and service of tea.

CO6- Discuss the preparation techniques and service standards for juices, soft drinks, mineral water, and tonic water.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 1		Subject: FUNDAMENTALS OF ACCOMMODATION OPERATIONS LAB-I
Theory: 0		
Practical: 1		
Course Code: RHM-113P		Title: FUNDAMENTALS OF ACCOMMODATION OPERATIONS LAB-I
Course Objectives: The student will get knowledge about :- 1) Layout of various rooms. 2) Standard supplies and amenities in various rooms. 3) Care and maintenance of various surfaces.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Sample Layout of Guest Rooms Single room, Double room, Twin room, Suite	
II	Guest Room Supplies and Position. Standard room, Suite, VIP room special amenities, Cleaning Equipment-(manual and mechanical) Familiarization, Different parts, Function	3
III	Care and maintenance Cleaning Agent, Familiarization according to classification Function Public Area Cleaning (Cleaning Different Surface) A. WOOD Polished, Painted, Laminated B. SILVER/ EPNS Plate powder method, Polivit method, Proprietary solution (Silvo) C. BRASS D. Traditional/ domestic 1 Method, Proprietary solution 1 (brasso) E. GLASS Glass cleanser, Economical method(newspaper) F. FLOOR - Cleaning and polishing of different types Wooden, Marble, Terrazzo/ mosaic etc. G. WALL - care and maintenance of different types and parts Skirting, Dado Different types of paints(distemper Emulsion, oil paint etc.) Maid's trolley	10

	Trolley setup Familiarizing with different types of Rooms, facilities and surfaces, win/ double ,Suite Conference etc	
Reference / Text Books: 1. Sudhir Andrews: Hotel Housekeeping 2. Joan C. Branson: Hotel, Hostel & Hospital Housekeeping 3. Georgira Tucker: The Professional Housekeeper		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25
Prerequisites for the course: 0		
Course Learning Outcomes: By the end of this course student would be able to:- CO1- Understand room layout and design principles. CO2- Identify and provide standard supplies and amenities for different rooms. CO3- Develop skills in care and maintenance of various surfaces. CO4- Assess room arrangement and organization. CO5- Classify cleanliness and hygiene in guest rooms. CO6- Identify practical troubleshooting skills for common maintenance issues.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree	Year: I	
Class: Hotel Management	Semester: I	
Credits: 1	Subject: Fundamentals Of Computer Operations Lab-I	
Theory: 0		
Practical: 1		
Course Code: SEC-RHM-111P	Title: Fundamentals Of Computer Operations Lab-I	
Course Objectives: The student will get knowledge about: 1) Basic DOS Commands and customization of display. 2) Formatting of text in word processing. 3) Various elements of Spread Sheet. 4) Creating Power point Presentation.		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Basis DOS commands: Internal and External Changing system date and time, Changing display property, Changing mouse properties,	2
II	Word Processing Basics: Opening and closing Documents, Save and Save as, Page Setup, Document Creation, Editing Text, Cut, Copy and Paste, Font and Size selection, Alignment of Text, Paragraph Indenting, Changing case, Draw Table, Changing cell width and height, Alignment of Text in cell, Delete / Insertion of row and column	3
III	Elements of Electronic Spread Sheet: Opening of Spread Sheet, Addressing of Cells, Printing of Spread Sheet, Saving Workbooks, Entering Text, Numbers and Dates, Creating Text, Number and Date Series, Editing Worksheet Data, Inserting and Deleting Rows, Column, Changing Cell Height and Width, Using Formulas, Function, Formatting of content	5
IV	Using PowerPoint: Opening A Power Point Presentation, Creating a Presentation Using a Template, Creating a Blank Presentation, Entering and Editing Text, Inserting And Deleting Slides in a Presentation, Inserting Word Table or An Excel Worksheet, Adding Clip Art Pictures, Inserting Other Objects, Resizing and Scaling an Object, Viewing A Presentation, Choosing a Set Up for Presentation, Printing Slides And Handouts, Running a Slide Show, Transition and Slide Timings, Automating a Slide Show	5
Reference / Text Books:		

If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	-
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	15
Total:	25
Prerequisites for the course:	
Course Learning Outcomes: By the end of this course student would be able to: CO1- Use basic DOS commands and customize display settings efficiently. CO2- Generate text effectively in word processing. CO3- Understand and utilize spreadsheet elements. CO4- Create engaging PowerPoint presentations. CO5- Apply advanced formatting techniques in word processing. CO6- Demonstrate proficiency in creating dynamic spreadsheets.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 1		Subject: Bakery and Confectionary Lab-I
Theory: 0		
Practical: 1		
Course Code: RHM-114 AP		Title: Bakery and Confectionary Lab-I
Course Objectives: The student will get knowledge about:- 1) Basic Biscuit making techniques 2) Knowledge of basic breads 3) Knowledge of Basic Sponges and Cakes		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Simple Cookies: Melting Moments, Tri colour cookies, Choco chip cookies, Coconut cookies etc.	5
II	Simple breads: Sweet bun, Cheese Bun etc. Cakes: Fruit cake , Swiss Roll etc.	10
Reference / Text Books: 1. Theory of Cookery- K.Arora 2. The Art of Culinary Preparations 3. Modern Cookery :Thangam E Phillip Vol-1 & Vol-2		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report / Seminar On Research Project Report		-
5) ESE		15
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: By the end of this course student would be able to:- CO1- Understand the making process of cookies CO2- Demonstrate various types of cookies CO3- Understand the making process of various types of breads and buns CO4- Demonstrate various types of cakes		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 1		Subject: Food & Beverage Service–II LAB
Theory: 0		
Practical: 1		
Course Code: RHM-114 BP		Title: Food & Beverage Service–II LAB
Course Objectives: The student will get knowledge about: 1) How to serve various special dishes 2) How to serve various type of breakfasts 3) How to arrange small parties and banquets		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Service and accompaniments of special dishes smoked salmon, caviar, asparagus, grape fruit, artichoke, melon, cheese, fresh fruits.	
II	Service of breakfast English, Continental and Indian. (for Restaurant Room Service) Service of hot beverages Tea, Coffee & Coco. Pantry and Still room operation	5
III	Layout and service of small tea parties and buffets. Laying and service of banquets.	5
Reference / Text Books: 1. Food & beverage training manual-Sudhir Andrews 2. Food & Beverage Service – Singaravelavan 3. Food & Beverage Service – S N Bagchi 4. Food and beverage service-D.R. Liilicrap 5. Lexicon of Hospitality – Deepanshu Nitin		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25
Prerequisites for the course:		

Course Learning Outcomes:

By the end of this course student would be able to:-

CO1- Invent special dishes with precision and elegance.

CO2- Apply the art of serving diverse breakfast options.

CO3- Generate and execute small parties and banquets seamlessly.

CO4- Operate exceptional customer service during special dish service, breakfasts, and events.

CO5- Illustrate food safety and hygiene during service.

CO6- Apply effective teamwork and communication for smooth service delivery.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 1 Theory: 0 Practical: 1		Subject: FRONT OFFICE
Course Code: RHM-114CP		Title: Fundamentals Of Front Office Operations Lab-I
Course Objectives: The student will get knowledge about: 1. SOP for left luggage. 2. Process and working of cashier desk. 3. Working of bell desk.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Welcoming of guest, Telephone handling Telecommunication skills – telephonic situation handling. Phonetic alphabets SOP I: How to monitor Telephone Problems SOP II: Emergency call Handling Procedures	10
II	Tariffs samples, Brochure skills, maintaining a log book register. SOP I: How to record logbook SOP II: How to review logbook	5
Reference / Text Books: • Hotel Front Office Management – James.A. Bardi • Front Office Management – S.K. Bhatnagar		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25
Prerequisites for the course:		

Course Learning Outcomes:

By the end of this course student would be able to:-

CO1- Understand and manage provisions adjacent to the front desk.

CO2- Demonstrate emergency call handling procedure.

CO3- Demonstrate proper telephone handling procedure.

CO4- Use a welcoming experience to guests.

CO5- Set-up telephone handling skills.

CO6- Develop practical skills through role-playing exercises.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 4 Theory: 4 Practical: 0		Subject: FOOD PRODUCTION
Course Code: RHM-121		Title: FOOD PRODUCTION
Course Objective:- The Student will get knowledge about: 1. Classification of soup and their garnishes, Basic sauces and gravies. 2. The various commodities required for food production, their market forms, selection, storage and use. 3. The fundamentals of menu planning & standard recipes 4. The basic culinary skills 5. Blending of spices, Different masalas used in Indian cookery.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	SOUPS A. Basic recipes other than consommé with menu examples - Broths, Bouillon, Puree, Cream, Veloute, Chowder, Bisque etc. Garnishes and accompaniments, International soups SAUCES & GRAVIES A. Difference between sauce and gravy, Derivatives of mother sauces, Contemporary & Proprietary RICE, CEREALS & PULSES A. Introduction, Classification and identification ,Cooking of rice, cereals and pulses, Varieties of rice and other cereals	10
II	MENU PLANNING & RECIPE FORMULATION: Menu Planning: Factors affecting menu planning. Standard Recipes: Definition, Format, writing, Costing. PRINCIPLES OF MENU PLANNING: A. Recipe development and conversion	10
III	BASIC COMMODITIES: i) Milk -Introduction A. Processing of Milk, Pasteurisation –Homogenisation, Types of Milk – Skimmed and Condensed, Nutritive Value ii) Cream -Introduction, Processing of Cream, Types of Cream iii) Cheese – Introduction, Processing of Cheese	10

	A. Types of Cheese, Classification of Cheese, Curing of Cheese, Uses of Cheese iv) Butter –Introduction, Processing of Butter, Types of Butter KITCHEN ORGANIZATION AND LAYOUT General layout of the kitchen in various organisations.	
IV	BASIC INDIAN COOKERY i) CONDIMENTS & SPICES A. Introduction to Indian food, Spices used in Indian cookery B. Role of spices in Indian cookery, Indian equivalent of spices (names) ii) MASALAS A. Blending of spices, Different masalas used in Indian cookery B. Wet masalas, Dry masalas, Composition of different masalas Varieties of masalas available in regional areas, Special masala blends	15
REFERENCE BOOKS:		
Books recommended:-		
K. Arora & K. N. Gupta – Theory of cookery		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcome		
CO1- Classify soups and garnish them appropriately.		
CO2- Identify, select, store, and utilize various commodities used in food production.		
CO3- Analyze menus and create standard recipes.		
CO4- Understand kitchen layout in different organizations.		
CO5- Create spices and use different masalas in Indian cookery		
CO6- Prepare basic sauces and gravies.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/ Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 4		Subject: FOOD & BEVERAGE SERVICE
Theory: 4		
Practical: 0		
Course Code: RHM-122		Title: FOOD& BEVERAGE SERVICE
Course Objectives: The Student will get knowledge about: 1. Understand various types of restaurant services. 2. Understand type of meal and menu. 3. Develop knowledge of the restaurant control system. 4. Understand the processing manufacturing and service of cigar and cigarettes. 5. Understand about the sequence of French Classical menu.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	MEALS & MENU PLANNING: Origin of Menu, Objectives of Menu Planning Types of Menu, Types of Meals, Early Morning Tea, Breakfast (English, American Continental, Indian), Brunch, Lunch, Afternoon/High Tea Dinner, Supper	10
II	CONTROL SYSTEM KOT/Bill Control System (Manual) Triplicate Checking System, Duplicate Checking System, Single Order Sheet, Quick Service Menu & Customer Bill Making bill, Cash handling equipment Record keeping (Restaurant Cashier), Various equipment’s used by restaurant cashier (Table rack, POS terminal, Thermal printer, printer etc. with usage)	10
III	COURSES OF FRENCH CLASSICAL MENU Sequence, Examples from each course, Cover of each course Accompaniments, French Names of dishes	10
IV	I PREPARATION FOR SERVICE Organising Mise-en-scene Organising Mise en place II TYPES OF FOOD SERVICE Silver service, Pre-plated service, Cafeteria service, Room service, Buffet service Gueridon service, Lounge service)	10
V	TOBACCO	

	History, Processing for cigarettes, pipe tobacco & cigars Cigarettes – Types and Brand names Pipe Tobacco – Types and Brand names Cigars – shapes, sizes, colours and Brand names Care and Storage of cigarettes & cigars	
REFERENCE BOOKS:		
1. Mastering restaurant service-H.L. craschnell and G> Nobis		
2. Food and beverage training manual-Sudhir Andrews		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/ Sessional Examination		15
2) Presentations /Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course:		
Course Learning Outcomes:		
At the end of course the student will have the knowledge about:		
CO1- Understand various types of restaurant services.		
CO2- Identify different types of meals and menus.		
CO3- Review knowledge of restaurant control systems.		
CO4- Understand the processing and service of cigars and cigarettes.		
CO5- Understand the sequence of a French Classical menu		
CO6- Develop practical skills in executing a French Classical menu.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/ Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 2 Theory: 2 Practical: 0		Subject: ACCOMMODATION OPERATION
Course Code: RHM-123		Title: ACCOMMODATION OPERATION
Course Objectives: The students will get knowledge about:- 1. The public area cleaning task. 2. Handling Keys. 3. Learn about inspection of guest room. 4. Various Supervisory works. 5. Handling Various types pests control		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	ROOM LAYOUT AND GUEST SUPPLIES A. Standard rooms, VIP ROOMS, Guest’s special requests Supervision in Housekeeping: Role of supervisor, Guest room inspection, Handling Guest complaints.	8
II	AREA CLEANING A. Guest rooms B. Front-of-the-house Areas ,Back-of-the house Areas C. Work routine and associated problems e.g. high traffic areas, Façade cleaning etc. KEYS Types of keys, Computerised key cards, Key control	10
III	ROUTINE SYSTEMS AND RECORDS OF HOUSE KEEPING DEPARTMENT A. Reporting Staff placement B. Room Occupancy Report, Guest Room Inspection C. Entering Checklists, Floor Register, Work Orders, Log Sheet. Lost and Found Register and Enquiry File, Maid’s Report and Housekeeper’s Report, Handover Records, Guest’s Special Requests Register, Record of Special Cleaning, Call Register, VIP Lists	6
IV	TYPES OF BEDS AND MATTRESSES PEST CONTROL	6

Areas of infestation	
Preventive measures and Control measure	
REFERENCE BOOKS: 1. Sudhir Andrews: Hotel Housekeeping 2. Joan C. Branson: Hotel, Hostel & Hospital Housekeeping 3. Georgira Tucker: The Professional Housekeeper 4. Rose Mary & Heinemann: Housekeeping Management for Hotels 5. Devid Allen, Hutchinson: Accommodation & Cleaning Services	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: CO1- Demonstrate mastery of skills and techniques for efficient public area cleaning. CO2- Demonstration proficiency in conducting thorough inspections of guest rooms. CO3- Develop competence in various supervisory responsibilities in a hospitality setting. CO4- Build knowledge of effective methods for handling and controlling pests. CO5- Develop proficiency in handling keys securely and responsibly. CO6- Demonstrate professionalism and commitment to maintaining high cleanliness standards.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree/ Class: BHMCT		Year: I Semester: II
Credits: 2 Theory: 2 Practical: 0		Subject: Larder-II
Course Code: RHM-124A		Title: Larder-II
Course Objectives: The Student will get knowledge about: 1. Classification of fish, cleaning and preparation. 2. Beef, Lamb, Mutton and Pork. 3. Classification of poultry and game. 4. Cold buffet, sandwiches and canapé.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Fish classification, scaling, cleaning, preparation, basic cuts and its uses and storage	10
II	Butchery Cuts of beef, lamb, mutton and pork, its uses and weights	8
III	Poultry and Game: Poultry Classification, preparation, dressing and cuts with its uses. Game Furred game and feathered game, preparation cuts with its uses.	2
IV	Assembling of cold buffets, sandwiches and canapés. Proper storage of leftovers	10
Reference / Text Books: 1. Cold Kitchen –DD Sharma 2. Theory of catering- Ronald Kinton		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		5
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		

Course Learning Outcomes:

By the end of this course student should be able to:

CO1- Classify and prepare fish effectively.

CO2- Understand the characteristics of beef, lamb, mutton, and pork.

CO3- Identify and classify poultry and game.

CO4- To preparation of cold buffet, sandwiches, and canapés.

CO5- Apply proper food safety and hygiene practices.

CO6- Create skillfully prepared dishes using fish, meat, poultry, and game.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 2		Subject: F & B SERVICE–II
Theory: 2		
Practical: 0		
Course Code: RHM-124B		Title: F & B SERVICE–II
Course Objectives: The Student will get knowledge about: 1. Staff organization and coordination within and outside the department and various silver polishing methods 2. Various spirits 3. Function and significance of Pantry, still room and KST 4. Liqueur and Various cocktails.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Staff organization of F & B Deptt, and inter & intra departmental coordination. Silver polishing methods (a) Polivit method, (b) Plate powder, (c) Burnishing method	5
II	Spirit – Whiskey, rum, brandy, gin, vodka, and their famous brands.	5
III	Significance of pantry & still room in F&B operation, Functions of the pantry, and sections of the pantry. Kitchen stewarding. Board specifications of light and heavy-duty equipment, Restaurant, Pantry, and Still room equipment	10
IV	Liqueurs: Different types with their predominant flavorings and famous ten brands. Cocktails – Classification, rules of making cocktail and recipe of 50 cocktails.	10
Reference / Text Books: 1. Food and beverage service- Singara belavan 2. Food and beverage service- Lily crap		
If the course is available as Generic Elective then the students of following departments may opt it. 1. NIL 2. NIL 3. NIL		

Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course: NIL	
Course Learning Outcomes: By the end of this course student would be able to: CO1- Invent and coordinate staff effectively, both within and outside the department, while learning various silver polishing methods. CO2- Develop knowledge of different spirits and their applications in the hospitality industry. CO3- Understand the function and importance of the Pantry, Still Room, and KST departments CO4- Discuss about liqueurs and various cocktail preparations. CO5- Develop skills in managing pantry, still room, and kitchen stewarding tasks. CO6- Apply knowledge and skills to deliver exceptional food and beverage experiences.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 2		Subject: Front Office Operations
Theory: 2		
Practical: 0		
Course Code: RHM 124C		Title: Front Office Operations
Course Objectives: The Student will get knowledge about: 1. Reservation, its types, importance and other aspects. 2. Various Room selling Techniques. 3. Room Tariff Fixation. 4. Message and Mail Handling.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	COMMUNICATION SKILLS Verbal and non-verbal communication Handling guest complaints and feedback Telephone etiquette and email communication	2
II	RESERVATIONS A. Importance of reservation, Modes of reservation B. Channels and sources (FITs, Travel Agents, Airlines, GITs) C. Types of reservations (Tentative, confirmed, guaranteed etc.) D. Systems (non-automatic, semi-automatic fully automatic) E. Cancellation, Amendments, Overbooking	15
III	ROOM SELLING TECHNIQUES Up selling, Discounts FRONT OFFICE AND GUEST HANDLING - Introduction to guest cycle, Pre arrival, Arrival - During guest stay, Departure	3
IV	HOUSEKEEPING COORDINATION Coordination between front office and housekeeping Room status and availability Handling lost and found items Registration and Check-In Procedures Registration process and documents Check-in procedures for different types of guests	10

Handling special requests and VIP guests	
REFERENCE BOOKS:	
1. Hotel Front Office Management – James. A .Bardi	
2. Front Office Management – S.K Bhatnagar	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes:	
CO1- Understand reservation types, importance, and effective management.	
CO2- Review room selling techniques to maximize occupancy and revenue.	
CO3- Analyze knowledge of room tariff fixation strategies	
CO4- Develop skills in message and mail handling for efficient communication.	
CO5- Apply reservation systems and software effectively.	
CO6- Apply knowledge and skills to enhance guest experiences and contribute to the success of a hospitality establishment.	

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 2		Subject: Moocs/NPTEL
Theory: 2		
Practical: 0		
Course Code: VAC-RHM-1		Title: Moocs/NPTEL
Course Objectives: The course objectives of the program are:		
Nature of Paper: VAC		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	To be covered online as per course choosed	10
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: On completion of this course, the students will be able to:- As per course chosen		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 3		Subject: ENVIRONMENT & ECOLOGY
Theory: 3		
Practical: 0		
Course Code: NHU-NPR-122		Title: ENVIRONMENT & ECOLOGY
Course Objectives:		
1. To know about the greenery of environment.		
2. Understand about Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries		
3. Get Knowledge for Renewable and non-renewable energy sources, use of alternate energy sources.		
4. Give acknowledgement for Biodiversity and Conservation.		
5. Environmental Pollution like water, soil ,air pollution.		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 1.5 Credits		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to environmental studies Multidisciplinary nature of environmental studies; components of environment – atmosphere, hydrosphere, lithosphere and biosphere. Scope and importance; Concept of sustainability and sustainable development	10
II	Ecosystems What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chain, food web and ecological succession. Case studies of the following ecosystems: a) Forest ecosystem b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)	4
III	Natural Resources: Renewable and Non-renewable Resources Land Resources and land use change; Land degradation, soil erosion and desertification. • Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. • Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state). • Heating of earth and circulation of air; air mass formation and precipitation. • Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.	10

IV	Biodiversity and Conservation Levels of biological diversity: genetic, species and ecosystem diversity; Biogeography zones of India; Biodiversity patterns and global biodiversity hot spots - India as a mega-biodiversity nation; Endangered and endemic species of India - Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity. - Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.	6
V	Environmental Pollution Environmental pollution : types, causes, effects and controls; Air, water, soil, chemical and noise pollution - Nuclear hazards and human health risks - Solid waste management: Control measures of urban and industrial waste. - Pollution case studies	
Reference / Text Books: Hotel Management and Operations – Michael J. O'Fallon, Denney G. Rutherford		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcomes: By end of this semester students able to know about:- CO1- Understand the importance of environmental greenery and its impact on biodiversity and human well-being CO2- Classify various aquatic ecosystems and their conservation challenges. CO3- Discuss renewable and non-renewable energy sources and the use of alternate energy. CO4- Develop an awareness of biodiversity and conservation practices. CO5- To express the causes and effects of environmental pollution and preventive measures. CO6- Apply critical thinking skills to analyze environmental issues and propose sustainable solutions		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: NC		Subject: Industrial Visit/Seminar/Presentation On The Report
Theory: NC		
Practical: NC		
Course Code: NECC-121		Title: Industrial Visit/Seminar/Presentation On The Report
Course Objectives:		
Industrial Exposure		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS HAVE TO GIVE A PRESENTATION ON THEIR OBSERVATIONS DURING THEIR INDUSTRIAL VISITS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
Work flow in hotel		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: NC		Subject: University Social Responsibilities– Community Outreach
Theory: NC		
Practical: NC		
Course Code: NECC-122		Title: University Social Responsibilities– Community Outreach
Course Objectives: To develop human values in students		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	THIS ACTIVITY IS AN ESSENTIAL PART OF THE CURRICULAM WHICH BELIEVES THAT WHAN WE ARE TAKING FROM THE SOCIETY THEN IT IS OUR MORAL DUTY TO GIVE SOMETHING BACK TO THE SOCIETY. IT ALSO DEVELOPS HABIT OF HELPING OTHERS IN THE STUDENTS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: How we can give back to society in the form of service, money, food etc.		

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: NC		SANSKRIT / SPIRITUAL
Theory: NC		
Practical: NC		
Course Code: MV-122		SANSKRIT / SPIRITUAL
Course Objectives:		
Nature of Paper: MV		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE TAUGHT THE BASICS OF SANSKRIT / SPIRITUAL TEACHING FROM BHAGWAT GEETA. THE MAIN MOTIVE OF THIS COURSE IS TO DEVELOP MORAL VALUES IN STUDENTS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
Knowledge of ancient language or moral values		

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: NC		Subject: Sports
Theory: NC		
Practical: NC		
Course Code: SPT-121		Title: Sports
Course Objectives: To engage students in various sports.		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE ENCOURAGED TO PLAY VARIOUS GAMES OF THEIR CHOICE WHETHER INDOOR OR OUTDOOR. LIKE; CARROM, CHESS, TABLE TENNIS, FOOTBALL,BASKETBALL ETC.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: How to engage in various sports		

IMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 2		Subject: Food Production-LAB
Theory: 0		
Practical: 2		
Course Code: RHM-121P		Title: Food Production-LAB
Course Objectives: 1. Various types of Soup Preparation 2. Various types of Salad Preparation 3. Preparation of various pastries. 4. Preparation of various sweet. 5. Various types of Chicken Preparation		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credit		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Salads & soups- Waldorf salad, Fruit salad, Russian salad, Cream (Spinach, Vegetable, Tomato),Puree (Lentil, Peas Carrot), International soups	40
II	Chicken and Fish Preparations- Roast chicken, grilled chicken, Fish Preparations Simple potato preparations- Basic potato dishes Vegetable preparations- Basic vegetable dishes Indian cookery- Rice dishes, Breads, Main course, Basic Vegetables, Paneer Preparations	
III	PASTRY: Demonstration and Preparation of dishes using varieties of Pastry, Short Crust – Jam tarts, Turnovers Laminated–Danish Pastry, Puff paste. Choux Paste – Éclairs, Profiteroles INDIAN SWEETS Simple ones such as gajjar halwa, kheer	
REFERENCE BOOKS: 1. K. Arora & K.N. Gupta – Theory of cookery 2. Philip Thangam- Modern cookery for teaching & the trade.		
If the course is available as Generic Elective then the students of following departments may opt it.		

Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: By the end of this course student should be able to: CO1- Students will learn to prepare a variety of soups, including clear soups, creamy soups, and vegetable-based soups. CO2- Students will understand various salad dressings and their appropriate pairings with different salad types. CO3- Students will understand the art of making flaky pastry dough, including puff pastry and short crust pastry. CO4- Students will develop an understanding of flavor pairing and experimentation in dessert recipes CO5- Students will develop the skills to cook chicken using methods such as roasting, grilling, sautéing, and braising. CO6- Students will integrate to substitute ingredients in recipes while maintaining the integrity of the dish.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 1		Subject: Food And Beverage Service LAB
Theory: 0		
Practical: 1		
Course Code: RHM-122P		Title: Food And Beverage Service LAB
Course Objectives: The student will get knowledge about. 1. Table layout for various types of breakfasts. 2. Opening and Closing procedures of a restaurant. 3. Handling guest complaints. 4. Service of various Meals.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	TABLE LAY-UP & SERVICE Task-1: A La Carte Cover Task-2: Table d’ Hote Cover Task-3: English Breakfast Cover Task-4: American Breakfast Cover Task-5: Continental Breakfast Cover Task-6: Indian Breakfast Cover Task-7: Afternoon Tea Cover Task-8: High Tea Cover TRAY/TROLLEY SET-UP & SERVICE Task-1: Room Service Tray Setup Task-2: Room Service Trolley Setup	2
II	PREPARATION FOR SERVICE (RESTAURANT) A. Organizing Mise-en-scene, Organizing Mise-en-Place B. Opening, Operating & Closing duties	3
III	PROCEDURE FOR SERVICE OF A MEAL Task-1: Taking Guest Reservations Task-2: Receiving & Seating of Guests Task-3: Order taking & Recording Task-4: Order processing (passing orders to the kitchen Task-5: Sequence of service Task-6: Presentation &Enchasing the Bill Task-7: Presenting & collecting Guest comment cards	2

	Task-8: Seeing off the Guests	
IV	Social Skills Task-1: Handling Guest Complaints Task-2: Telephone manners Task-3: Dining & Service etiquettes Task-4: Cheese Task-5: Dessert (Fresh Fruit & Nuts)	2
V	Service of Tobacco : Cigarettes & Cigars	3
REFERENCE BOOKS: 1. Mastering restaurant service-H.L. craschnell and Nobis 2. Food and beverage training manual-Sudhir Andrews 3. The waiter-fuller and curie		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: Students will Learn:- CO1- Students will apply knowledge of proper placement of tableware, including plates, cutlery, glassware, and napkins. CO2- Students will develop organizational skills and attention to detail required for smooth restaurant operations. CO3- Students will choose active listening techniques and empathy to understand guest complaints. CO4- Students will understand the nuances of service etiquette and proper tableside manners. CO5- Students will understand the flavor profiles and characteristics of different foods and beverages. CO6- Students will use the importance of clear and concise communication with fellow staff members.		

IIMTU NEP IMPLEMENTATION
Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 1		Subject: Accommodation Operation LAB-III
Theory: 0		
Practical: 1		
Course Code: RHM-123P		Title: Accommodation Operation LAB-III
Course Objectives: The students will get knowledge about:- 1. Cleaning Procedure of guest rooms 2. Bed making Procedure 3. Various records maintained in housekeeping. 4. Handling room linen/ guest supplies.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credit		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
Servicing guest room(checkout/ occupied and vacant) <u>ROOM</u> Task 1- open curtain and adjust lighting Task 2- clean ash and remove trays if any Task 3- strip and make bed Task 4- dust and clean drawers and replenish supplies Task 5-dust and clean furniture, clockwise or anticlockwise Task 6- clean mirror Task 7- replenish all supplies Task 8-clean and replenish minibar Task 9-vacuum clean carpet Task 10- check for stains and spot cleaning <u>BATHROOM</u> Task 1-disposed soiled linen Task 2-clean ashtray Task 3-clean WC Task 4-clean bath and bath area Task 5-wipe and clean shower curtain Task 6- clean mirror Task 7-clean tooth glass	Bed making supplies (day bed/ night bed) Step 1-spread the first sheet (from one side) Step 2-make miter corner (on both corner of your side) Step 3- spread second sheet (upside down) Step 4-spread blanket Step 5- Spread crinkle sheet Step 6- make two folds on head side with all three (second sheet, blanket and crinkle sheet) Step 7- tuck the folds on your side Step 8- make miter corner with all three on your side Step 9- change side and finish the bed in the same way Step 10- spread the bed spread and place pillow Records Room occupancy report Checklist, Floor register Work/ maintenance order] Lost and found, Maid’s report Housekeeper’s report	

Task 8-clean sanitary unit Task 9- replenish bath supplies Task 10- mop the floor Guest handling Guest request Guest complaints	Log book Guest special request register Record of special cleaning Call register VIP list Floor linen book/ register
Guest room inspection Mini bar management Issue , stock taking checking expiry date	Handling room linen/ guest supplies maintaining register/ record replenishing floor pantry stock taking
REFERENCE BOOKS:	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	15
Total:	25
Prerequisites for the course:	
Course Learning Outcomes:	
By the end of this course student would be able to know:	
CO1- Demonstrate knowledge of cleaning techniques, tools, and products used in guest room cleaning.	
CO2- Apply techniques for achieving a neat and visually appealing bed presentation.	
CO3- Understand the importance of record-keeping for effective communication and efficient management of housekeeping operations.	
CO4- Understand inventory management principles and procedures for guest supplies.	
CO5- Demonstrate effective communication skills when interacting with guests and colleagues.	
CO6- Develop problem-solving abilities to address guest requests and resolve issues promptly and courteously.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 1		Subject: Bakery & Confectionary LAB-II
Theory: 0		
Practical: 1		
Course Code: RHM-124AP		Title: Bakery & Confectionary LAB-II
Course Objectives: The students will get knowledge about:- 1. Different types of Breads and tarts 2. Different types of cakes and pastries		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Varieties of Bread Rolls, Varieties of Pastries	5
II	Varieties of Cookies, Varieties of Tarts	5
Reference / Text Books: 1. Cold Kitchen –DD Sharma 2. Theory of catering- Ronald Kinton		
If the course is available as Generic Elective then the students of following departments may opt it. 1. NIL 2. NIL 3. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: CO1- To prepare various tarts CO2- Demonstate various types of pastries CO3- Prepare different types of Bread Rolls CO4- Prepare different types of Cookies		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 1		Subject: F&B Service LAB-II
Theory: 0		
Practical: 1		
Course Code: RHM-124BP		Title: F&B Service LAB-II
Course Objectives: The students will get knowledge about:- 1. Various silver polishing methods 2. Service of different spirits 3. Service of different Liqueurs 4. Preparation of different cocktails.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Practical's of the previous semester and silver polishing methods.	5
II	Service of Spirits	5
III	Service of liqueures	10
IV	Preparation of cocktails	10
Reference / Text Books: 1. Mastering restaurant service-H.L. craschnell and GNobis 2. Food and beverage training manual-Sudhir Andrews		
If the course is available as Generic Elective then the students of following departments may opt it. 1. NIL 2. NIL 3. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		5
5) ESE		15
Total:		25
Prerequisites for the course: Basic knowledge of Cuts of meat, poultry, fish		

Course Learning Outcomes:

- CO1- Demonstrate basic service techniques
- CO2- Recall service of various spirits
- CO3- Demonstrate service of various liqueurs
- CO4- Create various cocktails.
- CO5- Students will apply appropriate method for silver polishing
- CO6- Demonstrate various cleaning methods

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 1		Subject: Front Office Operations LAB
Theory: 0		
Practical: 1		
Course Code: RHM-124CP		Title: Front Office Operations LAB
Course Objectives: The students will get knowledge about:- 1. Basic idea about the function of front office. 2. Check-in process of various Guest 3. Check in a reserved guest, Check in day use 4. Issue an electronic key, Extend a key		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credit		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
S. No.	Contents	No. of Lectures Allotted
I	INTRODUCTION TO FRONT OFFICE EQUIPMENT AND SYSTEMS Familiarization with front office layout and equipment Introduction to Property Management Systems (PMS) Basic computer skills and software applications	5
II	RESERVATION PROCEDURES • Simulated reservation scenarios (individual, group, corporate) • Using PMS for reservation entries and modifications • Handling cancellations and amendments	10
III	Programme keys continuously, Re-programme keys, Programme one key for two rooms, Use of recent technologies in Guest Reservation process, use of Internet & software in Hospitality sector Key Management Programming and re-programming key cards • Programming one key for two rooms • Use of recent technologies in key management • Security measures related to key management	5
REFERENCE BOOKS: 1. Hotel Front Office Management – James. A. Bardi 2. Front Office Management – S.K Bhatnagar		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
Max. Marks		

1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: CO1- Understanding of the functions and responsibilities of the front office department in the hospitality industry. CO2- Develop proficiency in the reservation process for various types of guests. CO3- Understand how to check in a reserved guest and handle day use reservations. CO4- Develop skills in issuing electronic keys and extending guest key privileges. CO5- Develop customer service skills to ensure guest satisfaction during the check-in process. CO6- Students will develop organizational skills to handle multiple tasks simultaneously and prioritize them effectively.	

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III/IV

Programme: Diploma/Degree		Year: II
Class: BHMCT		Semester: III/IV
Credits: 4		Subject: FOOD PRODUCTION-I
Theory: 4		
Practical: 0		
Course Code: RHM-231		Title: FOOD PRODUCTION-I
Course Objectives: The students will get knowledge about:- 1. Various equipment and menu planning used in Quantity Food production 2. Various type of catering establishments dealing with bulk cooking 3. Indian regional cuisines 4. Specialties and staples of various states		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	QUANTITY FOOD PRODUCTION EQUIPMENT Equipment required for mass/volume feeding, Heat and cold generating equipment, Care and maintenance of this equipment, Modern developments in equipment manufacture MENU PLANNING Basic principles of menu planning – recapitulation, Points to consider in menu planning for various volume feeding outlets such as Industrial, Institutional, Mobile Catering Units, Planning menus for Welfare & Commercial catering, Nutritional factors for the above	10
II	VOLUME FEEDING Institutional and Industrial Catering, Types of Institutional & Industrial Catering, Problems associated with this type of catering, Scope for development and growth, Hospital Catering, Highlights of Hospital Catering for patients, staff, visitors, Diet menus and nutritional requirements, Off Premises Catering, Reasons for growth and development, Menu Planning and Theme Parties, Concept of a Central Production Unit, Problems associated with off-premises catering	10
III	REGIONAL INDIAN CUISINE Introduction to Regional Indian Cuisine, Heritage of Indian Cuisine Factors that affect eating habits in different parts of the country, Cuisine and its highlights of different states/regions/communities to be discussed under: Geographic location, Historical background, Seasonal availability Special equipment:	10

	Staple diets, Specialty cuisine for festivals and special occasions STATES (Regional Cuisines) Andhra Pradesh, Bengal, Goa, Gujarat, Karnataka, Kashmir, Kerala, Madhya Pradesh, Maharashtra, North Eastern States, Punjab, Rajasthan, Tamil Nadu and Uttar Pradesh/Uttaranchal	
IV	COMMUNITIES Parsee, Chettinad, Hyderabad, Lucknowi, Avadhi, Malbari/Syrian Christian and Bohri. Indian Spices Introduction to Indian Spices, All Dry Masala (Garam Masala, Chaat Masala, Goda Masala, Sambar Masala, Rasam Masala, Panch Phoran Masala & Malvani Masala & Wet Masala (Goan Masala, Xacutti Masala, Chettinad Masala, Malabar Masala, Rechado Masala, Balchao Masala, Soola Masala & Tandoori Masala DISCUSSIONS Indian Breads, Indian Sweets, Indian Snacks	15
REFERENCE BOOKS:		
1. Gisslen Wayne – Professional Cookery (John Wiley and Sons) 2. Montage – Larousse gastronomique (Himalaya publishing group)		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcome At the end of course the student will be able to:- CO1: Understand operating procedures of various types of equipment and plan menu for quantity food production CO2: Understand and deals with problems arise in the operations of various catering establishments. CO3: Understand eating habits and seasonal availability of different regions of INDIA. CO4: Demonstrate various specialties of different states of INDIA. CO5: To promote Indian cuisine globally to international students.		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III/IV

Programme: Diploma/Degree		Year: II
Class: BHMCT		Semester: III/IV
Credits: 4		Subject: FOOD & BEVERAGE SERVICE-I
Theory: 4		
Practical: 0		
Course Code: RHM-232		Title: FOOD & BEVERAGE SERVICE-I
Course Objectives: The students will get knowledge about: 1. Alcoholic Beverages their types and dispense bar 2. Understand different types of Wines, Their classification storage & services. 3. Know about the different wine producing countries, their specialty wine 4. To know about wine quality laws governing the major wine producing countries.		
Nature of Paper:		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	ALCOHOLIC BEVERAGE: Introduction and definition, Production of Alcohol, Fermentation process, Distillation process, Classification with examples DISPENSE BAR: Introduction and definition, Bar layout – physical layout of bar, Bar stock – alcohol & non-alcoholic beverages, Bar equipment BEER: Introduction & Definition, Types of Beer, Production of Beer, Storage	10
II	WINES: Definition & History, Classification with examples, Table/Still/Natural, Sparkling, Fortified, Aromatized, Production of each classification, Old World wines (Principal wine regions, wine laws, grape varieties, production and brand names) France, Germany, Italy, Spain, Portugal, New World Wines (Principal wine regions, wine laws, grape varieties, production and brand names) USA, Australia, India, Chile, South Africa, Algeria, New Zealand, Storage of wines, Wine terminology (English & French)	10
II	SPIRITS: Introduction & Definition, Production of Spirit, Pot-still method, Patent still method, Production of Whisky, Rum, Gin, Brandy, Vodka, Tequilla Different Proof Spirits - American Proof, British Proof (Sikes scale) Gay Lussac (OIML Scale)	10

IV	APERITIFS: Introduction and Definition, Types of Aperitifs, Vermouth (Definition, Types & Brand names), Bitters (Definition, Types & Brand names) LIQUEURS: Definition & History, Production of Liqueurs Broad Categories of Liqueurs (Herb, Citrus, Fruit/Egg, Bean & Kernel) Popular Liqueurs (Name, color, predominant flavor& country of origin)	10
REFERENCE BOOKS: 1. Modern restaurants service –John fuller 2. Food and beverage service-Dennis R. Lillicrap and John cousins.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcomes: At the end of course the student will have the knowledge about: CO1: Understand the making process of Beer. CO2: Understand the making and service process of National & International Wines. CO3: Understand the Wine law of Wine producing Countries. CO4: Understand the Food and matching wine service harmony. CO5: Understand the history, origin & production process of Aperitifs and Liquors.		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III/IV

Programme: Diploma/Degree		Year: II
Class: BHMCT		Semester: III/IV
Credits: 2		Subject: FRONT OFFICE -I
Theory: 2		
Practical: 0		
Course Code: RHM-233		Title: FRONT OFFICE -I
Course Objectives: The students will get knowledge about:- 1. Students will learn the property management system in front office operation 2. Get the knowledge with reference to guest accounting and night audit 3. Learn the accomplished activities of check-out and bell desk. 4. Become skilled at guest safety and security system.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credit		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	COMPUTER APPLICATION IN FRONT OFFICE OPERATION Role of information technology in the hospitality industry Factors for need of a PMS in the hotel Factors for purchase of PMS by the hotel, Introduction to Fidelio & Amadeus	8
II	CONCIERGE & BELL DESK Basic etiquette's and grooming, Introduction• to guest Mail & key handling, key control, Policies for blacklisted persons, Wake-up call, Left Luggage, Scanty Baggage, Daily reports. Guest History Card, Safe deposit boxes and• its operation, Preparation of itinerary, VVIP Guest arrival Role of Guest Relation Executive• Luggage Handling Procedure• Functions of hospitality desk/concierge desk BELL DESK/CONCIERGE A. Duties and responsibilities of Bell Captain B. Duties and responsibilities of Bell Boy	10
III	CHECK OUT PROCEDURES Guest accounts settlement ➤ Cash and credit - Indian currency and foreign currency ➤ Transfer of guest accounts ➤ Express check out.	6
IV	FRONT OFFICE & GUEST SAFETY AND SECURITY Role of Front Office in Hotel Security • Check in: use of metal detectors,	6

	validators, scanty baggage handling• Keys control: ELS (Electronic Cards), Handling Grand Master / Master key, lost & found & • damaged keys, use of key cards • Guest & staff movement & access control • Protection of funds, safe deposit boxes. Dealing with emergencies: medical, death, theft, robbery, fire, bomb threats etc. DISASTER MANAGEMENT Prevention and Mitigation of Disasters, Early Warning System; Preparedness, Capacity Development; Awareness During Disaster – Evacuation – Disaster Communication – Search and Rescue – Emergency Operation Centre – Incident Command System – Relief and Rehabilitation – Post-disaster – Damage and Needs Assessment, Restoration of Critical Infrastructure – Early Recovery – Reconstruction and Redevelopment	
REFERENCE BOOKS: 1. Principles of Front Office Operations – Sue Baker 2. Front Office Management – S.K. Bhatnagar 3. Front Office Procedures – Michael. L. Kasavana 4. Hotel Front Office Management – James. A. Bardi.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
	Max. Marks	
1) Class tasks/Sessional Examination	10	
2) Presentations/Seminar	-	
3) Assignments	5	
4) Research Project Report Seminar On Research Project Report	-	
5) ESE	35	
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: CO1: Understand the role of information technology in the hospitality industry. CO2: To understand the procedure of Front Office Accounting. CO3: Handle various jobs performed at Bell Desk CO4: Understand the Job profile of Door man and Parking Attendant CO5: To Understand Safety, Security and its types and significance at hotel front office.		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III/IV

Programme: Diploma/Degree		Year: II
Class: BHMCT		Semester: III/IV
Credits: 2		Subject: ACCOMMODATION OPERATION– I
Theory: 2		
Practical: 0		
Course Code: RHM-234		Title: ACCOMMODATION OPERATION– I
Course Objectives: 1. Planning and organizing of the linen room and uniform room. 2. Meant to learn about type of uniforms & designing. 3. Students will learn about basic laundry & sewing room activities. 4. To gain the knowledge about equipment and material required for flower arrangement in a hotel.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credit		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	LINEN ROOM Activities of the Linen Room, Layout and equipment in the Linen Room Selection criteria for various Linen Items & fabrics suitable for this purpose Purchase of Linen, Calculation of Linen requirements, Linen control-procedures and records, Stocktaking-procedures and records Recycling of discarded linen, Linen Hire	10
II	UNIFORMS Advantages of providing uniforms to staff, Issuing and exchange of uniforms; type of uniforms, Selection and designing of uniforms Layout of the Uniform room SEWING ROOM Activities and areas to be provided, Layout of sewing room, Equipment provided Job description of tailor.	4
III	LAUNDRY Commercial and On-site Laundry, Flow process of Industrial Laundering-OPL, Stages in the Wash Cycle, Laundry Equipment and Machines Layout of the Laundry, Laundry Agents, Dry Cleaning, Guest Laundry/Valet service, Stain removal	10
IV	FLOWER ARRANGEMENT Flower arrangement in Hotels, Equipment and material required for flower arrangement, Conditioning of plant material, Styles of flower arrangements Principles of design as applied to flower arrangement INDOOR PLANTS Selection and care	6

Reference / Text Books:

- R. Rajagopalan, Environmental Studies, Oxford IBH Pub, 211.
- Kogent Learning Solutions Inc., Energy, Environment, Ecology and Society, Dreamtech, 212.

If the course is available as Generic Elective then the students of following departments may opt it.

1. NA

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50

Prerequisites for the course:

Course Learning Outcomes:

By end of this semester students able to know about:-

CO1: To know the different types of linen and their purchasing procedure.

CO2: Provide knowledge of Sewing room activities and managing uniform room.

CO3: Students get understand the different types of laundry and stain removal procedure.

CO4: To understand the flower arrangement in hotels, equipment and material required for flower arrangement.

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III/IV

Programme: Certificate/Diploma/Degree		Year: II
Class: BHMCT		Semester: III/IV
Credits: 2		Subject: RESORT MANAGEMENT
Theory: 2		
Practical: 0		
Course Code: RHM-235A		Title: RESORT MANAGEMENT
Course Objectives: 1. To know the history of Resort 2. How to plan and develop a resort 3. Knowledge about various recreational activities offered in resort 4. Marketing of resort and sales promotion		
Nature of Paper: DSC		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction- The History, Characteristics, concept of Resorts. Current and future Trends in Resort Development, Management and Planning.	10
II	Resort Planning and Development-Investment Consideration, The Role of Planning and Management, Planning, Facilities, Grounds Maintenance, Planning and the Leisure concept, Food and Beverage planning.	10
III	Recreational Activities-Golf, Tennis, Snow sports, Water sports, Spa and Health Club Facilities, Recreational Infrastructure and Nature, Theme Resorts, Customer Service-Guest Relations, Guest Activities and Service, Housekeeping, The Reservations Department.	10
IV	Marketing the Resort Experience- Comps and credit, resort marketing and sales promotion, market segmentation and potential guest markets, advertising of resorts, promotion and publicity.	10
Reference / Text Books: 1. Hasimoto, K., Kline, S., and G. Fenich. 1998. Casino Management: Past, Present, and Future. (2 nd Edition). Dubuque: Kendall & Hunt. Mill, R.C. 21. Resorts: Management and Operation. New York: Wiley & Sons.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-

5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: CO1: Gain the knowledge of history, growth, and development of resorts. CO2: To acquire the skill to key marketing and financial aspects of resorts. CO3: Students have knowledge about process of resort planning and development, and the basic elements of a resort complex. CO4: Students are able to understand about resort planning and development, trends and Factors in development of Resort and basic element of a resort complex, Marketing the Resort Experience.	

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III/IV

Programme: PG		Year: II
Class: BHMCT		Semester: III/IV
Credits: 2		Subject: SPA MANAGEMENT
Theory: 2		
Practical: 0		
Course Code: RHM-235B		Title: SPA MANAGEMENT
Course Objectives: 1. Introduction and types of spa 2. How to design various spa facilities 3. Spa operation and management 4. Human resource operation in spa		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Spa industry: Definitions, origin, spa towns, famous natural spas of the world - Spa industry today - Types of spas. Spa offerings: Brief overview of Modern Spa Treatments: by technique, origin, provider, and facility & equipment – Spa menu development.	10
II	Establishing the business:-Vision, Mission, planning process, the business plan, start-up costs – types of spa ownership. Spa facility Design and construction – Spa concept development – layout of a spa (treatment room –dry and wet room setups, lockers and changing room, reception, waiting area etc.) - Spa design process - general spa design considerations – design considerations by spa area - design trends – Interior design and decoration	10
III	SPA OPERATIONS AND MANAGEMENT-Policies and procedures – industry best practices–Developing and implementation of SOPs–SOP training – opportunities for feedback Spa	10
IV	Human Resources: Organisational structure – spa personnel–international certification of personnel (CIBTAC, CIDESCO etc.) - HR practices–Employee policies and procedures. Spa facility operations: Facility management and its elements – maintenance safety and sanitation - sanitation policy and procedure–managing Equipments–inventory management.	10
Reference / Text Books: 1. Mary S Wisnom, Lisa L Capozio (212), Spa Management- An introduction, Pearson.		
If the course is available as Generic Elective then the students of following departments may opt it.		

Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: CO1: Able to develop a menu for Various Spa CO2: Layout various sections in SPA CO3: Perform Various SOPs adopted and analyse feedback CO4: To establish various policies	

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III/IV

Programme: Diploma/Degree		Year: II
Class: BHMCT		Semester: III/IV
Credits: 3		Subject: Human Values & Professional Ethics
Theory: 3		
Practical: 0		
Course Code: UVE-31		Title: Human Values & Professional Ethics
Course Objectives: 1. To create an awareness on Human Values & Professional Ethics. 2. To instill Moral and Social Values and Loyalty 3. To appreciate the rights of others. 4. To instill of Harmony on Professional Ethics.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Course Introduction – 1. Understanding the need, basic guidelines, content and process for Value Education 2. Self-Exploration–what is it? - its content and process; ‘Natural Acceptance’ and Experiential Validation- as the mechanism for self-exploration 3. Continuous Happiness and Prosperity-A look at basic Human Aspirations 4. Right understanding, Relationship and Physical Facilities- the basic requirements for fulfillment of aspirations of every human being with their correct priority 5. Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario 6. Method to fulfill the above human aspirations: understanding and living in harmony at various levels Understanding Harmony in the Human Being - Harmony in Myself!	2
II	7. Understanding human being as a co-existence of the sentient ‘I’ and the material ‘Body’ 8. Understanding the needs of Self (‘I’) and ‘Body’ - Sukh and Suvidha 9. Understanding the Body as an instrument of ‘I’ (I being the doer, seer and enjoyer) 10. Understanding the characteristics and activities of ‘I’ and harmony in ‘I’ 11. Understanding the harmony of I with the Body: Sanyam and Swasthya; correct appraisal of Physical needs, meaning of Prosperity in detail 12. Programs to ensure Sanyam and Swasthya	15

III	13. Understanding Harmony in the Family and Society-Harmony in Human Human Relationship 14. Understanding Harmony in the family – the basic unit of human interaction 15. Understanding values in human-human relationship; meaning of Nyaya and program for its fulfillment to ensure Ubhay-tripti; Trust (Vishwas) and Respect (Samman) as the foundational values of relationship 16. Understanding the meaning of Vishwas; Difference between intention and competence 17. Understanding the meaning of Samman, Difference between respect and differentiation; the other salient values in relationship 18. Understanding the harmony in the society (society being an extension of family): Samadhan, Samridhi, Abhay, Sah-astitva as comprehensive Human Goals 19. Visualizing a universal harmonious order in society- Undivided Society (Akhand Samaj), Universal Order (Sarvabhaum Vyawastha)- from family to world family!	03
IV	20. Understanding Harmony in the Nature and Existence - Whole existence as Co-existence 21. Understanding the harmony in the Nature 22. Interconnectedness and mutual fulfillment among the four orders of nature recyclability and self-regulation in nature 23. Understanding Existence as Co-existence (Sah-astitva) of mutually interacting units in all-pervasive space 24. Holistic perception of harmony at all levels of existence	10
V	25. Implications of the above Holistic Understanding of Harmony on Professional Ethics 26. Natural acceptance of human values 27. Definitiveness of Ethical Human Conduct 28. Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order 29. Competence in professional ethics: - Ability to utilize the professional competence for augmenting universal human order - Ability to identify the scope and characteristics of people-friendly and eco-friendly production systems, - Ability to identify and develop appropriate technologies and management patterns for above production systems. 30. Case studies of typical holistic technologies, management models and production systems 31. Strategy for transition from the present state to Universal Human Order: - At the level of individual: as socially and ecologically responsible engineers, technologists and managers - At the level of society: as mutually enriching institutions and organizations	

REFERENCE BOOKS:

1. R R Gaur, R Sangal, G P Bagaria, 209, A Foundation Course in Human Values and Professional Ethics.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: Upon completion of this course, students should have CO1: Understood the core values that shape the ethical behaviour of an engineer CO2: Exposed awareness on professional ethics and human values. CO3: To understand the Basis for Humanistic Education, Humanistic and Humanistic Universal Order. CO4: To Understanding Harmony in the Nature and Existence. CO5: To understand the Strategy for transition from the present state to Universal Human Order.	

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III/IV

Programme: Diploma/Degree		Year: II
Class: BHMCT		Semester: III/IV
Credits: 3		Subject: HOTEL ENGINEERING
Theory: 3		
Practical: 0		
Course Code: NHU-231H		Title: HOTEL ENGINEERING
Course Objectives: The students will get knowledge about:- 1. Overview of hotel Maintenance Department 2. Basic knowledge of working of air conditioner and refrigeration. 3. Basic knowledge of conservation of electrical system. 4. Taught about hotel engineering keeps up the safety and quality that guest feels comfortable in Hotel. 5. Provide basic information about stairs, elevator and escalator.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1.5 Credit		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	TO ENGEERING AND MAINTANENCE a) Definition of maintenance, types of maintenance – daily- schedule, Preventive, breakdown, contract maintenance. b) Department – function, duties and responsibilities, organization structure of hotel Maintenance Department. WATER AND WASTE WATER MANAGEMENT Treatment of water for hotel use, hot and cold drinking water requirement, waste water disposal system adopted and different types of traps, plumbing work.	7
II	HEAT, VENTILATION, AIR CONDITIONING AND REFRIGERATION Air conditioning systems-central ac, split, their need and periodic maintenance and cycle of air conditioning systems Ventilation – its need and different types of ventilation	10
II	ELECTRICAL SYSTEM AND ENERGY MANAGEMENT A. Electrical terms: volt, ampere, watt, kilo watt/hr, ac, dc systems, single phase and phase, voltage drop and control, fuse and circuit breakers, B. Basic Fuels: Types, Calorific value, C. Energy Conservation tips for hotel: Front Office, Housekeeping, Kitchens, Food &Beverage outlets and other areas D. Pollution and Pollution Control E. Definition of pollution, pollutant, classification of pollution, pollution	3

	control measures.	
IV	BUILDING TRANSPORTATION Stairs, Elevators – types of elevators (Passenger elevator, Freight elevator, Cable elevator, hydraulic elevator) and basic working, Escalators – safety requirements, use and basic working, Moving Walks, Conveyors, Fire: Types of fire & classification, Fire Fighting Equipments	10
REFERENCE BOOKS: Tarun Bansal: Hotel Engineering Aman Publishers		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: By the end of this course student would be able to CO1: To under gone with Hierarchy of hotel maintenance department. CO2: To insight the working of various equipments. CO3: To understand the concept of heat removal. CO4: Student may know the water and waste water techniques and management. CO5: To be aware of the concept of building transportation.		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III/IV

Programme: Certificate		Year: II
Class:		Semester: III/IV
Credits: NC		Subject: INDUSTRIAL VISIT/SEMINAR/
Theory: NC		PRESENTATION ON THE REPORT
Practical: NC		
Course Code: NECC-231		Title: INDUSTRIAL VISIT/SEMINAR/
		PRESENTATION ON THE REPORT
Course Objectives:		
1. To give industrial exposure to students		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS HAVE TO GIVE A PRESENTATION ON THEIR OBSERVATIONS DURING THEIR INDUSTRIAL VISITS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
1. To understand the work flow in industry		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III/IV

Programme: Certificate		Year: II
Class:		Semester: III/IV
Credits: NC		Subject: UNIVERSITY SOCIAL RESPONSIBILITIES –COMMUNITY OUTREACH
Theory: NC		
Practical: NC		
Course Code: NECC-232		Title: UNIVERSITY SOCIAL RESPONSIBILITIES –COMMUNITY OUTREACH
Course Objectives:		
To develop social responsibility in students		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	THIS ACTIVITY IS AN ESSENTIAL PART OF THE CURRICULAM WHICH BELIEVES THAT WHAN WE ARE TAKING FROM THE SOCIETY THEN IT IS OUR MORAL DUTY TO GIVE SOMETHING BACK TO THE SOCIETY. IT ALSO DEVELOPS HABIT OF HELPING OTHERS IN THE STUDENTS.	
Reference / Text Books:		
None		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
Give something back to society like food, clothes, services etc.		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III/IV

Programme: Certificate		Year: II
Class:		Semester: III/IV
Credits: NC		Subject: SANSKRIT / SPIRITUAL
Theory: NC		
Practical: NC		
Course Code: MV-231		Title: SANSKRIT / SPIRITUAL
Course Objectives:		
1. To teach Sanskrit to students		
Nature of Paper: MV		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE TAUGHT THE BASICS OF SANSKRIT / SPIRITUAL TEACHING FROM BHAGWAT GEETA. THE MAIN MOTIVE OF THIS COURSE IS TO DEVELOP MORAL VALUES IN STUDENTS.	
Reference / Text Books:		
NIL		
If the course is available as Generic Elective then the students of following departments may opt it. :-		
NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
1. To develop moral values in students.		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III/IV

Programme: Certificate Class:		Year: II Semester: III/IV
Credits: 1 Theory: 0 Practical: 1		Subject: SPORTS
Course Code:SPT-231		Title: SPORTS
Course Objectives: 1. To engage in physical activities		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NIL		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE ENCOURAGED TO PLAY VARIOUS GAMES OF THEIR CHOICE WHETHER INDOOR OR OUTDOOR. LIKE; CARROM, CHESS, TABLE TENNIS, FOOTBALL, BASKETBALL ETC.	
Reference / Text Books: NIL		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: To perform in sports as per their choice		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III/IV

Programme: Diploma/Degree		Year: II
Class: BHMCT		Semester: III/IV
Credits: 2		Subject: FOOD PRODUCTION-LAB I
Theory: 0		
Practical: 2		
Course Code: RHM-231P		Title: FOOD PRODUCTION-LAB I
Course Objectives: The Student will get knowledge about:		
1. Regional cuisine of various states of India.		
2. Core ingredients of various cuisines of Indian States.		
3. Food presentation & Garnishing.		
4. Menu presentation of various cuisines of Indian States various cuisines of Indian States		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credit		
L: 0		
T: 0		
P: 2 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Preparations of Menus from following cuisines. Bengal Goa Gujarat Hyderabad Kashmiri Maharashtrian Punjabi Rajasthan South Indian	40
REFERENCE BOOKS:		
1. Gisslen Wayne – Professional Cookery (John Wiley and Sons)		
2. Montage – Larousse gastronomique (Himalaya publishing group)		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50

Prerequisites for the course:

Course Learning Outcomes: By the end of this course student would be able to

CO1: Preparation of various regional cuisines of Indian States.

CO2: Garnish and plating and food presentation.

CO3: Presentation of food of various Indian States.

CO4: To Evaluate the profitability of a menu.

CO5: Explain how staff, equipment, and facility can impact a menu.

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III/IV

Programme: Diploma/Degree		Year: II
Class: BHMCT		Semester: III/IV
Credits: 1		Subject: FOOD AND BEVERAGE SERVICE
Theory: 0		LAB-I
Practical: 1		
Course Code: RHM-232P		Title: FOOD AND BEVERAGE SERVICE
		LAB-I
Course Objectives: 1. Students will get knowledge about Dispense Bar – Organizing Mise-en-place. 2. The students will get knowledge about Service of Wine and its temperature of service. 3. Will gain knowledge about Tequila service of aperitifs like vermouths. 4. Will come to know about service of Spirits and Liqueurs. 5. To understand about service of Liqueurs from Liquor Trolley and from bar.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credit		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Dispense Bar – Organizing Mise-en-place Task-1 Wine service equipment Task-2 Beer service equipment Task-3 Cocktail bar equipment Task-4 Liqueur / Wine Trolley Task-5 Bar stock - alcoholic & non-alcoholic beverages Task-6 Bar accompaniments & garnishes Task-7 Bar accessories & disposables	2
II	Service of Wines Task-1 Service of Red Wine Task-2 Service of White/Rose Wine Task-3 Service of Sparkling Wines Task-4 Service of Fortified Wines Task-5 Service of Aromatized Wines Task-6 Service of Cider, Perry & Sake	3
III	Service of Aperitifs Task-1 Service of Bitters Task-2 Service of Vermouths	2
IV	Service of Beer Task-1 Service of Bottled & canned Beers Task-2 Service of Draught Beers	2

V	Service of Spirits Task-1 Service styles – neat/on-the-rocks/with appropriate mixers Task-2 Service of Whisky Task-3 Service of Vodka Task-4 Service of Rum Task-5 Service of Gin Task-6 Service of Brandy Task-7 Service of Tequila	3
VI	Service of Liqueurs Task-1 Service styles – neat/on-the-rocks/with cream/enfrappe Task-2 Service from the Bar Task-3 Service from Liqueur Trolley	3
REFERENCE BOOKS: 1. Modern restaurants service –John fuller 2. Food and beverage service-Dennis R. Lillicrap and John cousins If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: By the end of this course student would be able to: CO1: To understand about Dispense Bar – Organizing Mise-en-place. CO2: To understand that how to serve red wine, white wine and champagne. CO3: To understand that how to Serve beer. CO4: Serve Whiskey, Rum, Vodka, brandy etc. CO5: Match Wine with food		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III/IV

Programme: Diploma/Degree		Year: II
Class: BHMCT		Semester: III/IV
Credits: 1 Theory: 0 Practical: 1		Subject: FRONT OFFICE LAB-I
Course Code: RHM-233P		Title: FRONT OFFICE LAB-I
Course Objectives: The Student will get knowledge about: 1. To understand the practice of computer applications related to Front Office like reservation and registration. 2. In depth knowledge about how Hotel functions like accounting and yield management. 3. To understand different Front Office Operation like amend a reservation, all pre & post registration. 4. Depth knowledge about the hotel’s reservation to travel agent, corporate & individuals.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credit		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Hands on practice of computer applications related to Front Office- Procedures such as Reservation, Registration, Guest History, Telephones, Housekeeping, Daily transactions Front office accounting procedures - Manual accounting, Machine accounting, Payable, Accounts Receivable, Guest History, Yield Management, Role Play & Situation Handling, Create and update guest profiles, Hot function keys, Send confirmation letters, Print registration card, Make FIT reservation & group reservation, Make an ADD-on reservation	5
II	Amend a reservation, Cancel a reservation-with deposit and without deposit, Log onto cashier code, Process a reservation deposit, Pre-register a guest, Put message and locator for a guest, Put trace for guest, Check in a reserved guest, Check-in a walk-in guest, Make sharer reservation, Make A/R account, Take reservation through Travel Agent/Company/ Individual or Source, Make room change	10
REFERENCE BOOKS: 1. Modern restaurants service –John fuller 2. Food and beverage service-Dennis R. Lillicrap and John cousins		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
Max. Marks		

1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: By the end of this course student would be able to:- CO1: How to take check-in and maintain the guest records. CO2: Processing with amending guest reservation. CO3: Updating the guest profile with all the tracks with records for further reference. CO4: To get knowledge how to Take reservation through Travel Agent/Company/ Individual.	

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III/IV

Programme: Diploma/Degree		Year: II
Class: BHMCT		Semester: III/IV
Credits: 1		Subject: ACCOMMODATION OPERATION LAB-I
Theory: 0		
Practical: 1		
Course Code: RHM-234P		Title: ACCOMMODATION OPERATION LAB-I
Course Objectives: The Student will get knowledge about: 1. Learn about Laundry Operations. 2. Be taught to remove stains. 3. Knowledge about different types of flowers arrangement. 4. Will find out the Selection & Designing of uniforms.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Layout Of Linen And Uniform Room/Laundry, Laundry Machinery And Equipment, Cleaning of Offices, Public Areas & Guest Rooms Stain Removal, Flower Arrangement, Selection And Designing Of Uniforms	15
REFERENCE BOOKS:		
Hotel Management and Operations - Michael J. O'Fallon, Denney G. Rutherford		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: By the end of this course student would be able to:- CO1: To understand the laundry layout of different hotels. CO2: To be aware types of stain & how to remove the stains. CO3: Get knowledge about types of flower arrangements. CO4: Comprehend their knowledge in Selection and Designing of Uniform.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: 4		Subject: FOOD PRODUCTION-II
Theory: 4		
Practical: 0		
Course Code: NBHM-351		Title: FOOD PRODUCTION-II
Course Objectives: The Student will get knowledge about: 1. Larder layout & equipment. 2. Functions of the larder, hierarchy of larder staff procedures and requirements of buffet. 3. Introduction to characteristics of Sausage, types & varieties. 4. To show the processing parameters used to manufacture bacon and ham. 5. To get the knowledge about Sandwiches.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: 0 P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	LARDER LAYOUT & EQUIPMENT Introduction of Larder Work, Definition, Equipment found in the larder, Layout of a typical larder with various sections DUTIES AND RESPONSIBILITIES OF THE LARDER CHEF Functions of the Larder, Hierarchy of Larder Staff, Sections of the Larder, Duties & Responsibilities of larder Chef	12
II	CHARCUTIERIE I. SAUSAGE A. Introduction to characteristics - Sausage – Types & Varieties, Casings – Types & Varieties, Fillings – Types & Varieties II. FORCEMEATS Types of forcemeats, Preparation of forcemeats, Uses of forcemeats	12
III	HAM, BACON & GAMMON Cuts of Ham, Bacon & Gammon, Differences between Ham, Bacon & Gammon, Processing of Ham & Bacon, Uses of different cuts PATES, Types of Pate, Pate de foiegras CHAUD FROID Meaning of Chaudfroid, Making of chaudfroid & Precautions, Types of chaudfroid, ses of chaudfroid ASPIC & GELEE Definition of Aspic and Gelee. Uses of Aspic and Gelee	12

IV	SANDWICHES Parts of Sandwiches, Types of Bread, Types of filling – classification Spreads and Garnishes, Types of Sandwiches, Making of Sandwiches	12
Reference / Text Books:		
1. Gisslenwayne – professional cookery (john wiley and sons)		
2. Montage – Larousse gasrtronomique (Himalaya publishing group)		
If the course is available as Generic Elective then the students of following departments may opt it.		
1. NO		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcomes: By the end of this course student would be able to:		
CO1: Student able to get the knowledge of Larder layout, equipment & duties of staff members.		
CO2: Demonstrate advanced sausage production techniques.		
CO3: To understand the processing parameters used to manufacture bacon and ham.		
CO4: To understand the meaning of Chaudfroid, making & Precautions.		
CO5: To get the complete knowledge of Sandwich & different parts of sandwich.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc (Hotel Management)		Semester: V
Credits: 4		Subject: FOOD AND BEVERAGE SERVICE–II
Theory: 4		
Practical: 0		
Course Code: NBHM-352		Title: FOOD AND BEVERAGE SERVICE–II
Course Objectives: The Student will get knowledge about: 1. Planning and Operating various F & B outlets 2. Procedures and requirements of Banquets 3. Procedures and requirements of Buffet 4. KST and Gueridon Service 5. To get knowledge the knowledge about Kitchen Stewarding.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	PLANNING & OPERATING VARIOUS F&B OUTLET Physical layout of functional and ancillary areas, Objective of a good layout, Steps in planning, Factors to be considered while planning, Calculating space requirement, Various set ups for seating, Planning staff requirement, Menu planning Constraints of menu planning, Selecting and planning of heavy duty and light equipment, Requirement of quantities of equipment required like crockery, Glassware, Cutlery - steel or silver etc. Suppliers & manufacturers, Approximate cost Planning Décor, furnishing fixture etc.	12
II	FUNCTION CATERING BANQUETS History, Types, Organisation of Banquet department. Duties & responsibilities, Sales, Booking procedure, Banquet menus BANQUET PROTOCOL Space Area requirement, Table plans/arrangement, Misc-en-place, Service, Toast & Toast procedures INFORMAL BANQUET Reception, Cocktail parties, Convention, Seminar Exhibition, Fashion shows, Trade Fair, Wedding, Outdoor catering	12
III	FUNCTION CATERING BUFFETS Introduction, Factors to plan buffets, Area requirement, Planning and organisation, Sequence of food Menu planning, Types of Buffet, Display, Sit down, Fork, Finger, Cold Buffet, Breakfast Buffets, Equipment Supplies, Check list	12

IV	GUERIDON SERVICE History of gueridon, Definition, General consideration of operations, Advantages & Dis-advantages, Types of trolleys Factor to create impulse, Buying – Trolley, open kitchen Gueridon equipment, Gueridon ingredients KITCHEN STEWARDING Importance, Opportunities in kitchen stewarding Record maintaining, Machine used for cleaning and polishing Inventory	9
Reference / Text Books: 1. Modern restaurants service –John fuller 2. Food and beverage service-Dennis R.Lillicrap and John cousins. If the course is available as Generic Elective then the students of following departments may opt it. 1. NO		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcomes: By the end of this course student would be able to: CO1: Understand and Operate various aspects of F&B Outlets CO2: Evaluate and execute banquet functions as per procedures CO3: Evaluate and execute Buffet function as per SOP CO4: Understand Gueridon Service and manage the KST department. CO5: Understand about the kitchen stewarding & its duties and responsibilities		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: 2		Subject: FRONT OFFICE –II
Theory: 2		
Practical: 0		
Course Code: NBHM-353		Title: FRONT OFFICE –II
Course Objectives: The Student will get knowledge about:		
1. Check out procedure followed in the hotel		
2. Illustrate Foreign Exchange Encashment procedure		
3. Different methods of settlement – Cash & Credit.		
4. Different types of accounts, folios, and vouchers prepared at front desk.		
5. The student will get knowledge about foreign exchange.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L:		
T:		
P: (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	CHECK-OUT PROCEDURE The Guest Departure Procedure and Post Departure Activities at Front Desk – Guest History Card. Information to concerned Departments-Interdepartmental Coordination. Problems during Guest Check out and their solutions	10
II	MODES OF SETTLEMENT Receiving Payments/Settling Bills Through a. Cash b. Credit Card c. Bill to Company d. Travel Agent Voucher e. Travelers Cheques	10
III	FOREIGN EXCHANGE Foreign Exchange Encashment Procedure Authorized agencies, Licenses and documents used, Category of guest entitled. Different currencies and their-Forex rates	10
IV	FRONT OFFICE ACCOUNTING Different types of Accounts, Ledgers, Folios & Vouchers prepared at Front Desk. Guest Accounting Cycle	10
Reference / Text Books:		
Principles of Front Office Operations – Sue Baker		
1. Front Office Management – S.K. Bhatnagar		

2. Front Office Procedures – Michael. L. Kasavana	
3. Hotel Front Office Management – James. A. Bardi.	
If the course is available as Generic Elective then the students of following departments may opt it.	
1. Dennis L. Foster: Back Office Operation & Admn.	
2. Sudhir Andrews: Hotel Front Office.	
3. Kasavana & Brooks: Managing Front office Operations.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: By the end of this course student would be able to:	
CO1: Understand and handle check-out procedure.	
CO2: Understand the procedure of settling guest bills and apply the same in bill settlement process.	
CO3: Understand Forex exchange encashment procedure.	
CO4: Understand front office accounting procedure and the formats which are prepared at front office.	

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: 2		Subject: ACCOMMODATION OPERATION-II
Theory: 2		
Practical: 0		
Course Code: NBHM-354		Title: ACCOMMODATION OPERATION-II
Course Objectives: The Student will get knowledge about: 1. Managing housekeeping personnel in the department 2. Budget and budgetary controls & its process. 3. Safety awareness, accident and first aid box. 4. Explain the significance of contracts and outsourcing 5. Explain the significance of energy conservation.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	PLANNING AND ORGANISING THE HOUSEKEEPING DEPARTMENT Area inventory list, Frequency schedules, Performance and Productivity standards, Time and Motion study in House Keeping operations, Standard Operating manuals – Job procedures, Job allocation and work schedules, Calculating staff strengths & Planning duty rosters, team work and leadership in House Keeping, Training in HKD, devising training programmes for HK staff, Inventory level for non-recycled items,	15
II	Budget and budgetary controls, The budget process Planning capital budget, Planning operation budget, Operating budget – controlling expenses – income statement, Purchasing systems – methods of buying ,Stock records – issuing and control	10
III	HOUSEKEEPING IN INSTITUTIONS & FACILITIES OTHER THAN HOTELS CONTRACT SERVICES A. Types of contract services B. Guidelines for hiring contract services C. Advantages & disadvantages of contract services	10
IV	ENERGY AND WATER CONSERVATION IN HOUSEKEEPING OPERATIONS, FIRST AID	5
Reference / Text Books: 1. Sudhir Andrews: Hotel Housekeeping 2. Joan C. Branson: Hotel, Hostel & Hospital Housekeeping		

3. Georgira Tucker: The Professional Housekeeper	
4. Rose Mary & Heinemann: Housekeeping Management for Hotels	
5. G. Raghubalan – Hotel Housekeeping	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: By the end of this course student would be able to: CO1: To understand that how to managing housekeeping personnel in the department CO2: To understand Budget and budgetary controls & its process. CO3: To understand Safety awareness, accident and first aid box. CO4: To understand the significance of contracts and outsourcing. CO5: To understand the significance of energy conservation.	

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: 4		Subject: FAST FOOD CHAIN MANAGEMENT
Theory: 4		
Practical: 0		
Course Code: SEC-NBHM-355A		Title: FAST FOOD CHAIN MANAGEMENT
Course Objective:- The Student will get knowledge about: 1. Inventory Management 2. Quality Control 3. Service Excellence 4. Production Efficiency 5. Financial Management		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to fast food chain: • History • Globalization • Concept & formulation • Cost factor • F&B merchandising	10
II	World of Fast food chain: • Cuisine Variants • Street vendors • Jobs & labour issues • Health issues	10
III	Service Process: • Food & Beverage service operation • Human resource strategy • Menu concept, pricing strategy & recipe standardisation • Service & production equipment • Convenience food usages • Hygiene & sanitisation standards • Central purchasing process	10
IV	Outlet management: • Outlet design & décor • Children play area	15

• Event management	
REFERENCE BOOKS:	
1. Food and beverage service-Dennis R. Lillicrap and John cousins.	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	15
2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total:	100
Prerequisites for the course:	
Course Learning Outcome	
CO1- Modern tool usage.	
CO2- Individual and Team work.	
CO3- Communication.	
CO4- Design/ Development of solution.	
CO5- Hospitality and Society	

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: 4		Subject: FOOD SAFETY AND HACCP
Theory: 4		
Practical: 0		
Course Code: SEC-NBHM-355B		Title: FOOD SAFETY AND HACCP
Course Objective:- The Student will get knowledge about: 1. Understanding Food Safety Principles: 2. Hazard Identification and Analysis: 3. Implementing Control Measures: 4. Developing HACCP Plans: 5. Promoting a Culture of Food Safety:		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credit		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	• Explain the <i>Basic Introduction to Food Safety, Food Hazards & Risks, Contaminants and Food Hygiene.</i> • List the Canned food, Frozen food, Snacks food, Instant food, Dairy food & their science behind it. • List the food adulteration.	10
II	• Explain the General characteristics of Micro-Organisms based on their occurrence and structure. • Explain the Types & Causes of spoilage. • List Factors affecting their growth in food (intrinsic and extrinsic). • List the Sources of cross-contamination. • List the Sources of contamination. • Describe the Basic principles of food preservation. • Describe the Common food borne microorganisms: Bacteria (spores/capsules), Fungi, Viruses, Parasites.	10
III	• Explain the BENEFICIAL ROLE OF MICROORGANISM. • List the FOOD BORNE DISEASES. • Discuss the FOOD ADDITIVES. • Explain the FOOD LAWS AND REGULATIONS.	10
IV	• Explain HACCP (Basic Principle and implementation) . • Explain the concept of cleaning and sanitisation and sanitizers used in Hotel industry.	15

	• Use of probiotics and genetically modified organisms (GMOs) in food preservation. • Discuss the Employee training practices, engagement, and awareness, contribute to food safety.	
REFERENCE BOOKS:		
1. The HACCP Food Safety Manual" by Barach and Hayman:		
2. An Introduction to HACCP" by Carol Wallace:		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcome		
CO1- Understand the importance of food safety in the hospitality industry.		
CO2- Demonstrate knowledge of foodborne illnesses, their causes, and prevention methods.		
CO3- Comprehend the principles and benefits of the HACCP system.		
CO4- Identify and analyze potential hazards in food production and service processes.		
CO5- Comply with food safety regulations and standards.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: 4		Subject: Indian Regional cuisine
Theory: 4		
Practical: 0		
Course Code: NBHM-356A		Title: Indian Regional Cuisine
Course Objectives: To impart knowledge about Cuisines of India with respect to		
1. Himachal and Uttarakhand		
2. Punjab, Haryana and Delhi		
3. Andhra Tamil Nadu and Kerala		
4. Awadh, Bengal and Odisha.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4		
T:		
P: 4 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Cuisines of Himachal & Uttarakhand: Introduction, Geographical Perspectives, Brief Historical Background, Characteristics & Salient Features of Cuisine, Key Ingredients, Popular Foods, Seasonal Foods, Special Equipments, Staple Diets, Specialties during Festivals and Other Occasions, Community Foods	10
II	Cuisines of Punjab, Haryana & Delhi: Introduction, Geographical Perspectives, Brief Historical Background, Characteristics & Salient Features of Cuisine, Key Ingredients, Popular Foods, Seasonal Foods, Special Equipments, Staple Diets, Specialties during Festivals and Other Occasions, Community Foods.	10
III	Cuisines of Andhra Pradesh, Tamil Nadu & Kerala: Introduction, Geographical Perspectives, Brief Historical Background, Characteristics & Salient Features of Cuisine, Key Ingredients, Popular Foods, Seasonal Foods, Special Equipments, Staple Diets, Specialties during Festivals and Other Occasions, Community Foods.	10
IV	Cuisines of Awadh, Bengal & Odisha: Introduction, Geographical Perspectives, Brief Historical Background, Characteristics & Salient Features of Cuisine, Key Ingredients, Popular Foods, Seasonal Foods, Special Equipments, Staple Diets,	10

	Specialties during Festivals and Other Occasions, Community Foods.	
Reference / Text Books: 1. Quantity Food Production Op. and Indian Cuisine – Parvinder S Bali, Oxford University Press 2. A Taste of India By Madhur Jafferey - John Wiley & Sons 3. Food of Haryana: The Great Chutneys – Dr Ashish Dahiya, University Press, MDU 4. Indian Gastronomy – Manjit Gill, DK Publishers		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: Student come to know about the Cuisines of CO1: Understand the cuisines of Himachal Pradesh and Uttarakhand CO2: Analyze the culinary traditions of Punjab, Haryana, and Delhi. CO3: Develop knowledge of the cuisines of Andhra Pradesh, Tamil Nadu, and Kerala. CO4: Choose insights into the culinary heritage of Awadh, Bengal, and Odisha, CO5: Compare and analyze regional cuisines for similarities and differences. CO6: Apply knowledge to create authentic and fusion dishes from these regions.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: 4		Subject: Bakery Science
Theory: 4		
Practical: 0		
Course Code: NBHM-356B		Title: Bakery Science
Course Objectives: To get knowledge about		
1. Ingredients used in Bakery.		
2. Bread and Cake.		
3. Chocolate.		
4. Cookies and Biscuits.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4		
T:		
P: 4 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Bakery and Basic Ingredients used in Bakery: Sugars; Shortenings; Eggs; Wheat and Flours; Milk and Milk Products; Yeast; Chemical Leavening Agents; Salt, Spices, and Flavorings; Cocoa and Chocolate; Fruits; Professional Bakery Equipment & Tools.	15
II	Breads and Rolls Overview of Production; Common Problems; White Pan Bread; French and Italian Breads and Rolls; Egg Bread and Rolls; Hard Roll Varieties; Soft Roll Varieties, Cakes and Pastries Introduction; Classical Cakes and Pastries; Modern Trends in Cake and Pastry Making; Types of Cakes and their Classification	15
III	Chocolate Introduction: History of Chocolate: Chocolate Production; Types of Chocolate; Melting Chocolate; Tempering of Chocolate and its Application, Uses of Chocolate; Tools and Equipment used in chocolate carving.	15
IV	Cookies and Biscuits Introduction; Preparation of Simple Cookies; Types of Cookies; Uses of Cookies; Common Faults in Cookie Preparation	15
Reference / Text Books:		
1. Bali, Parvinder (214).Food Production Operations .New Delhi: Oxford University Press.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-

3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: The students get knowledge about CO1: Identify and describe basic bakery ingredients. CO2: Generate bread and cake baking techniques. CO3: Express the knowledge about chocolate processing and usage. CO4: Develop skills in creating cookies and biscuits. CO5: Discuss creativity in bakery product development. CO6: Apply food safety and quality assurance principles.	

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: V

Programme: UG(R)		Year: III
Class: BHMCT		Semester: V
Credits: 3		Subject: TOURISM ENTREPRENEURSHIP
Theory: 3		
Practical: 0		
Course Code: NHU-351N		Title: TOURISM ENTREPRENEURSHIP
Course Objectives: The course objectives of the program are: 1. Orient students and participants in identifying the new opportunities in this situation. 2. To motivate and Encourage participants and students to deal with current situation. 3. Guide participants how to deal with financial crises in the tourism business. 4. To lead participates to develop new pricing policies. 5. To taught and linkage with Government policies and Government scheme.		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Understanding the Competition Tourism industry and business ideas; business strategy- understanding customers and analyzing competition	10
II	Marketing Tourism marketing mix; tourism marketing planning; financial planning; planning for people and operations	10
III	Introduction to Communication Form of organisation and legal considerations; networking and collaboration; good business practices;	5
IV	Reading and Writing Skills Feasibility; Writing a business plan- marketing, financial, operations, people, etc. Financial requirements and sources of finance Documentation and Legal Procedures Setting up a tourism enterprise- steps, procedures, licenses, registration etc	10
Reference / Text Books: 1. Thomson. A. A., Stick land. A.J. & Cambel. J. E. (205). 2. Crafting and Executing Strategy- the Quest for Competitive Advantage. New Delhi: Tata McGraw Hill. Peter F. Drucker (1985). Innovation & Entrepreneurship. New York: Harper & Row.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75

Total:	100
Prerequisites for the course: Course Learning Outcomes: On completion of this course, the students will be able to: CO1: To analyze and critically evaluate the special conditions for entrepreneurship in the tourism industry from a sustainability perspective. CO2: Student will understand different ways of dealing with value and value creation from a particular ethical perspective and sustainability perspective. CO3: To clarify the concept of Marketing Tourism marketing mix & tourism marketing planning. CO4: To enlighten the concept of Documentation and Legal Procedures & Setting up a tourism enterprise-	

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: BHMCT		Semester: V
Credits: NC		Subject: INDUSTRIAL VISIT/SEMINAR/ PRESENTATION ON THE REPORT
Theory: NC		
Practical: NC		
Course Code: NECC-351		Title: INDUSTRIAL VISIT/SEMINAR/ PRESENTATION ON THE REPORT
Course Objectives:		
1. To get the industry exposure		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS HAVE TO GIVE A PRESENTATION ON THEIR OBSERVATIONS DURING THEIR INDUSTRIAL VISITS.	
Reference / Text Books: NA		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
1. Able to perform in industry.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: BHMCT		Semester: V
Credits: NC		Subject: UNIVERSITY SOCIAL RESPONSIBILITIES –COMMUNITY OUTREACH
Theory: NC		
Practical: NC		
Course Code: NECC-352		Title: UNIVERSITY SOCIAL RESPONSIBILITIES –COMMUNITY OUTREACH
Course Objectives:		
1. To develop social responsibility in students		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Unit	Unit
I	THIS ACTIVITY IS AN ESSENTIAL PART OF THE CURRICULAM WHICH BELIEVES THAT WHAN WE ARE TAKING FROM THE SOCIETY THEN IT IS OUR MORAL DUTY TO GIVE SOMETHING BACK TO THE SOCIETY. IT ALSO DEVELOPS HABIT OF HELPING OTHERS IN THE STUDENTS.	I
Reference / Text Books:		
None		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		25
2) Presentations/Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
1. Give something back to society like food, clothes, services etc.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: BHMCT		Semester: V
Credits: NC		Subject: SANSKRIT / SPIRITUAL
Theory: NC		
Practical: NC		
Course Code: MV-351		Title: SANSKRIT / SPIRITUAL
Course Objectives: To teach Sanskrit to students		
Nature of Paper: MV		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE TAUGHT THE BASICS OF SANSKRIT / SPIRITUAL TEACHING FROM BHAGWAT GEETA. THE MAIN MOTIVE OF THIS COURSE IS TO DEVELOP MORAL VALUES IN STUDENTS.	
Reference / Text Books: NIL		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: 1. Develop moral values in student		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree Class: BHMCT		Year: III Semester: V
Credits: 1 Theory: 0 Practical: 1		Subject: SPORTS
Course Code: SPT-351		Title: SPORTS
Course Objectives: Let students engage in sports		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE ENCOURAGED TO PLAY VARIOUS GAMES OF THEIR CHOICE WHETHER INDOOR OR OUTDOOR. LIKE; CARROM, CHESS, TABLE TENNIS, FOOTBALL, BASKETBALL ETC.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
1. Play various sports		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree/ UG(R)/PG/Ph.D.		Year: III
Class: BHMCT		Semester: V
Credits: 2		Subject: FOOD PRODUCTION LAB-II
Theory: 0		
Practical: 2		
Course Code: NBHM-351P		Title: FOOD PRODUCTION LAB-II
Course Objectives: The Student will be aware and get knowledge about : 1. Appetizers & Garnishes. 2. Sandwiches, parts of Sandwiches process making of Sandwiches. 3. Use of Spices, herbs & classification of herbs. 4. Chocolate Parfait & 5. Baba au rhum recipe		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	APPETIZERS & GARNISHES HORSDEOUVRES SANDWICHES A. Parts of Sandwiches B. Types of Bread C. Types of filling – classification D. Spreads and Garnishes E. Types of Sandwiches F. Making of Sandwiches USE OF SPICES AND HERBS IN COOKING A. Ideal uses of wine in cooking B. Classification of herbs C. Ideal uses of herbs in cooking	20
II	1 Brioche Baba au Rhum 2 Soft Rolls Chocolate Parfait 3 French Bread Tarte Tartin 4 Garlic Rolls 5 Crêpe Suzette	20
Reference / Text Books: 1. Gisslenwayne – professional cookery (john wiley and sons) 2. Montage – Larousse gastronomique (Himalaya publishing group)		
If the course is available as Generic Elective then the students of following departments may opt it.		

Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	-
2) Presentations/Seminar	-
3) Assignments	25
4) Research Project Report Seminar On Research Project Report	-
5) ESE	25
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: By the end of this course student would be able to: CO1: Complete knowledge of Appetizers & Garnishes. CO2: To understand about Sandwiches, parts of Sandwiches process making of Sandwiches. CO3: To understand the use of Spices, herbs & classification of herbs. CO4: To understand about Chocolate Parfait & How to prepared Baba au rhum recipe.	

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree/UG(R)/PG/Ph.D.		Year: III
Class: BHMCT		Semester: V
Credits: 1		Subject: FOOD AND BEVERAGE SERVICE LAB– II
Theory: 0		
Practical: 1		
Course Code: NBHM-352P		Title: FOOD AND BEVERAGE SERVICE LAB – II
Course Objectives: The Student will be aware and get knowledge about: 1. Developing Hypothetical Business Model of Food & Beverage Outlets. 2. Planning & organizing Formal & Informal Banquets. 3. Planning & organizing various types of Buffet. 4. Organizing Mise-en-place for Gueridon Service. 5. Dishes involving work on the Gueridon.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Planning & Operating Food & Beverage Outlets Class room Exercise, Developing Hypothetical Business Model of Food & Beverage Outlets, Case study of Food & Beverage outlets - Hotels & Restaurants Function Catering – Banquets Planning & organizing Formal & Informal Banquets, Planning & organizing Outdoor caterings	10
II	Function Catering – Buffets Planning & organizing various types of Buffet Gueridon Service Organizing Mise-en-place for Gueridon Service, Dishes involving work on the Gueridon	5
Reference / Text Books: 1. Modern restaurants service –John fuller 2. Food and beverage service-Dennis R.Lillicrap and John cousins		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		-
3) Assignments		10

4) Research Project Report Seminar On Research Project Report	-
5) ESE	15
Total:	25
Prerequisites for the course:	
Course Learning Outcomes: By the end of this course student would be able to: CO1: To understand Developing Hypothetical Business Model of Food & Beverage Outlets. CO2: Planning & organizing Formal & Informal Banquets. CO3: Planning & organizing various types of Buffet. CO4: Organizing Mise-en-place for Gueridon Service. CO5: Dishes involving work on the Gueridon.	

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree/UG		Year: III
Class: BHMCT		Semester: V
Credits: 1		Subject: Front Office Lab-II
Theory: 0		
Practical: 1		
Course Code: NBHM-353P		Title: Front Office Lab-II
Course Objectives: The Student will be aware and get knowledge about : 1. Hands on practice of computer applications on PMS front office procedures. 2. How to put message, How to put a locator, How to check in a first-time guest 3. How to make a reservation, How to create and update guest profiles. 4. How to feed remarks in guest history, How to add a sharer, How to make add on reservation. 5. Handling part settlements for long staying guest.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Hands on practice of computer applications on PMS front office procedures such as: Night audit, Income audit, Accounts Situation handling – handling guests & internal situations requiring management tactics/strategies	5
II	HMS Training – Hot Function keys How to put message, How to put a locator, How to check in a first-time guest, How to check in an existing reservation, How to check in a day use, How to issue a new key, How to verify key, How to cancel a key, How to issue a duplicate key, How to extend a key How to print and prepare registration cards for arrivals, How to programme keys continuously, How to programme one key for two rooms, How to re-programme a key How to make a reservation, How to create and update guest profiles, How to update guest folio, How to print guest folio, How to make sharer reservation	5
III	How to feed remarks in guest history, How to add a sharer, How to make add on reservation, How to amend a reservation, How to cancel a reservation How to make group reservation, How to make a room change on the system, How to log on cashier code. How to close a bank at the end of each shift, How to put a routing instruction, How to process charges, How to process a guest check out, How to check out a folio, How to process deposit for arriving guest,	5

	How to process deposit for in house guest, How to check room rate variance report, How to process part settlements, How to tally allowance for the day at night, How to tally paid outs for the day at night, How to tally forex for the day at night, How to pre-register a guest, How to handle extension of guest stay, Handle deposit and check ins with voucher, How to post payment, How to print checked out guest folio, Check out using foreign currency, Handle settlement of city ledger balance, Handle payment for room only to Travel Agents, Handle of banquet event deposits, How to prepare for sudden system shutdown, How to checkout standing batch totals, How to do a credit check report, How to process late charges on third party, How to process late charges to credit card, How to check out during system shut down, Handling part settlements for long staying guest, How to handle paymaster folios, How to handle bills on hold	
Reference / Text Books: 1. Principles of Front Office Operations – Sue Baker 2. Front Office Management – S.K. Bhatnagar 3. Front Office Procedures – Michael. L. Kasavana		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
	Max. Marks	
1) Class tasks/Sessional Examination	-	
2) Presentations/Seminar	-	
3) Assignments	10	
4) Research Project Report Seminar On Research Project Report	-	
5) ESE	15	
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: By the end of this course student would be able to: CO1: Hands on practice of computer applications on PMS front office procedures. CO2: How to put message, How to put a locator, How to check in a first-time guest CO3: How to make a reservation, How to create and update guest profiles. CO4: How to feed remarks in guest history, How to add a sharer, How to make add on reservation. CO5: Handling part settlements for long staying guest.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree/ UG(R)		Year: III
Class: BHMCT		Semester: V
Credits: 1		Subject: ACCOMMODATION MANAGEMENT LAB II
Theory: 0		
Practical: 1		
Course Code: NBHM-354P		Title: ACCOMMODATION MANAGEMENT LAB II
Course Objectives: The Student will be aware and get knowledge about : 1. Team cleaning Planning, Organizing, Executing & Evaluating the process. 2. How to prepared Inspection checklist 3. Time and motion study & its applications. 4. Steps in servicing a guest room. 5. Devising/ designing training module for staff members.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Team cleaning Planning, Organizing, Executing , Evaluating	5
II	Inspection checklist Time and motion study , Steps of bed making Steps in servicing a guest room etc.	5
III	Devising/ designing training module Refresher training (5 days), Induction training (2 days) Remedial training (5 days)	5
Reference / Text Books: Hotel Management and Operations - Michael J. O'Fallon, Denney G. Rutherford		
If the course is available as Generic Elective then the students of following departments may opt it. 1.NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		

Course Learning Outcomes:

By the end of this course student would be able to:

CO1: To understand Team cleaning Planning, Organizing, Executing & Evaluating the process.

CO2: How to prepared Inspection checklist.

CO3: To understand the Time and motion study & its applications.

CO4: To understand the Procedure of Steps in servicing a guest room.

CO5: Devising/ designing training module for staff members.

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: UG		Year: III
Class: BHMCT		Semester: V
Credits: 1		Subject: Indian Regional Cuisine Lab
Theory: 0		
Practical: 1		
Course Code: NBHM-355AP		Title: Indian Regional Cuisine Lab
Course Objectives: To get knowledge about 1. Cuisine of Punjab, Himachal and Uttarakhand. 2. Cuisine of Andhra Pradesh, Tamil Nadu and Kerala. 3. Cuisine of Awadh, Bengal and Orissa.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: 4 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Punjabi Cuisine Dishes Various Dishes of Himachal & Uttarakhand	10
II	Various Dishes of Andhra Pradesh, Tamil Nadu & Kerala	10
III	Dishes of Awadh, Bengal and Odissa	20
Reference / Text Books: 1. A Taste of India By Madhur Jafferey - John Wiley & Sons. 2. Food of Haryana: The Great Chutneys – Dr Ashish Dahiya, University Press, MDU.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: Gain knowledge about various aspects of CO1- Dishes from Punjab, Himachal and Uttarakhand. CO2- Dishes from Andhra Pradesh, Tamil Nadu and Kerala. CO3- Dishes from Awadh, Bengal and Orissa.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: UG	Year: III	
Class: BHMCT	Semester: V	
Credits: 1	Subject: Bakery Science Lab	
Theory: 0		
Practical: 1		
Course Code: NBHM-355BP	Title: Bakery Science Lab	
Course Objectives: The student will get knowledge about: 1. Bakery tools and implement. 2. Bread and Cake making 3. Chocolate fabrication 4. Cookies and Biscuits.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: 4 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Identification of bakery ingredients	10
II	Bread Making : Breakfast Rolls, Sponge and Cake Making	10
III	Uses of chocolate in bakery	10
IV	Cookies and biscuits	10
Reference / Text Books: Bali, Parvinder (214). Food Production Operations .New Delhi: Oxford University Press.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: The Student will be aware and get knowledge about: CO1: Knowledge and uses of tools and implements. CO2: Knowledge about preparation of Bread and Cake CO3: Know to prepare chocolate work CO4: Knowledge about preparation of cookies and biscuits.		

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: Degree Class: B.ScHM, BHMCT		Year: III Semester: VI
Credits: 4 Theory: 4 Practical: 0		Subject: FOOD PRODUCTION-III
Course Code: NBHM-361		Title: FOOD PRODUCTION-III
Course Objectives: The Student will be aware and get knowledge about: 1. Gain knowledge of International cuisines, its geographic location & historical background. 2. Discover the introduction to Chinese foods, its historical background & Regional cooking styles, Methods of cooking, 3. Become skilled at Bakery & Confectionery, difference between icings & topping. 4. Find out making of Meringues, Factors affecting the stability. 5. Learn about Product research and management.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	INTERNATIONAL CUISINE Geographic location, Historical background, Staple food with regional Influences, Specialties, Recipes, Equipment in relation to: Great Britain, France, Italy, Spain & Portugal, Germany, Mexican CHINESE Introduction to Chinese foods, Historical background, Regional cooking styles, Methods of cooking, Equipment & utensils FRENCH Culinary French & cooking methods & Preparations.	10
II	QUALITY CONTROL PROCEDURE Cost Control, Quality Control, Portion Control, Waste Control, Budgetary Control & Yield Management KITCHEN RECORDS AND FORMATS Different Records, Registers, Vouchers, Formats, Tags and Color-Coding.	20
III	PRODUCTION MANAGEMENT Kitchen Organization, Allocation of Work – Job Description, Duty Rosters Production Planning, Production Scheduling, Production Quality & Quantity Control, Forecasting & Budgeting G. Yield Management PRODUCT & RESEARCH DEVELOPMENT Testing new equipment, Developing new recipes, Food Trails Organoleptic & Sensory Evaluation	20

IV	BREAD MAKING Role of ingredients in bread Making, Bread Faults, Bread Improvers CAKE MAKING Role of ingredients in bread Making, Types of cake & methods of cake making	10
Reference / Text Books: 1. K. Arora & K.N.Gupta – Theory of cookery 2. Philip Thangam – Modern cookery for teaching & The Trade (Orient Longmans ltd) 3. Gisslenwayne – professional cookery (john wiley and sons) If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcomes: The Student will be aware and get knowledge about: CO1- To understand about international cuisines, its geographic location & historical background. CO2- To understand the Chinese foods, its historical background & Regional cooking styles, Methods of cooking, CO3- To build the knowledge about Bakery & Confectionery, difference between icings & topping. CO4- To understand the process making of Meringues, Factors affecting the stability. CO5- To generate the knowledge about product research and management. CO6- To understand about international cuisines, its geographic location & historical background.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: VI

Programme: Degree/UG(R)/PG/Ph.D.		Year: III
Class: B.ScHM, BHMCT		Semester: VI
Credits: 4		Subject: FOOD AND BEVERAGE SERVICE-III
Theory: 4		
Practical: 0		
Course Code: NBHM-362		Title: FOOD AND BEVERAGE SERVICE-III
Course Objectives:- The student will get knowledge about: 1. To know about Staff organization of F&B service department 2. Get knowledge Different types of bar and bar operations. 3. The students will come to know about various modes of sales promotion. 4. Various types of cocktails		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	FOOD & BEVERAGE STAFF ORGANISATION Categories of staff, Hierarchy, Job description and specification Duty roaster MANAGING FOOD & BEVERAGE OUTLET Supervisory skills, Developing efficiency, Standard Operating Procedure	10
II	BAR OPERATIONS Types of Bar, Cocktail, Dispense, Area of Bar, Front Bar, Back Bar Under Bar (Speed Rack, Garnish Container, Ice well, etc.), Bar Stock Bar Control, Bar Staffing, Opening, and closing duties	10
III	SALES PROMOTION Food festivals-loyalty programs - Wine dinners or whisky dinners - Happy hours (ladies night, DJ night)- Corporate discounts - Partnership with Social media & home delivery services Applications	10
IV	COCKTAILS & MIXED DRINKS Definition and history – classification – Recipe, Preparation and service of Popular Cocktails	15
Reference / Text Books: 1. Dennis R Lilicrap Food and Beverage Service. 2. Matt A Casdo Food and Beverage Service. 3. Michael M Coltman Beverage Management.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
Max. Marks		

1) Class tasks/Sessional Examination	15
2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total:	100
Prerequisites for the course:	
Course Learning Outcomes: The Student will be aware and get knowledge about: CO1- Understand staff organization of F&B service department and manage Food & beverage outlet. CO2- Review Bar operations and their layout. CO3- Analyze various modes of sales promotion and apply as and when needed. CO4- To explain and prepare various types of cocktails & mixed drinks. CO5- Analyze the cultural and social impact of cocktails throughout history. CO6- Classify cocktails based on their ingredients, base spirits, and preparation methods.	

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: VI

Programme: Degree/UG(R)/PG/Ph.D.		Year: III
Class: BHMCT		Semester: VI
Credits: 2		Subject: Front Office-III
Theory: 2		
Practical: 0		
Course Code: NBHM-363		Title: Front Office-III
Course Objectives: The Student will be aware and get knowledge about: 1. To associate the Yield Management concept 2. To understand the Timeshare and Vacation Ownership concept 3. To be aware of the essentials of Spa & Salon Management 4. To understand the fundamentals of Human Resource Management.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Yield Management: Concept of yield management– benefits of yield management - Strategies used for increasing revenue of a hotel (Overbooking and capacity management, duration control, market segment pricing and discount allocation) - Measuring Yield (Formulas)	5
II	Elements of Yield Management: Potential High and Low Demand Tactics - Yield Management Software - Yield Management Team– Yield Management Meeting	5
III	Timeshare and Vacation Ownership: Definition and Types of Timeshare Options - Advantages and Disadvantages of Timeshare business - Exchange Companies – Resort Condominium International - Intervals International- AIRDA advantages – role of government and industry.	5
IV	Spa & Salon Management: Definition & Types of Salons & Spa - Ownership & Franchised - Hierarchy in Spa - Facilities offered in Spa.	5
V	Human Resource Management: Human Resource Planning (Forecasting, Inventorying, Planning) - Human Resource Development - Job Analysis (Job Description, Job Specification, Purpose) – Recruitment - Selection – Orientation - Challenges in the Hospitality Industry - Employee Motivation - Employee Retention.	10
Reference / Text Books: 1. Dennis L. Foster: Back Office Operation & Admn. 2. Sudhir Andrews: Hotel Front Office 3. Kasavana & Brooks: Managing Front office Operations		
If the course is available as Generic Elective then the students of following departments may opt it.		

Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: The Student will be aware and get knowledge about CO1- To understand the benefits of Yield Management and strategies. CO2- To discuss the Timeshare and Vacation Ownership concept. CO3- To evaluate of the essentials of Spa & Salon Management. CO4- To understand the fundamentals of Human Resource Management. CO5- To generate the in-depth knowledge of Spa & Salon Management. CO6- Develop effective human resource plans that align with organizational goals and objectives.	

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: Degree/UG(R)/PG/Ph.D.		Year: III
Class: BHMCT		Semester: VI
Credits: 2		Subject: Accommodation Operations-III
Theory: 2		
Practical: 0		
Course Code: NBHM-364		Title: Accommodation Operations-III
Course Objectives: The Student will be aware and get knowledge about: 1. Apply the elements of art in designing interiors. 2. Interior decoration and horticulture which includes flower arrangement. 3. Importance of renovation in housekeeping. 4. Sizes of rooms, sizes of furniture, furniture arrangement. 5. Discuss Change/ new trends in housekeeping.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	INTERIOR DECORATION Elements of design; Principles of design; Color and its role in décor –types of color schemes; Windows and window treatment; Lighting and lighting fixtures; Carpets; SPECIAL DECORATION Occasion For Special Decoration; Materials Used; Theme Decoration.	5
II	FACILITY PLANNING AND FACILITY MANGEMENT Role of facility manger, factors considered in planning and designing of hospitality facilities, common services provided by facility management, components of facility management.	5
III	NEW PROPERTY COUNTDOWN Starting up Housekeeping; Responsibility of Housekeeper LAYOUT OF GUEST ROOMS A. Sizes of rooms, sizes of furniture, furniture arrangement B. Principles of design C. Refurbishing and redecoration	5
IV	NEW PROPERTY COUNTDOWN REFURBISHING AND REDECORATION Reasons to Renovate; Types Of Renovation; Subsidiary Process in Renovation, snag list CHANGING TRENDS IN HOUSEKEEPING Eco-friendly Amenities, Products & Process; Training and Motivation	5

Reference / Text Books:

1. John C. Branson – Hotel .Hostel& Hospital House Keeping
2. Georgira Tucker – The Professional Housekeeper
3. Anne Effelsberg – Flower Arranging
4. John Ambulan/Andrews – First Aid Manual
5. Sudhir Andrews: Hotel Housekeeping
6. Raghubalan – Hotel Housekeeping Joan C. Branson: Hotel, Hostel & Hospital Housekeeping

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50

Prerequisites for the course:

Course Learning Outcomes: The Student will be aware and get knowledge about

CO1: Analyses Principle of design while coordinating interiors.

CO2: Assess significant role played by color, light, floor finishes, wall covering, various kind of window treatments.

CO3: Differentiate between refurbishing and redecoration.

CO4: To understand the Importance of renovation in housekeeping.

CO5: Evaluate new trends in housekeeping.

CO6: Identify eco-friendly alternatives and innovations suitable for different industries.

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: UG(R) Class: BHMCT		Year: III Semester: VI
Credits: 2 Theory: 2 Practical: 0		Subject: TOURISM & HOTEL ECONOMICS
Course Code: NBHM-365A		Title: TOURISM & HOTEL ECONOMICS
Course Objectives: The objective of the course is to: 1. Will assist to obtain Hospitality Economics focuses on applying economic principles to analyze the hospitality industry. 2. Student will learn how to use rigorous economic theories and models to analyze the functioning of the hospitality industry and its current trends. 3. Study will focus on micro-foundations and analyze the impact of the hospitality industry on the aggregate economy. 4. To know about the concept of Tourism and Balance of Payment.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: 0 P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	FUNDAMENTS CONCEPT OF ECONOMICS Meaning of Economics, Macro-economic & Micro economics, nature & scope, Meaning of Wants:- Necessaries, Comforts & Luxuries Value, price and wealth, Factors of production, Kinds of capital & capital formation, Economic System-Capitalism, Socialism & Mixed economy DEMAND ANALYSIS Meaning of Demand and demand distinctions, autonomous and derived demand short run and long run, demand. Demand for perishable goods and durable goods. Law of demand-demand schedule and demand curves, assumptions and reason behind law, exception to the law Elasticity of demand-Types of elasticity, Factor's determining price, the elasticity of demand SUPPLY Meaning of supply, the law of supply, determinants of supply, exceptions, elasticity of supply	10
II	COST OUTPUT ANALYSIS Cost concepts-fixed and variable cost, average and Marginal cost, opportunity cost, past and future costs, Economics in large scale production. REVENUE CONCEPTS Total Revenue, Average Revenue, Marginal revenue and their relationships PRICE ANALYSIS Basic concepts-Equilibrium of firm, marginal revenue and Marginal cost	10

	analysis, Normal Profits, excess ,profit loss, Accounting profit and economic profit, Theories of Profit, Kinds of Markets, Perfect & Pure competition, Simple monopoly and Monopolistic Competition, Oligopoly PRICING Pricing under perfect competition, Equilibrium price, Pricing under monopoly and perfect competition-Short run and Long run	
III	TOURISM AND BALANCE OF PAYMENT INDIAN ECONOMY AND HOTEL INDUSTRY Characteristics of Indian Economy, Major issues of development, Relevance of hotel industry in national economy, income generation, employment generation, foreign exchange earning, New Industrial Policy-Features & Importance's. TYPES OF TOURISM ECONOMICS Abstraction, Economic Theory & Tourism, Demand & Supply Analysis, Cost/Benefit Analysis, Economic Impact Analysis	5
IV	IMPACT OF TOURISM ON HOTEL INDUSTRY Economic impact, travel and Hotel effect on tourism on hotel, threats & obstacles to tourism TOURISM PLANNING AND HOTEL INDUSTRY Tourism infrastructure development, Local Bodies, tourism department and ministry, different tourism policies NATIONAL INCOME CONCEPTS AND IMPORTANCE Definition & Concepts, Gross National Product (GNP) & Net National Product (NNP), Measurement of National Income	10
Reference / Text Books: 1. H L Ahuja Principle of Economics 2. Kote Syanis Micro Economics 3. D M Mithai Managerial Economics		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		25
Total:		35
Prerequisites for the course:		
Course Learning Outcomes: On completion of this course, the students will be able to CO1: To understanding basic knowledge on scope, nature concepts, significance, role and responsibility of managerial economists. CO2: To analyze demand and its related concepts. CO3: To attain research work and analyze price and output determination under different market forms. CO4: To assess the relationship between input and output in short and long period under production functions. CO6: To conclude and analyze the different phases of business cycle and methods of demand forecasting in economic analysis.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: VI

Programme: Degree/UG(R)/PG/Ph.D. Class: BHMCT		Year: III Semester: VI
Credits: 3 Theory: 3 Practical: 0		Subject: FUNDAMENTALS OF HOSPITALITY ACCOUNTING
Course Code: NBHM-365B		Title: FUNDAMENTALS OF HOSPITALITY ACCOUNTING
Course Objectives: The Student will be aware and get knowledge about: 1. Various accounting systems 2. Journal entry and ledger entry 3. How to maintain cash book 4. How to make trial balance		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L:3 T:0 P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Accounting Meaning & Definition, Types and Classification, Principles of Accounting Systems of Accounting, Generally Accepted Accounting, Principles	15
II	Primary Books (Journal) Meaning and Definition, Format of Journal, Rules of Debit and Credit Opening entry, simple and compound entries, Practical Subsidiary Books (Ledger) Meaning and Uses, Formats, Posting, Practical	10
III	Cash Book Meaning, Advantages, Simple, Double and Three Column Petty Cash book with imprest system (simple and tabular forms), Practical	10
IV	Trial Balance Meaning, Methods, Advantages, Limitations, Practical Final Accounts Meaning, Procedure for preparation of final accounts Difference between Trading Accounts, Profit & Loss Accounts & Balance Sheet	15
Reference / Text Books: • element of Hotel Accounting by Dr. JM Negi & G.S. Rawat, HKS International (now Aman Publication, New Delhi). • Hotel Management Accounting & Control by Dr. JM Negi, Himalaya Publication, New Delhi. • Management Accounting by Dr. Hingorani& Prof. Ramanathan, Sultan Chand & Sons.		
If the course is available as Generic Elective then the students of following departments may opt it.		

Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	15
2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total:	100
Prerequisites for the course:	
Course Learning Outcomes: CO1- Understand basic concept of hospitality accounting system. CO2- Understand The meaning and need for accounting. CO3- Distinguish between book keeping and accounting. CO4- Record the transactions using rules of debit and credit. CO5- To check the accuracy of accounting records.	

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: VI

Programme: Degree/UG(R)/PG/Ph.D.		Year: III
Class: BHMCT		Semester: VI
Credits: 3 Theory: 3 Practical: 0		Subject: APPLICATION OF COMPUTERS AND CYBER LAW
Course Code: SEC-NBHM-361		Title: APPLICATION OF COMPUTERS AND CYBER LAW
Course Objectives: The Student will be aware and get knowledge about: 1. Various hardware and I/O devices 2. Various components of word processing 3. Various components of presentation package 4. Cyber law and cyber security		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Elements of a computer system-Definitions, Characteristics of Computers, Classification of Computers, Limitations. Hardware features and uses-Components of a Computer, Generations of Computers, Primary and Secondary Storage Concepts-auxiliary memory, RAM, ROM, cache memory, hard disks, optical disks, DVD, Mass Storage Devices and USB thumb drive. Data Entry Devices-- Keyboard, Mouse, joystick, Scanner and web cam. Data Output Devices Monitors, Printers-Dot matrix, inkjet and laser. Computer Software- Relationship between Hardware and Software; System Software, Application Software, Language Classification, names of some high level languages, Compilers and Interpreters, free domain software	15
II	Office Package-Word Processing: Word processing concepts -saving, closing, Opening an existing document, Selecting text, Editing text, Finding and replacing text, printing documents, Creating and Printing Merged Documents, Character and Paragraph Formatting, Page Design and Layout. Editing 4 and Profiling Tools: Checking and correcting spellings. Handling Graphics, Creating Tables and Charts, Document Templates and Wizards. Spreadsheet Package: Spreadsheet Concepts - Creating, Saving and Editing a Workbook, Inserting, Deleting Work Sheets, entering data in a cell / formula Copying and Moving from selected cells, handling operators in Formulae, Functions: Mathematical, Logical, statistical, text, financial, Date and Time functions, Using Function Wizard. Formatting a Worksheet: Formatting Cells – changing data alignment, changing date, number, character or currency format,	10

	changing font, adding borders and colours, Printing worksheets, Charts and Graphs – Creating, Previewing, Modifying Charts. Integrating word processor, spread sheets, web pages	
III	Presentation Package: Creating, Opening and Saving Presentations, Creating the Look of Your Presentation, Working in Different Views, Working with Slides, Adding and Formatting Text, Formatting Paragraphs, Checking Spelling and Correcting Typing Mistakes, Making Notes Pages and Handouts, Drawing and Working with Objects, Adding Clip Art and other pictures, Designing Slide Shows, Running and Controlling a Slide Show, Printing Presentations	10
IV	Cyber Law and security: Introduction to cyber law. Freedom of Speech and Expression in Cyberspace, Right to Access Cyberspace – Access to Internet, Right to Privacy, Right to Data Protection. Public policy issues in e -commerce. Protecting Privacy -Intellectual property rights. Data encryption/decryption, virus, Fire wall, Antivirus software. Cyber Crimes against Individuals, Institution and State-Hacking, Digital Forgery, Cyber Stalking/Harassment, Cyber Pornography, Identity Theft & Fraud, Cyber terrorism, Cyber Defamation. Different offences under IT Act, 200 and 208.	15

Reference / Text Books:

1. Chris Reed, John Angel – Computer Law – Oxford University Press.
2. Justice Yatindra Singh – Cyber Laws – Universal Law Publishing.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	15
2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total:	100

Prerequisites for the course:

Course Learning Outcomes:

- CO1- Get the knowledge of various components of computer systems
 CO2- Get the knowledge of word processing and editing
 CO3- Get the knowledge of power point presentation
 CO4- has basis knowledge on cyber security and cyber law

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: Degree Class:BHMCT		Year: III Semester: VI	
Credits: NC Theory: NC Practical: NC		Subject: INDUSTRIAL VISIT/SEMINAR/ PRESENTATION ON THE REPORT	
Course Code: NECC-361		Title: INDUSTRIAL VISIT/SEMINAR/ PRESENTATION ON THE REPORT	
Course Objectives: • To get the industrial exposure			
Nature of Paper: NECC			
Minimum Passing Marks/Credits: NC			
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)			
Unit	Contents	No. of Lectures Allotted	
I	STUDENTS HAVE TO GIVE A PRESENTATION ON THEIR OBSERVATIONS DURING THEIR INDUSTRIAL VISITS.		
Reference / Text Books:			
If the course is available as Generic Elective then the students of following departments may opt it. NIL			
Evaluation/Assessment Methodology			
		Max. Marks	
1) Class tasks/Sessional Examination		-	
2) Presentations/Seminar		25	
3) Assignments		-	
4) Research Project Report Seminar On Research Project Report		-	
5) ESE		-	
Total:		25	
Prerequisites for the course:			
Course Learning Outcomes: 1) Students Have To Give A Presentation On Their Observations During Their Industrial Visits.			

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: VI

Programme: Certificate		Year: III	
Class: BHMCT		Semester : VI	
Credits: NC		Subject: UNIVERSITY SOCIAL	
Theory: NC		RESPONSIBILITIES –COMMUNITY	
Practical: NC		OUTREACH	
Course Code: NECC-362		Title: UNIVERSITY SOCIAL	
		RESPONSIBILITIES –COMMUNITY	
		OUTREACH	
Course Objectives:			
To develop humanity in students			
Nature of Paper: NECC			
Minimum Passing Marks/Credits:			
L: 2			
T: 0			
P: 0 (In Hours/Week)			
Theory - 1 Hr. = 1 Credit			
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)			
Unit	Contents		No. of Lectures Allotted
I	THIS ACTIVITY IS AN ESSENTIAL PART OF THE CURRICULAM WHICH BELIEVES THAT WHAN WE ARE TAKING FROM THE SOCIETY THEN IT IS OUR MORAL DUTY TO GIVE SOMETHING BACK TO THE SOCIETY. IT ALSO DEVELOPS HABIT OF HELPING OTHERS IN THE STUDENTS.		
Reference / Text Books:			
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL			
Evaluation/Assessment Methodology			
			Max. Marks
1) Class tasks/Sessional Examination			-
2) Presentations/Seminar			25
3) Assignments			-
4) Research Project Report Seminar On Research Project Report			-
5) ESE			-
Total:			25
Prerequisites for the course:			
Course Learning Outcomes:			
CO1: This activity is an essential part of the curriculam which believes that whan we are taking from the society then it is our moral duty to give something back to the society. It also develops habit of helping others in the students.			

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: Certificate		Year: III
Class: BHMCT		Semester : VI
Credits: NC		Subject: SANSKRIT / SPIRITUAL
Theory: NC		
Practical: NC		
Course Code: MV-361		Title: SANSKRIT / SPIRITUAL
Course Objectives: To teach Sanskrit to students		
Nature of Paper: MV		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE TAUGHT THE BASICS OF SANSKRIT / SPIRITUAL TEACHING FROM BHAGWAT GEETA. THE MAIN MOTIVE OF THIS COURSE IS TO DEVELOP MORAL VALUES IN STUDENTS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: CO1: Students Are Taught The Basics Of Sanskrit / Spiritual Teaching From Bhagwat Geeta. The Main Motive Of This Course Is To Develop Moral Values In Students.		

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: Certificate		Year: III
Class:		Semester: VI
Credits: NC		Subject: SPORTS
Theory: NC		
Practical: NC		
Course Code:SPT-361		Title: SPORTS
Course Objectives: To get engage in sports		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE ENCOURAGED TO PLAY VARIOUS GAMES OF THEIR CHOICE WHETHER INDOOR OR OUTDOOR. LIKE; CARROM, CHESS, TABLE TENNIS, FOOTBALL, BASKETBALL ETC.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: CO1: Students Are Encouraged To Play Various Games Of Their Choice Whether Indoor Or Outdoor. Like; Carrom, Chess, Table Tennis, Football, Basketball etc.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: VI

Programme: Degree/UG(R)/PG/Ph.D.		Year: III
Class: BHMCT		Semester: VI
Credits: 2		Subject: FOOD PRODUCTION LAB-III
Theory: 0		
Practical: 2		
Course Code: NBHM-361P		Title: FOOD PRODUCTION LAB-III
Course Objectives: The Student will be aware and get knowledge about:		
1. Various international cuisines.		
2. Preparation of various breads.		
3. Preparation of various sponges and cakes.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0		
T: 0		
P: 2 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	INTERNATIONAL CUISINES MENUS	40
Reference / Text Books:		
1. K. Arora & K.N. Gupta – Theory of cookery.		
2. Philip Thangam – Modern cookery for teaching &The Trade (Orient Longmans Ltd.).		
3. Gisslenwayne – professional cookery (john wiley and sons).		
4. Montage – Larousse gasrtronomie (Himalaya publishing group).		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/ Sessional Examination		10
2) Presentations /Seminar		-
3) Assignments		10
4) Research Project Report/Seminar On Research Project Report		-
5) ESE		30
Total:		50
Prerequisites for the course:		
Course Learning Outcomes:		
CO1: Understand how to prepare various international cuisines.		
CO2: Demonstrate how to prepare various kinds of breads.		
CO3: Demonstrate how to prepare various sponges and cakes.		
CO4: To discuss various types of bakery desserts		
CO5: Identify and describe the key characteristics, ingredients, flavors, and cooking techniques associated with a variety of international cuisines.		
CO6: To explain the significance of traditional dishes, ingredients, and dining customs within the context of international cuisines.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: VI

Programme: Degree/UG(R)/PG/Ph.D.		Year: III
Class: BHMCT		Semester: VI
Credits: 1		Subject: FOOD AND BEVERAGE SERVICE
Theory: 0		LAB-III
Practical: 1		
Course Code: NBHM-362P		Title: FOOD AND BEVERAGE SERVICE
LAB-III		
Course Objectives: The students will get knowledge about: 1. F & B staff organization and making duty roaster and job description and specification. 2. To develop Supervisory Skills. 3. To learn about Bar Operations. 4. Preparation & Service of cocktail & mixed drinks		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	F&B Staff Organization Class room Exercise (Case Study method) Developing Organization Structure of various Food & Beverage Outlets. Determination of Staff requirements in all categories Making Duty Roster, Preparing Job Description & Specification	5
II	Supervisory Skills Conducting Briefing & Debriefing–Restaurant, Bar, Banquets & Special events, Drafting Standard Operating Systems (SOPs) for various F & B Outlets, Supervising Food & Beverage operations Preparing Restaurant Log	5
III	Bar Operations Designing & Setting the bar Preparation & Service of Cocktail & Mixed Drinks	5
Reference / Text Books: 1. Dennis R Lilicrap Food and Beverage Service 2. Matt A Casdo Food and Beverage Service 3. Michael M Coltman Beverage Management		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-

3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	15
Total:	25
Prerequisites for the course:	
Course Learning Outcomes: CO1: To understand about the F&B staff organization and making duty roaster and job description and specification. CO2: Design and develop effective organization structures for Food & Beverage outlets. CO3: Create organizational charts that clearly illustrate the roles and responsibilities of various positions within the Food & Beverage outlets. CO4: To get the knowledge about the Preparation & Service of cocktail & mixed drinks. CO5: Understand the different categories of cocktails, their ingredients, and the appropriate glassware and garnishes for each. CO6: Demonstrate knowledge of the flavor profiles and balance of ingredients to create well-crafted and visually appealing cocktails.	

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: VI

Programme: Degree/UG(R)/PG/Ph.D.		Year: III
Class: BHMCT		Semester: VI
Credits: 1		Subject: FRONT OFFICE LAB-III
Theory: 0		
Practical: 1		
Course Code: NBHM-363P		Title: FRONT OFFICE LAB-III
Course Objectives: The Student will be aware and get knowledge about		
1. To practice the mathematical equations and calculations as regard to the ARR/ARPP/% of foreigners/Indian/Other nationalities.		
2. To practice Occupancy forecast reports for establishing yield management.		
3. Night receptionist’s night reports, Guest arrival report and Night audit reports.		
4. Amenity vouchers, allowance voucher, miscellaneous charge.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0		
T: 0		
P: 1 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	To practice the mathematical equations and calculations as regard to the ARR/ARPP/% of foreigners/Indian/Other nationalities.	
II	To practice Occupancy forecast reports for establishing yield management, Room discrepancy report, OOO report, % of occupancy report, Night receptionist’s night reports, Guest arrival report and Night audit reports.	
III	Amenity vouchers, allowance voucher, miscellaneous charge voucher, Petty cash voucher their usage in the operations.	
Reference / Text Books:		
1. Dennis L. Foster: Back Office Operation & Admin.		
2. Sudhir Andrews: Hotel Front Office.		
3. Kasavana & Brooks: Managing Front office Operations.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25
Prerequisites for the course:		

Course Learning Outcomes:

CO1: To understand the mathematical equations and calculations as regard to the ARR/ARPP/% of foreigners/Indian /Other nationalities

CO2: To get the discuss Occupancy forecast reports for establishing yield management

CO3: To identify about Night receptionist's night reports, Guest arrival report and Night audit reports.

CO4: To understand about the Amenity vouchers, allowance voucher, miscellaneous charge.

CO5: Identify situations and transactions where each type of voucher is applicable and appropriate.

CO6: Apply operational vouchers as tools for tracking and controlling expenses, ensuring transparency.

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: VI

Programme: Degree/UG(R)/PG/Ph.D.		Year: III	
Class: BHMCT		Semester: VI	
Credits: 1		Subject: ACCOMMODATION OPERATION	
Theory: 1		LAB-III	
Practical: 0			
Course Code: NBHM-364P		Title: ACCOMMODATION OPERATION	
		LAB-III	
Course Objectives: The Student will be aware and get knowledge about.			
1. Standard operating procedure (SOPs) of cleaning and polishing glass, brass etc.			
2. Uses of First aid kit, dealing with emergency situation.			
3. How to overcome to Fire safety fire-fighting Safety measures, fire drill.			
4. Special decoration (theme related to hospitality industry).			
Nature of Paper: Core			
Minimum Passing Marks/Credits: 50% Marks / 1 Credits			
L: 0			
T: 0			
P: 1 (In Hours/Week)			
Theory - 1 Hr. = 1 Credit			
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)			
Unit	Contents	No. of Lectures Allotted	
I	Standard operating procedure skill oriented task (e.g. cleaning and polishing glass, brass etc.)	5	
II	First aid First aid kit, dealing with emergency situation, maintaining records Fire safety fire fighting Safety measures ,fire drill (demo)	5	
III	Special decoration (theme related to hospitality industry) indenting, costing, planning with time split, executing Layout of guest room To the scale, To earmark pillars specification of colors, furniture, fixture, fitting, soft furnishing and accessories etc. used.	5	
Reference / Text Books:			
1. John C. Branson – Hotel, Hostel & Hospital House Keeping			
2. Georgira Tucker – The Professional Housekeeper			
3. Anne Effelsberg – Flower Arranging			
4. John Ambulan/Andrews – First Aid Manual			
If the course is available as Generic Elective then the students of following departments may opt it.			
Evaluation/Assessment Methodology			
			Max. Marks
1) Class tasks/Sessional Examination			-
2) Presentations/Seminar			-
3)Assignments			10

4) Research Project Report Seminar On Research Project Report	-
5) ESE	15
Total:	25
Prerequisites for the course:	
Course Learning Outcomes: CO1: To understand the procedure of Standard operating procedure (SOPs) of cleaning and polishing glass, brass etc. CO2: To get the knowledge about the Uses of First aid kit, dealing with emergency situation. CO3: To understand that, How to overcome to Fire safety firefighting Safety measures, fire drill. CO4: To describe the knowledge about the Special decoration (theme related to hospitality industry). CO5: Understand the concept of scale in interior design and effectively utilize it to create balanced and proportionate spaces. CO6: Apply principles of furniture selection, arrangement, and placement to create functional and aesthetically pleasing interior layouts.	

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VII
Credits: 4		Subject: Food Production-IV
Theory: 4		
Practical: 0		
Course Code: NBHM-471		Title: Food Production-IV
Course Objectives: The Student will be aware and get knowledge about		
1. Menu Planning, menu balancing and Food cost, Factors influencing menu planning. Standardization of Portion, Recipe and Yield Management.		
2. Brine, Cure, Marinades – Types, preparation, Uses and Difference.		
3. Appetizer and Garnishes – their classification.		
4. Balanced Diet-Concept, Importance, Planning of Special diets. Nutritional value and calculation of Calorific value		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4		
T:		
P: (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Menu Planning Introduction to Menu Planning, Principles of Menu Planning, Menu balancing and food costing, Factors influencing menu planning for regional and industrial menus, Standardizing of Portions of Recipes and benefits of same , Yield management and Indenting.	15
II	BRINES, CURES & MARINADES A. Types of Brines B. Preparation of Brines C. Methods of Curing D. Types of Marinades E. Uses of Marinades F. Difference between Brines, Cures & Marinades	15
III	Appetizers and garnishes Introduction, Classification of Appetizers, Garnishing of Hors D'oeuvres, Popular traditional Appetizers from the World, Modern Plated Appetizers	15
IV	Balanced Diet Hotel, Hospitality, and Heritage Studies, Introduction to the concept of a balanced diet, Need &importance of balanced diet in modern lifestyle, Nutritional Values – Calculations of calorific values, fortification, Specially planned diets for – Hypertension & Heart - (Sodium & cholesterol restricted), Diabetic – (Starch & Sugar restricted), Obesity – (Low Calorie), Invalid – (Recovery from illness)	15
Reference / Text Books:		
1. Bali, Parvinder (212). International Cuisine & Food Production. Oxford University Press.		
2. Philip E. Thangam, Heinemann (210) Modern Cookery. Orient Longman.		

3. Arora, K (208). Theory of Cookery. Frank Brothers.	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	15
2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total:	100
Prerequisites for the course:	
Course Learning Outcomes: The students have knowledge about CO1: Develop well-balanced menus considering cost, preferences, and nutrition CO2: Prepare and apply brines, cures, and marinades for enhanced flavors. CO3: Create and present appetizers and garnishes that enhance dining experiences. CO4: Design and execute special diets with nutritional adequacy and diversity. CO5: Analyze nutritional and calorific values for informed decision-making. CO6: Use standardization for portion control, recipe development, and yield management.	

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VII
Credits: 4		Subject: Food & Beverage Service-IV
Theory: 4		
Practical: 0		
Course Code: NBHM-472		Title: Food & Beverage Service-IV
Course Objectives: The student will get knowledge about: 1. To elaborate the personal management (allocation of work, customer relation) 2. To describe the event management (components of events, staffing, leading) 3. Student will knowledge about industrial, institutional & hospital catering services 4. Student get knowledge about cruise liners & airlines		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Personal Management in F & B Service a) Developing a good F & B Team (desirable attributes for various levels of hierarchy) b) Allocation of work, Task Analysis and Duty Roaster c) Performance Measure d) Customer Relations e) Sales Promotion	15
II	Event Management a) Concept, Nature, Scope & its Significant b) Components of Events c) Conceptualizing and designing events d) 5C's of events Planning, e) Organizing, staffing, leading, Coordination, Controlling	15
III	INDUSTRIAL/INSTITUTIONAL, HOSPITAL CATERING SERVICES a) Definitions & Examples. b) Menu planning & role of dietician. c) Determination of subsidy. d) Food Handling	8
IV	CRUISE LINERS & AIRLINES a) Deck Management, b) Tray/Trolley Set Up, c) Services on the Slip/Craft, d) Food Delivery System in Airlines & Cruise Liners.	10

Reference / Text Books:

1. Jaffrey T Clarke Table and Bar Dennis R Lilicrap Food and Beverage Service.
2. Matt A Casdo Food and Beverage Service, Michael M Coltman Beverage Management.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	15
2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total:	100

Prerequisites for the course:

Course Learning Outcomes: The Student will be aware and get knowledge about:

- CO1: Operate work and effectively manage time in a professional kitchen or food service setting.
 CO2: Build strong customer relations through effective communication and problem-solving skills.
 CO3: Understand and apply the components of event management, including staffing and leadership
 CO4: Assess knowledge of industrial, institutional, and hospital catering services.
 CO5: Develop an understanding of the unique requirements of cruise liners and airlines in the food service industry.
 CO6: Apply personal and event management principles in practical scenarios.

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VII
Credits: 2		Subject: Front Office-IV
Theory: 2		
Practical: 0		
Course Code: NBHM-473		Title: Front Office-IV
Course Objectives: The student will get knowledge about: 1. To elaborate the Timeshare and Vacation Ownership (timeshare options, timeshare business) 2. The student will get knowledge about Front Office Arrangements (Independent hotels, International Business) 3. Student gets knowledge about Computer Applications in Front Office. 4. Student gets knowledge about Quality Management System In Hotels.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Timeshare and Vacation Ownership: Definition and Types of Timeshare Options - Advantages and Disadvantages of Timeshare business - Exchange Companies – Resort Condominium International - Intervals International-AIRDA advantages – role of government and industry.	5
II	Front Office Arrangements Independent hotels, International Business, Lease agreement, Franchise, Contract, Chain Incorporation, Management groups	5
III	Computer Applications in Front Office Property management system: Micros, Amadeus, Ids Fortune, Shaw man, PMS interface with stand-alone systems	10
IV	Quality Management System In Hotels Concept and Importance, Guest perception of quality, Features of quality management, Benefits of quality management	10
Reference / Text Books: • Dennis L. Foster - Front Office Operation & Admin. • Bruce Braham - Hotel Front Office		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-

3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: The Student will be aware and get knowledge about: CO1: Understand the timeshare and Vacation Ownership (timeshare options, timeshare business) CO2: Analyze various modes of Front Office Arrangements (Independent hotels, International Business) CO3: Get knowledge about Computer Applications in Front Office. CO4: Understand the Quality Management System In Hotels.	

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VII
Credits: 2		Subject: ACCOMODATION OPERATION-IV
Theory: 2		
Practical: 0		
Course Code: NBHM-474		Title: ACCOMODATION OPERATION-IV
Course Objectives: The student will get knowledge about: 1. The course has been developed to provide students Changing Trends in Housekeeping 2. To enable students to understand the significance of a Ergonomics in Housekeeping 3. The unit envisages introducing students to Ecotels Certifications, Choosing an Eco-friendly 4. The unit envisions providing students work Environment Safety, potential Hazards in Housekeeping		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 4 T: P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Changing Trends in Housekeeping Hygiene, Training and Motivation, Eco friendly Amenities New Scientific Techniques, IT Savvy Housekeeping	5
II	Ecotels Ecotels Certifications, Choosing an Eco-friendly site, Hotel Design and Construction, Eco-friendly Housekeeping, Water Conservation, Energy Conservation	5
III	Safety and Security Work Environment Safety, Potential Hazards in Housekeeping ,Crime Prevention , Key and their Control, Scanty Baggage	5
IV	Ergonomics in Housekeeping Internal Environment (Noise, Air Conditioning and Lighting) Supervision in Housekeeping	5
Reference / Text Books: 1. Martin Robert J (1998), Professional Management Of Housekeeping Operation. 2. Hotel Housekeeping Training Manual- Sudhir Andrews. 3. Hotel Housekeeping Operation And Management G. Raghubalan And Smritte Raghubalan (207). 4. Hotel, Hostel and Hospital Housekeeping –Joan Branson And Margaret Lennox.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-

3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: CO1: Students would be able to explain in detail about the Changing Trends in Housekeeping. CO2: Students will be clear about the Ecotels Certifications, Choosing an Eco-friendly. CO3: Student will understand Ergonomics in Housekeeping. CO4: Remember students would be able to prepare Environment Safety, potential Hazards in Housekeeping.	

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VII

Programme: Degree/UG(R)/PG/Ph.D.		Year: IV
Class: BHMCT		Semester: VII
Credits: 2		Subject: EVENT MANAGEMENT
Theory: 2		
Practical: 0		
Course Code: NBHM-475B		Title: EVENT MANAGEMENT
Course Objectives: 1. Determine meeting objectives. 2. Prepare a budget for an event or meeting. 3. Prepare a site suitable for a specific group and their event or meeting objectives. 4. Promote an event or meeting. 5. Accommodate essential housing, transportation, food, entertainment, and communications needs for an event or meeting.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Events The Concept, Nature, Definition and scope C"s of Events, advantage and disadvantage of Events Categories and Typologies, Skills required to be a good Event Planners.	10
II	Organizing& Designing of Events Key elements of Events, Event Infrastructure Core concept, core people, core talent, core structure Setting Objectives for the Event, Negotiating Contracts with event Organizers, Venue, Media.	10
III	Marketing & Promotion of Events Nature of Event Marketing, Process of Event Marketing, The Marketing Mix, Sponsorship. Promotion: Image Branding, Advertising, Publicity and Public Relation	10
IV	Managing Events Financial Management of Events, Staffing, Leadership. Safety and Security: Occupational Safety and Health, Incident Reporting, Crowd Management and Evacuation.	10
Reference / Text Books: 1. Singh, R., Meeting Conference Association, Event and Destination Management, Kanishka Publishers and Distributors, 206 2. Hoyle, L. H., Dorf, D.C., & Jones, T. J. A., Convention Management and Service. Educational		

institute of AH & MA., 1995	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: By the end of this course student would be able to: CO1: Analyze the role of events in image building. CO2: Explain all the steps of planning and organizing an event. CO3: Plan and organize events. CO4: Discuss ways of strategic marketing and media planning for events. CO5: Demonstrate knowledge and ability to identify risk areas, evaluate safety measures.	

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VII

Programme: Certificate/Diploma/ Degree Class:		Year: IV Semester: VII
Credits: 2 Theory: 2 Practical: 0		Subject: Total Quality Management
Course Code: NBHM-475A		Title: Total Quality Management
Course Objective:- The Student will get knowledge about: 1. To understand the core concepts of total quality management 2. To understand various quality certificates and Audits 3. To understand the concept of work culture and employee satisfaction 4. Communication & its importance in TQM		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Quality: Definitions of Quality, Basic Concepts and Quality Plans, Core Concepts of TQM : Internal Customer (Importance to keep the internal customer happy and satisfied), Right First Time (Zero Defects), Customer Focus (Importance of Complaining Customers), Continuous Improvement (PDCA/PDSA Cycle)	10
II	Quality Certifications and Audits: International Organisation for Standardisation (ISO), Environmental Management System (EMS), Six Sigma Certification, Brand Standard Audit	10
III	Employee Satisfaction: Training: Need and Importance, Employee Opinion Survey: Need and Importance, Empowerment: Definition and effects. Culture at work: Vision Statement, Mission Statement, Work Culture: Pillars of great working environment - Honesty, Integrity, Team work, Loyalty.	10
IV	Customer Satisfaction: Importance of Customer Satisfaction, Methods of measuring Customer Satisfaction, Comment Cards, Telephone Calls, Emails, Handling guests' complaints. Communication & its importance in TQM: Importance of proper communication, Effective ways of communication, Communication Barriers	15
REFERENCE BOOKS: 1. Managing Quality in Science Sector – Mike Asher 1996 – Kogan Page Ltd. 2. The essence of Total Quality Management – John Bank 1996 – Practice Hall of India Pvt. Ltd. New Delhi. 3. Word of Kaizen - A Total Quality Culture of Survival – Shyam Talawadekar – Published by Quality Management System, Thane		

4. Quality is Free – and Quality is still Free by Philip Crosby	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	0
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcome CO1: To develop the core concepts of total quality management CO2: Use various quality certificates and Audits CO3: Apply the concept of work culture and employee satisfaction CO4: Understand the Communication & its importance in TQM	

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VII

Programme: Certificate/Diploma/ Degree Class:		Year: IV Semester: VII
Credits: 3 Theory: 3 Practical: 0		Subject: Hospitality Sales
Course Code: SEC-NBHM-476		Title: Hospitality Sales
Course Objective:- The Student will get knowledge about: 1. Hospitality Sales and marketing 2. Recruitment and training process 3. Concept of internal sales 4. Concept of hospitality sales process		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Hospitality Sales: Concept of Hospitality Sales, Difference between Hospitality Sales and Marketing, Coordination of Sales department with other operational and allied departments Organization of Sales Department: Organization structure of a small and large hotel, Functions of a Director of Sales (DOS), Sales Manager and Other Sales personnel	10
II	Recruitment and training: Attributes of a Sales personnel, Recruitment process for Sales personnel, Importance of training for Sales personnel, Assessment of training needs, Types of training for sales personnel	10
III	Internal Sales: Role of employees in internal sales, Reservation Department-Electronic and Telephone Sales, Selling techniques: Upselling, Suggestive selling, Cross selling, Sales promotion tools, Special Promotion, Merchandising Banquet and Meeting Room Sales: Banquet/Catering Sales, Developing leads Selling to clients, Planning the function, Follow up Meeting Room Sales: Components of sales package, Types of set ups and facilities, Booking meeting rooms	10
IV	Hospitality Sales Process: Prospecting (Methods of Prospecting), Pre approach (Preparations), Approach, Negotiations, Overcoming objections, Closing, Follow-up Selling practices: Identifying Market segmentation, Concept selling (Event, Destination), Selling to Business and Leisure Travelers, Selling to specialty markets, Role of intermediaries in sales. Role of Technology in Hospitality Sales: Sales Office Automation, Point of	15

Sales System (POS), Property Management Software (PMS), Centralized Reservation Process(CRS), Global Distribution System (GDS)	
REFERENCE BOOKS: 1. Hospitality Sales: Selling Smarter - Judy Siuaw. David C Bojanic, Delmar Publications. 2. Sales & Marketing: A Textbook for Hospitality Industry-Sudhir Andrews, Tata McGraw-Hill Publications. 3. Hospitality Sales and Marketing - James R. Abbey, Educational Institute of the American Hotel & Lodging Association, 214.	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	15
2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total:	100
Prerequisites for the course:	
Course Learning Outcome CO1. Understand the relation of sales department with other departments CO2: Apply various recruitment rules with relation to job description CO3: Apply the concept of internal sales to achieve targets. CO4: Apply various selling practices.	

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: Certificate		Year: IV
Class:		Semester: VII
Credits: NC	Subject: INDUSTRIAL VISIT/SEMINAR/ PRESENTATION ON THE REPORT	
Theory: NC		
Practical: NC		
Course Code: NECC-471		Title: INDUSTRIAL VISIT/SEMINAR/ PRESENTATION ON THE REPORT
Course Objectives: 1. To get industry Exposure		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS HAVE TO GIVE A PRESENTATION ON THEIR OBSERVATIONS DURING THEIR INDUSTRIAL VISITS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: 1. Prepare and present a report on industrial visit.		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: Certificate		Year: IV
Class:		Semester: VII
Credits: NC		UNIVERSITY SOCIAL RESPONSIBILITIES – COMMUNITY OUTREACH
Theory: NC		
Practical: NC		
Course Code: NECC-472		UNIVERSITY SOCIAL RESPONSIBILITIES – COMMUNITY OUTREACH
Course Objectives:		
1. Develop the feeling of giving back to society		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	THIS ACTIVITY IS AN ESSENTIAL PART OF THE CURRICULAM WHICH BELIEVES THAT WHAN WE ARE TAKING FROM THE SOCIETY THEN IT IS OUR MORAL DUTY TO GIVE SOMETHING BACK TO THE SOCIETY. IT ALSO DEVELOPS HABIT OF HELPING OTHERS IN THE STUDENTS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
This activity is an essential part of the curriculum which believes that whan we are taking from the society then it is our moral duty to give something back to the society. It also develops habit of giving		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: Certificate		Year: IV
Class:		Semester: VII
Credits: NC		Subject: SANSKRIT / SPIRITUAL
Theory: NC		
Practical: NC		
Course Code: MV-471		Title: SANSKRIT / SPIRITUAL
Course Objectives:		
1. Teavh Sanskrit to students		
Nature of Paper: MV		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE TAUGHT THE BASICS OF SANSKRIT / SPIRITUAL TEACHING FROM BHAGWAT GEETA. THE MAIN MOTIVE OF THIS COURSE IS TO DEVELOP MORAL VALUES IN STUDENTS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
1. To Develop Moral Values In Students.		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: Certificate		Year: IV
Class:		Semester: VII
Credits: NC		Subject: SPORTS
Theory: NC		
Practical: NC		
Course Code: SPT-471		Title: SPORTS
Course Objectives: 1. Engage in sports.		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE ENCOURAGED TO PLAY VARIOUS GAMES OF THEIR CHOICE WHETHER INDOOR OR OUTDOOR. LIKE; CARROM, CHESS, TABLE TENNIS, FOOTBALL, BASKETBALL ETC.	
Reference / Text Books: NIL		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: 1. To play various games of their choice.		

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VII
Credits: 2	Subject: Food production Lab-IV	
Theory: 0		
Practical: 2		
Course Code: NBHM-471P		Title: Food production Lab-IV
Course Objectives: 1. Preparation of Appetizers 2. Knowing the use of Brine, Cure and Pickling 3. Customization of menu for special dietary conditions.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: 4 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Preparation of various appetizers	10
II	Brining, curing & Pickling	10
III	Customize menu for special dietary conditions like Hypertension, Diabetes	20
Reference / Text Books: 1. Bali, Parvinder (212). International Cuisine & Food Production. Oxford University Press. 2. Philip E. Thangam, Heinemann (210) Modern Cookery. Orient Longman. 3. Arora, K (208). Theory of Cookery. Frank Brothers.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		25
4) Research Project Report Seminar On Research Project Report		-
5) ESE		25
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: CO1: Know how to prepare Appetizers. CO2: Preparation of Brine, Curing mixture and pickles. CO3: Formulate special menu.		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VII
Credits: 1		Subject: Food & Beverage Service Lab-IV
Theory: 0		
Practical: 1		
Course Code: NBHM-472P		Title: Food & Beverage Service Lab-IV
Course Objectives:		
1. This course aims to introduce students with the different types of banquet setup and menu planning with wine pairing. Also, students will get exposure to learn calculation of F&B cost.		
2. This course aims to make students understand the theme designing of restaurant concepts including regional, continental and oriental.		
3. This course aims to make students understand the menu designing and it's pricing with various buffet arrangements done in food service industry.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L:		
T:		
P: 2 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	1. Practicing the all previous semester practical. 2. Making of duty roaster for different F&B outlets. 3. Food Service Procedure in transport Catering. 4. Menu Planning for Hospitals and institutional establishments. 5. Case studies of different theme events like exhibitions, weddings etc. 6. Planning & organizing of different events. 7. Checklist for different events organized in the department	15
Reference / Text Books:		
1. Jaffrey T Clarke Table and Bar Dennis R Lilicrap Food and Beverage Service.		
2. Matt A Casdo Food and Beverage Service, Michael M Coltman Beverage Management.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25
Prerequisites for the course:		

Course Learning Outcomes:

CO1: Analyze the various banquet setups and menu planning with wine pairing. Also, students will get exposure to learn calculation of F&B cost.

CO2: Understand the theme designing of restaurant concepts including regional, continental and oriental.

CO3: Apply the menu designing and it's pricing with various buffet arrangements done in food service industry.

CO4: Students will have the ability to effectively plan and organize different types of events.

CO5: Students will be able to develop detailed checklists specific to different events organized within a department.

CO6: Students will understand the importance of checklists in ensuring smooth execution and will be equipped with the ability to create well-structured and organized event checklists.

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VII
Credits: 1		Subject: Front Office LAB-IV
Theory: 0		
Practical: 1		
Course Code: NBHM-473P		Title: Front Office LAB-IV
Course Objectives:		
1. The course has been developed to enable the students with knowledge of front office accounting and it's utility.		
2. Aims to augment skills for learning & operating property management in hotel industry.		
3. To become acquainted with night audit, its importance and responsibility of night auditor.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L:		
T:		
P: 2 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	1. Recapitulation of previous semester. 2. Recapitulation of all the important forms and formats used in front office 3. Familiarization with the different software used in computer. 4. Understand and handle the procedure of PMS 5. Familiarization with different tools of Yield Management. 6. Familiarize with the standards of Quality 7. To visit different categories of Properties	15
Reference / Text Books:		
• Dennis L. Foster - Front Office Operation & Admin.		
• Bruce Braham - Hotel Front Office.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25
Prerequisites for the course:		

Course Learning Outcomes:

CO1: Remember, understand and apply the appropriate concepts of accounts, folios, posting, voucher, ledger & their types and also to evaluate and analyze the usage of each.

CO2: Remember, understand and apply the process of Night audit and analyze the various types of Night Audit reports.

CO3: Remember, understand and analyze knowledge about functions of PMS in different module and will be able to describe the concerns in selecting appropriate PMS.

IIMTU-NEP IMPLEMENTATION

Year: IV/ Semester: VII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VII
Credits: 1		Subject: ACCOMODATION OPERATION
Theory: 0		LAB-IV
Practical: 1		
Course Code: NBHM-474		Title: ACCOMODATION OPERATION LAB-IV
Course Objectives: The student will get knowledge about: 1. The course has been developed to provide students with an introduction to the world of housekeeping and particularly as it applies to Wi-Fi, WALNs, GPS, VoIP, Uses of energy conserving products 2. To enable students to understand the preparing of checklist both for rooms and public area. Inspection through checklist 3. The student will get knowledge about Estimation or eco-friendly site Handling of keys for security reason		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: T: P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Using of latest in IT amenities in the housekeeping department Wi-Fi, WALNs, GPS, VoIP, Uses of energy conserving products Water conservation, Uses of eco-friendly amenities Estimation or eco-friendly site Handling of keys for security reason Handling scanty baggage guest. Methods of handling housekeeping equipment's and materials. Implementing the need of ergonomics in housekeeping Analysis the significance of ergonomics Preparing of checklist both for rooms and public area. Inspection through checklist	
Reference / Text Books: 1. Martin Robert J (1998), Professional Management Of Housekeeping Operation. 2. Hotel Housekeeping Training Manual- Sudhir Andrews. 3. Hotel Housekeeping Operation And Management G. Raghubalan And Smritte Raghubalan (207). 4. Hotel, Hostel and Hospital Housekeeping –Joan Branson And Margaret Lennox.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
Max. Marks		

1) Class tasks/Sessional Examination	-
2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	15
Total:	25
Prerequisites for the course:	
Course Learning Outcomes: CO1: Students will acquire knowledge and learn about the world of housekeeping and particularly as it applies to Wi-Fi, WALNs, GPS, VoIP, Uses of energy conserving products. CO2: They will be able to the preparing of checklist both for rooms and public area. Inspection through checklist. CO3: Students will understand about the or eco-friendly site Handling of keys for security reason.	

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: Certificate		Year: IV
Class:		Semester: VII
Credits: 6		Subject: DISSERTATION
Theory: 0		
Practical: 6		
Course Code: NBHM-477P		Title: DISSERTATION
Course Objectives: 1. Gain in-depth knowledge and use adequate methods in the major subject/field of study. 2. Create, analyze and critically evaluate different technical/research solutions 3. Clearly present and discuss the conclusions as well as the knowledge and arguments that form the basis for these findings 4. Identify the issues that must be addressed within the framework of the specific dissertation in order to take into consideration		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 50% Marks / 3 Credits		
L: 0 T: 0 P: 6 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE SUPPOSED TO CHOOSE A TOPIC OF THEIR CHOICE AND PREPARE A SYNOPSIS AND PROJECT REPORT ON THAT. IT WILL BE EVALUATED ON THE BASIS OF PRESENTATION AND VIVA-VOCA.	
Reference / Text Books: Nil		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		10
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		20
5) ESE		70
Total:		100
Prerequisites for the course:		
Course Learning Outcomes: CO1: To have an idea about the project / research. CO2: To get familiar with the problem persistence and looking out for solutions. CO3: Have an idea about project / report writing. CO4: Motivation to the students for innovation.		

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VIII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VIII
Credits: 4		Subject: Food Production-V
Theory: 4		
Practical: 0		
Course Code: NBHM-481		Title: Food Production-V
Course Objectives: The Skill Course in "Food Production-VI" is designed with the following objectives: 1. To develop skills in western cuisines. 2. To be taught European cuisines and assist students in small scale food service unit. 3. It also equips the student to find employment in canteens, restaurants, hostel, railway catering and mobile catering. 4. To develop in-depth knowledge of Western, European, Oriental & Western Countries.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Western Cuisines Introduction, Italian Cuisine, Mediterranean Cuisine, Mexican Cuisine	15
II	European Cuisines Introduction; French Cuisine; Cuisine of the UK; Scandinavian Cuisine, German Cuisine	15
III	Oriental Cuisines Introduction; Chinese Cuisine; Japanese Cuisine, Thai Cuisine,	15
IV	Western plated Food Introduction, The concept of plate presentation, Merging flavors, shapes and textures on plate, Emerging trends in Food presentation	15
Reference / Text Books: 1. Bali, Parvinder (212). International Cuisine & Food Production. Oxford University Press. 2. Philip E. Thangam, Heinemann (210) Modern Cookery. Orient Longman.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100

Prerequisites for the course:

Course Learning Outcomes: At the end of course the student will be able to:-

CO1: Demonstrated ability to identify solutions to problems related to the processing of food and to apply and expand upon the theoretical concepts presented in lectures.

CO2: Demonstrated familiarity and competence with the practical skills and techniques used to process food. This will include planning a production run, preparation of raw materials, the use of processing equipment and appropriate methods of different regions cuisines.

CO3: Ability to use terminology, appropriate to the field of different regions cuisines that how to prepared & how to served to the guests.

CO4: To build up thoroughly knowledge of Western, European, and Oriental & Western Countries Cuisines.

CO5: Develop knowledge of the history, cultural influences, and key ingredients of Chinese, Japanese, and Thai cuisines.

CO6: Develop the ability to merge flavors, shapes, and textures on a plate to create visually appealing and appetizing dishes.

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VIII

Programme: UG(R) Class: BHMCT	Year: IV Semester: VIII	
Credits: 4 Theory: 4 Practical: 0	Subject: FOOD & BEVERAGE SERVICE MANAGEMENT	
Course Code: NBHM-482	Title: FOOD & BEVERAGE SERVICE MANAGEMENT	
Course Objectives: The Skill Course in "Food & Beverage service" is designed with the following objectives: 1. To study the basic concept of supervisory functions in food service operations. 2. To become skilled at that how to handling complaints; training the staff. 3. To obtain the acquaintance about the CRM. 4. To gain knowledge of the basics of receiving, storing & issuing control.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L:4 T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Function Catering Introduction, Types of Functions; Function Staff; Function Menus; Service Methods; Function Equipment; Table Plans; Function Booking Organization; Organizing the function; Outdoor Catering	15
II	Supervisory Functions in Food Service Operations (Briefing, Allocation of tables, Checking the mise en place & miseen scene, Handling tips, Stock Taking, Requisition; Sales analysis, Cost analysis; Break Even Point Calculations; Handling Complaints; Training the Staff	15
III	Customer Relationship Management Introduction; Importance of Customer Relations (Regular guests, Occasional guests, first time visitors); Guest Satisfaction Menu, Consistency in the quality of dishes and Service, Food Safety & Hygiene, Attitude of Staff, Complaint Handling; Suggestions by Guests.	15
IV	RECEIVING, STORING AND ISSUING CONTROL Goods Received Book, Daily Receiving Report Meat Tags, Receiving Procedure, Blind Receiving. Storing Control, Aims of Store Control, Stock Control, Stock Records Maintained Bin Cards (Stock Record Cards/Books), Issuing Control Requisition	15
Reference / Text Books: 1. Food and Beverage Management-6th Edition-Bernard Davis, Andrew Lockwood, Peter Alcott, Ioannis S. Pantelidis.		

2. Food and Beverage Management, by Sudhir Andrews.	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	15
2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total:	100
Prerequisites for the course:	
Course Learning Outcomes: By the end of this course, learners would be able to, CO1: To comprehend the basic concept of supervisory functions in food service operations. CO2: To be aware of the concept off that, how to handling complaints; training the staff. CO3: To obtain in-depth information of CRM. CO4: To understand the basics of receiving, storing & issuing control.	

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VIII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VIII
Credits: 2		Subject: MANAGEMENT INFORMATION SYSTEM
Theory: 2		
Practical: 0		
Course Code: NBHM-483		Title: MANAGEMENT INFORMATION SYSTEM
Course Objectives: The objective of the course is to: 1. To describe the role of information technology and decision support systems in business and record the current issues with those of the firm to solve business problems. 2. To introduce the fundamental principles of computer-based information systems analysis and design and develop an understanding of the principles and techniques used. 3. To enable students understand the various knowledge about PMS role and different electronic system and guest information system. 4. To allow the students in order to assess the description of the budget control and understand the precise yield management.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	MANAGEMENT INFORMATION SYSTEM (MIS) Concept, MIS design & Functions, Managing Multi processor Environment, MIS Security Issues, MIS Performance Evaluation	5
II	COMPUTER-BASED RESERVATION SYSTEM System Global Distribution System, Inter Sell Agencies, Central Reservation System (CRS), Affiliate & Non Affiliate System, Property Level Reservation, Reservation Inquiry, Determination of Availability, Creation of Reservation Record, Maintenance of Reservation Records, Generation of Reports, New Developments, Reservation through the Internet	10
III	PROPERTY MANAGEMENT SYSTEM INTERFACES Point of Sale System (POS), Cash Accounting system (CAS), CAS / PMS Advantages & Concerns, Electronic locking system, Energy Management system, and Auxiliary guest services. guest operated devices, In room vending system, Guest information system	10
IV	Budget and budgetary control, Basis of charges & tariff formulation for the rooms, Occupancy forecasting, Yield management	5
Reference / Text Books: 1. Bruce Braham Hotel Front Office James A Bardi 2. Hotel Front Office Management D P Goel Managing information system		

3. M J Kasavana Application of Computers in hospitality Industry	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations /Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	25
Total:	35
Prerequisites for the course:	
Course Learning Outcomes: Upon completion of this course, students will be able to: CO1: Relate the basic concepts and technologies used in the field of management information systems; CO2: Compare the processes of developing and implementing information systems. CO3: Outline the role of the ethical, social, and security issues of information systems. CO4: Translate the role of information systems in organizations, the strategic management processes, with the implications for the management. CO5: Apply the understanding of how various in sequence systems like budgetary control and Hotel Occupancy forecasting.	

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VIII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VIII
Credits: 2		Subject: ACCOMMODATION MANAGEMENT
Theory: 2		
Practical: 0		
Course Code: NBHM-484		Title: ACCOMMODATION MANAGEMENT
Course Objectives: The objective of the course is to:: 1. Identify levels of housekeeping Budgeting for Housekeeping Expenses. 2. To enumerate areas of Interior Designing and Interior Decoration. 3. Discover a step by step action plan for the Facilities Planning and Facilities Management. 4. To know about Ecotels hotels & Certification requirements.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Budgeting for Housekeeping Expenses Introduction, Types of Budgets, Housekeeping Expenses (Operating Expenses and Capital Expenses); Budget-Planning Process; Income Statement of the Rooms Division; Controlling Expenses (Controlling Operating Expenses and Cost Control in Specific Areas); Inventory Control and Stock-Taking; Purchasing (Principle, Stages and Types of Purchasing; Annual Purchases of Guest Room Supplies, Cleaning Supplies and Linen)	10
II	Interior Designing and Interior Decoration Interior Designing: Introduction, Objectives of Interior Design; Basis Types of Design; Elements of Design; Principles of Design; Units of Design; Designing for the Physically Challenged; Interior Decoration: Introduction, Color; Lighting; Floor Coverings and Finishes, Types, Characteristics and Cleaning of Floor Coverings, Carpets, Important of Floor Maintenance, Ceilings and Their Maintenance, Wall Coverings, Windows and Window Treatments; Accessories.	10
III	Facilities Planning and Facilities Management Introduction, Factors Considered in Planning and Designing of Hospitality Facilities, Stages in Developing Hospitality Property, Facilities Management: Introduction, Role of Facilities Manager, Common Services Provided by Facilities Management Companies, Components of Facilities Management.	5
IV	Ecotels Introduction, Ecotel Certification, Choosing an Eco-friendly Site; Hotel Design and Construction, Energy Conservation, Energy Conservation; Water Conservation, Waste Management: Environment - Friendly Housekeeping.	10

	Changing Trends in Housekeeping Introduction, Hygiene, Outsourcing; Training and Motivation (Training and Motivating), Trends (Woen’s-only Floors, Design Trends, Amenity Trends, Process Trends), Eco-Friendly Amenities, Products, and Processes, New Scientific Techniques.	
Reference / Text Books:		
1. Raghubalan, G. (217). Hotel Housekeeping Operations & Management. New Delhi: Oxford University Press.		
2. Andrew, Sudhir. (213). Hotel Housekeeping. New Delhi: Tata McGraw-Hill Publishing Company Limited.		
3. Branson, C. & Lennox, Margaret (213). Hotel, Hostel & Hospital Housekeeping. Britain: The Bath Press.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: Upon completion of this course, students will be able to:		
CO1: To be acquainted with the in-depth knowledge about levels of housekeeping Budgeting for Housekeeping Expenses.		
CO2: To Enumerate the areas of Interior Designing and Interior Decoration.		
CO3: To develop a step by step action plan for the Facilities Planning and Facilities Management.		
CO4: To be familiar with about Ecotels hotels & Certification requirements		

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VIII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VIII
Credits: 2		Subject: Research Methodology
Theory: 2		
Practical: 0		
Course Code: NBHM-485		Title: Research Methodology
Course Objectives: 1. To understand some basic concepts of research and its methodologies 2. To select and define appropriate research problems and parameters 3. To understand how to prepare a project proposal (to undertake a project) 4. How to organize conduct research in more appropriate manner 5. To write a research report, research proposal		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	RESEARCH –MEANING, IMPORTANCE & RESEARCH DESIGN a. Introduction b. Meaning and Importance c. The basis of classification of various types of research design	10
II	DATA COLLECTION a. Types of Data b. Secondary data, Sources c. Primary data, Sources d. Sampling, Importance, Basic concepts e. Questionnaire, Format and Administration, Steps involve in developing a Questionnaire f. Interviews	7
III	DATA PROCESSING a. Quality research, Introduction, Difference between Quality and Quantity research b. Editing of Data, Coding of Data, Data Classification, Graphical Presentation of Data c. Report writing-steps involved, layout of report, mechanics of report writing, precautions of writing research writing d. Oral Presentation	7
IV	DATA ANALYZING & DRAFTING OF CONCLUSIONS AND RECOMMENDATIONS a. Meaning and scope of data analysis	10

	b. Methods of Data analysis. c. Generating Findings. d. Drafting of conclusions and recommendations	
V	Methodology of presentation of research project a. Meaning of presentation b. Presentation as tool c. Techniques of presentation of research project d. How to deal with queries / questionnaire during presentation	6
Reference / Text Books: 1. Robert C Lewis Marketing Research John Roberts. 2. Marketing for the Hospitality Industry Dennis L Foster. 3. Hospitality Marketing and Sales for Resorts, Motels And Hotels.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: CO1: Demonstrate knowledge of research processes (reading, evaluating, and developing). CO2: Perform literature reviews using print and online database. CO3: Employ American Psychological Association (APA) formats for citation of print and electronic materials. CO4: Identify, explain, compare and prepare the key elements of a research proposal report.		

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VIII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VIII
Credits: 2		Subject: Adventure Tourism
Theory: 2		
Practical: 0		
Course Code: NBHM-486A		Title: Adventure Tourism
Course Objectives: 1. Understand the meaning and definition of adventure tourism 2. Understand various activities fall in the category land based adventure tourism 3. Understand various activities fall in the category Water based adventure tourism 4. Understand various activities fall in the category Air based adventure tourism		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Meaning and Definition of Adventure Tourism: Meaning, definitions; classification of adventure tourism. Difference between adventure and sports, weather and climate and their relationship with adventure tourism	10
II	Land based Adventure Tourism: Mountaineering, rock climbing; repelling, bouldering; trekking; skiing; safaris and its types. The equipment used in land based adventure tourism, popular land based adventure places in India	10
III	Water Based Adventure Tourism: Snorkelling; scuba diving; rafting; kayaking; canopying and surfing. Equipment used in water based adventure tourism. Popular water based adventure places in India	10
IV	Air Based Adventure Tourism: Paragliding, sky diving, bungee jumping, hang gliding, ballooning, micro light flying etc. Equipment used in air based adventure tourism. Popular air based adventure places in India. Major Adventure institutions in India, scope and future prospect of adventure tourism in India	10
Reference / Text Books: 1. Peter Varley, Steve Taylor and Tony Johnston ed (213), Adventure Tourism: Meanings, experience and learning, Routledge. 2. Buckley, Ralf (206). Adventure Tourism. CABI International. 3. Malik, S.S. (1997). Adventure Tourism, New Delhi: Rahul Publishing. 4. Sharma, K. Jitendra (208), Types of Tourism and ways of Recreation: Elements, Dimensions and Trends, Kanishka.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		

	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: CO1: Understand the meaning and definition of adventure tourism. CO2: Basic knowledge of various activities fall under the category land based adventure tourism. CO3: Basic knowledge of various activities fall under the category Water based adventure tourism. CO4: Basic knowledge of various activities fall under the category Air based adventure tourism.	

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VIII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VIII
Credits: 2		Subject: Rural Tourism
Theory: 2		
Practical: 0		
Course Code: NBHM-486B		Title: Rural Tourism
Course Objectives: 1. To understand Meaning and Definition of Rural Tourism. 2. Understand Nature and Characteristics of rural tourism. 3. Understand the scope of rural tourism in India. 4. Understand various promotion strategies.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Meaning and Definition Rural Tourism, its meaning and definition by scholars, understanding the concept of Urban and Rural areas	
II	Nature and Characteristics, Different classifications of rural tourism, salient features,	
III	Scope and Significance Role and significance of rural tourism in India, its scope in Indian social structure and economy, sustainable livelihoods of local communities, enhancement in local quality of life.	
IV	Rural Tourism Strategies and Its Promotion. Promotion of rural festivals, agricultural exhibitions and shows, events and programs, training workshops, thematic routes in rural areas and rural cuisines etc. (Government policies to develop rural tourism e.g. Suraj Kund Craft Mela, Agra’s Taj Utsav, Desert festival etc.)	
Reference / Text Books: 1. Parikshat Singh Manhas and Deepak Raj Gupta (215), Strategic Development Policies and Impact: Studies of Sustainable, Rural and Community-based Tourism, Hardcover. 2. Katherine Dashper (214), Rural Tourism: An International Perspective, Hardcover. 3. Gunjan Saxena (216) Marketing Rural Tourism: Experience and Enterprise, Hardcover. 4. R P. Siva Sankara Reddy (211) Rural tourism and promotion of handicrafts in India Hardcover.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
Max. Marks		

1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: CO1: Able to understand the concept of rural and urban areas CO2: Understand the classification of rural tourism. CO3: Understand the scope of rural tourism in in Indian social structure and economy CO4: Undertand the strategies and promotion techniques of rural tourism.	

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VIII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VIII
Credits: 2		Subject: PERSONALITY DEVELOPMENT
Theory: 2		
Practical: 0		
Course Code: NBHM-487		Title: PERSONALITY DEVELOPMENT
Course Objectives: 1. Develop art of good conversation 2. Understand the use and misuse of body language 3. Knowledge of presentation 4. Dining etiquettes 5. How to take part in Group Discussion		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Personality Enrichment Grooming, Personal hygiene, Social and Business and Dining Etiquettes, Body Language–use and misuse, Art of good Conversation, Art of Intelligent Listening	15
II	Communication Skills, Presentation Skills, Public Speaking, Extempore Speaking, importance and art of ‘Small Talk’ before serious business	15
III	Group Discussion & Interview	10
Reference / Text Books: 1. Hurlock, E.B (206). Personality Development, 28 th Reprint. New Delhi: Tata McGraw Hill. 2. Stephen P. Robbins and Timothy A. Judge (214), Organizational Behavior 16 th Edition: Prentice Hall.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		

Course Learning Outcomes:

- CO1: Able to do effective conversation
- CO2: Understand the benefits of good body language
- CO3: Demonstrate good presentation skill
- CO4: Effectively take part in group discussion.

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VIII

Programme: UG(R)		Year: IV	
Class: BHMCT		Semester: VIII	
Credits: NC		Subject: INDUSTRIAL VISIT/SEMINAR/ PRESENTATION ON THE REPORT	
Theory: NC			
Practical: NC			
Course Code: NECC-481		Title: INDUSTRIAL VISIT/SEMINAR/ PRESENTATION ON THE REPORT	
Course Objectives:			
1. To get the exposure of industry work flow			
Nature of Paper: NECC			
Minimum Passing Marks/Credits: NC			
L: 2			
T: 0			
P: 0 (In Hours/Week)			
Theory - 1 Hr. = 1 Credit			
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)			
Unit	Contents		No. of Lectures Allotted
I	STUDENTS HAVE TO GIVE A PRESENTATION ON THEIR OBSERVATIONS DURING THEIR INDUSTRIAL VISITS.		
Reference / Text Books:			
NA			
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL			
Evaluation/Assessment Methodology			
			Max. Marks
1) Class tasks/Sessional Examination			-
2) Presentations/Seminar			25
3) Assignments			-
4) Research Project Report Seminar On Research Project Report			-
5) ESE			-
Total:			25
Prerequisites for the course:			
Course Learning Outcomes:			
1. Give presentation on industrial visit.			

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VIII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VIII
Credits: NC		Subject: UNIVERSITY SOCIAL RESPONSIBILITIES –COMMUNITY OUTREACH
Theory: NC		
Practical: NC		
Course Code: NECC-482		Title: UNIVERSITY SOCIAL RESPONSIBILITIES –COMMUNITY OUTREACH
Course Objectives:		
1. To develop intention to give in students.		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	THIS ACTIVITY IS AN ESSENTIAL PART OF THE CURRICULAM WHICH BELIEVES THAT WHAN WE ARE TAKING FROM THE SOCIETY THEN IT IS OUR MORAL DUTY TO GIVE SOMETHING BACK TO THE SOCIETY. IT ALSO DEVELOPS HABIT OF HELPING OTHERS IN THE STUDENTS.	
Reference / Text Books:		
NIL		
If the course is available as Generic Elective then the students of following departments may opt it.		
:NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
1. Students are able to give back to society in the form of services, food etc.		

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VIII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VIII
Credits: NC		Subject: SANSKRIT / SPIRITUAL
Theory: NC		
Practical: NC		
Course Code: MV-481		Title: SANSKRIT / SPIRITUAL
Course Objectives:		
1. Teach Sanskrit to students		
Nature of Paper: MV		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE TAUGHT THE BASICS OF SANSKRIT / SPIRITUAL TEACHING FROM BHAGWAT GEETA. THE MAIN MOTIVE OF THIS COURSE IS TO DEVELOP MORAL VALUES IN STUDENTS.	
Reference / Text Books:		
NA		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
1. Develop moral values in students.		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VIII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VIII
Credits: NC		Subject: SPORTS
Theory: NC		
Practical: NC		
Course Code: SPT-481		Title: SPORTS
Course Objectives: Engage students in sports		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE ENCOURAGED TO PLAY VARIOUS GAMES OF THEIR CHOICE WHETHER INDOOR OR OUTDOOR. LIKE; CARROM, CHESS, TABLE TENNIS, FOOTBALL, BASKETBALL ETC.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
1. Students can play various sports.		

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VIII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VIII
Credits: 2		Subject: Food Production Lab-V
Theory: 0		
Practical: 2		
Course Code: HM-481P		Title: Food Production Lab-V
Course Objectives: The course objectives of the program are: 1. To get the knowledge about Western menu & its main Course with accompaniment. 2. To understand the European menus & its main course with accompaniment & Dessert. 3. To know the main course with accompaniment & Dessert of Oriental Menus. 4. To understand the International A la carte / Table De Hote menu.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Western Menu (Starter, Soup, Main Course with accompaniment, Salad, Bread & Dessert)	12
II	European Menus (Starter or Salad, Soup, Main Course with accompaniment & Dessert)	12
III	Oriental Menus (Starter or Salad, Soup, Main Course with accompaniment & Dessert)	12
IV	International A la carte / Table De Hotel menu	4
Reference / Text Books: 1. Bali, Parvinder (212). International Cuisine & Food Production. Oxford University Press. 2. Philip E. Thangam, Heinemann (210) Modern Cookery. Orient Longman.		
If the course is available as a Generic Elective then the students of the following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		25
4) Research Project Report Seminar On Research Project Report		-
5) ESE		25
Total:		50
Prerequisites for the course:		

Course Learning Outcomes: On completion of this course, the students will be able to
CO1: To get the in-depth knowledge about Western menu & its main Course with accompaniment.
CO2: To understand the European menus & its main course with accompaniment & Dessert.
CO3: To know the main course with accompaniment & Dessert of Oriental Menus.
CO4: To understand the International A la carte / Table De Hote menu.

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VIII

Programme: UG(R) Class: BHMCT		Year: IV Semester: VIII
Credits: 1 Theory: 0 Practical: 1		Subject: FOOD & BEVERAGE SERVICE MANAGEMENT PRACTICAL
Course Code: HM-482P		Title: FOOD & BEVERAGE SERVICE MANAGEMENT PRACTICAL
Course Objectives: The course objectives of the program are: 1. Procedure for organizing an outdoor catering, Menu Planning 2. To develop professional skills of Menu planning. 3. To understand the Briefing & De-briefing of catering staff. 4. To learn about Complaint Handling through Role plays.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Booking & Organizing of different type of functions	5
II	Procedure for organizing an outdoor catering, Menu Planning	5
III	Briefing & De-briefing of catering staff, Complaint Handling through Role plays	10
Reference / Text Books: 1. Singaravelavan, R (216). Food and Beverage Service. New Delhi: Oxford University Press. 2. Dennis R. Lillicrap. & John A. Cousine (206). Food and Beverage Service. ELBS.		
If the course is available as a Generic Elective then the students of the following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		25
4) Research Project Report Seminar On Research Project Report		-
5) ESE		25
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: On completion of this course, the students will be able to CO1. To understand the Procedure for organizing an outdoor catering, Menu Planning CO2: To develop professional skills of Menu planning. CO3: To understand the Briefing & De-briefing of catering staff. CO4: To learn about Complaint Handling through Role plays.		

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VIII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VIII
Credits: 1		Subject: MANAGEMENT INFORMATION SYSTEM LAB
Theory: 0		
Practical: 1		
Course Code: HM-483P		Title: MANAGEMENT INFORMATION SYSTEM LAB
Course Objectives: The course objectives of the program are: 1. To be familiar with the functions of MIS in Hospitality industry 2. To be discuss on MIS security issues in organizations 3. To interact with the CRS and GDS software module. 4. To be familiar with strategy of budgetary control and tariff formulations 5. Demonstrate formulation of Occupancy forecasting and Yield management in Hospitality		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	To be familiar with the functions of MIS in Hospitality industry. • Group Discussion on MIS security issues in organizations. • Interact with the CRS and GDS software module. • Handling of PMS software. • To be familiar with strategy of budgetary control and tariff formulations. • Demonstrate formulation of Occupancy forecasting and Yield management in Hospitality industry	20
Reference / Text Books: 1. Bruce Braham Hotel Front Office James A Bardi 2. Hotel Front Office Management D P Goel Managing information system 3. M J Kasavana Application of Computers in hospitality Industry		
If the course is available as a Generic Elective then the students of the following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25
Prerequisites for the course:		

Course Learning Outcomes: : On completion of this course, the students will be able to
CO1: To understand that how to familiar with the functions of MIS in Hospitality industry.
CO2: To Discuss on MIS security issues in organizations.
CO3: To Interact with the CRS and GDS software module.
CO4: To be familiar with strategy of budgetary control and tariff formulations.
CO5: To Demonstrate formulation of Occupancy forecasting and Yield management in Hospitality.

IIMTU-NEP IMPLEMENTATION

Year: IV / Semester: VIII

Programme: UG(R)		Year: IV
Class: BHMCT		Semester: VIII
Credits: 1		Subject: Accommodation Management Lab
Theory: 0		
Practical: 1		
Course Code: HM-484P		Title: Accommodation Management Lab
Course Objectives: The course objectives of the program are: 1. To Coordinate with Purchase, Storage and Inventory Control System 2. To understand that how to dealing with hotels emergencies. 3. To develop practical knowledge of making and display of different miniature of wall covering and floor. 4. To get the knowledge about covering, light arrangements using flip charts. 5. To understand the concept of Ecotels and changing trends in housekeeping department.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Recapitulation of the All Previous Semester – Practical ▪ To Coordinate with Hotel for Learning Purchase, Storage and Inventory Control System ▪ Dealing with Emergency: (a) Event of Fire and Smoke, (b) Events of Fumes, (c) Events of Gas Leakage ▪ First Aid: (a) Treatment for Minor Cut, Burns and Scars Unconsciousness, Drunkenness, Sun Burn, Minor Wounds, Choking, Fainting Shock and Nose Bleeding (b) Dressing for Minor Wounds and Cuts ▪ Interior Decoration: (a) Making and Display of Different miniature of Wall Covering and Floor, (b) Covering, Light Arrangements using Flip Charts, (c) Setting of Interiors and Placements of Accessories ▪ Ecotels and Changing Trends in Housekeeping Department	20
Reference / Text Books: 1. Raghubalan, G. (217). Hotel Housekeeping Operations & Management. New Delhi: Oxford University Press. 2. Andrew, Sudhir. (213). Hotel Housekeeping. New Delhi: Tata McGraw-Hill Publishing Company Limited. 3. Branson, C. & Lennox, Margaret (213). Hotel, Hostel & Hospital Housekeeping. Britain: The Bath Press		
If the course is available as a Generic Elective then the students of the following departments may opt it.		
Evaluation/Assessment Methodology		
Max. Marks		

1) Class tasks/Sessional Examination	-
2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	15
Total:	25
Prerequisites for the course:	
Course Learning Outcomes: On completion of this course, the students will be able to CO1: To Coordinate with Purchase, Storage and Inventory Control System CO2: To understand that how to dealing with hotels emergencies. CO3: To develop practical knowledge of making and display of different miniature of wall covering and floor. CO4: To get the knowledge about covering, light arrangements using flip charts. CO5: To understand the concept of Ecotels and changing trends in housekeeping department	

SCHOOL OF HOTEL MANAGEMENT, CATERING & TOURISM

ACADEMIC HAND BOOK



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Ordinance & Academic Regulations
(Established by Govt. of U.P. vide U.P
Act No. 32 of 2016)
(Academic Handbook 2025-26)

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1. PREAMBLE

The IIMT University has been established under Uttar Pradesh Act Number 32 of 2016. Gazette notified by the Government of Uttar Pradesh Dated 16 September, 2016. As per procedure for establishment of any state private university as outlined in the act, the university shall promulgate its ordinances and statutes/rules and regulations for conduct of various programs

Provisions of this ordinance shall be applicable to B.Sc.-HM Program to be run in School of Hotel Management Catering & Tourism, IIMT University, Meerut. These shall be applicable for regulation of Hotel Management Program w.e.f. session 2023 onwards. Not with standing anything in these regulations, the IIMT University Meerut shall have the right to modify any of the regulations from time to time in accordance of BOS approval.

2. DEFINITIONS AND NOMENCLATURE

In these Regulations, unless the context otherwise requires:

1. **“Programme”** means Degree Programme like Bachelor of Hotel Management and Catering Technology
 1. **“Course”** means a theory or practical subject that is normally studied in a semester.
 2. **“Vice – Chancellor of IIMT-University”** means the Head of the University.
 3. **“Registrar”** is the Head of all academic and General Administration of the University.
 4. **“Dean”** means the authority of the school that is responsible for all academic activities of various programmes and implementation of relevant rules of these Regulations pertaining to the Academic Programmes.
 5. **“Controller of Examinations”** means the authority of the University who is responsible for all activities related to the University Examinations, publication of results, award of grade sheets and degrees.
 6. **“Dean – Student Welfare”** is responsible for all student related activities including student discipline, extra and co – curricular activities, attendance and meetings with class representatives, Student Council, and parent – teacher meet.
 7. **“HoD”** means the Head of the Department concerned.
 8. **“University”** means IIMT-University, Meerut.
 9. **“TCH”** means Total Contact Hours – refers to the teaching – learning periods.
 10. **“DEC”** means Department Exam Committee.
 11. **“BoS”** means Board of Studies.
 12. **“ACM”** means Academic Council meeting the highest authoritative body for approval for all Academic Policies.
 13. **“Class Coordinator”** is a faculty of the class who takes care of the attendance, academic performance, and the general conduct of the students of that class.
 14. **“IA”** is Internal Assessment which is assessed for every student for every course during the semester.
 15. **“ESE”** is End Semester Examination conducted by the University at the End of the Semester for all the courses of that semester.
 16. **“UGC”** means University Grants Commission.
 17. **“MHRD”** means Ministry of Human Resource Development, Govt. of India.
 18. **“AICTE”** means All India Council of Technical Education.
 19. **“HEI”** means Higher Education Institutions.

3. VISION AND MISSION OF THE DEPARTMENT

Vision: To evolve into centre of excellence imparting Hospitality and Tourism education promoting research and innovation, entrepreneurship and global leadership.

Mission: To convert the students into Hospitality professions with sound knowledge and skills of Hospitality operation meeting international standards. To would future leaders or managers of Hospitality and Tourism industry by inculcating interpersonal skills, balanced knowledge, skill and industry exposure.

4. PROGRAM EDUCATIONAL OBJECTIVES (PEO's):

PEO1: IIMT Hospitality graduate students will be technically skilled to apply knowledge and accomplish expertise to keep momentum with global demand in the hospitality sectors.

PEO2: IIMT Hospitality graduate students will introduce critical thinking, creativity and the ability to innovate new products and services ideas to gratify the guests.

PEO3: IIMT Hospitality graduate students will empower the students to recognize & custom the highest standard of ethical behavior in the hospitality industry.

PEO4: IIMT Hotel and Hospitality graduate students will attain practical and technical entrepreneurial knowledge and skills in hospitality sector to create employment opportunity for the community and serve the society & nation.

5. PROGRAM OUTCOME (POs)

PO1: Apply the in-depth knowledge of hotel, hospitality and tourism industry, and a core area specialization to the solution of complex hotel management problems.

PO2: Understand the impact of the hotel, hospitality and tourism in society at local, regional, national, international level and environmental contexts, and demonstrate the knowledge of need for sustainable development.

PO3: Recognize the need for lifelong learning, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

PO4: Apply ethical & value-based principles and commit to professional ethics and responsibilities and norms of the management practice.

PO5: Students in the Hospitality & Tourism sector will be able to acquire knowledge, skills & expertise which makes them exceptionally employable in the Hospitality & Tourism industry as well as careers in Airlines, Travel and Tourism, Hotels, Cruise lines etc.

6. PROGRAM SPECIFIC OUTCOMES (PSOs):

PSO1: Understand and demonstrate the core technical, analytical, and conceptual skills appropriate for hospitality industry.

PSO2: Demonstrate an ability to manage the professional preparation, presentation, and service of quality food.

PSO3: Apply the knowledge gained to manage and evaluate functional systems in hospitality and lodging operations.

PSO4: Demonstrate clear understanding and necessity of professional and ethical & environmental responsibilities in all aspects of conduct.

7. ADMISSION

Admission shall be made on total merit consisted of marks percentage in graduation or post-graduation degree and personal interview of the scholar, plus weightage permissible vide the

government order of State government.

- a. The admission policy and procedure shall be decided from time to time by the board of Studies (BoS) of the University based on the guidelines issued by the UGC/NEP and Ministry of Education (MoE), Government of India. Seats are also made for Non-Resident Indians and foreign nationals, who satisfy the admission eligibility norms of the University. The number of seats in each of the hotel management degree/diploma program will be decided by the University as per the directives of UGC/ MOE, Government of India, considering the market demands.
- b. The University can take 10% additional admission, in view of the short fall expected in 2nd year due to failure of students or students leaving the University.

8. ELIGIBILITY FOR ADMISSION

1	Bachelor of Science (Hotel Management)	3.0 years	Passed 12 th / Intermediate or Equivalent Examination.

Following prescriptions shall govern eligibility for the program:

Candidate Passed in 10th or equivalent or above will be eligible for certificate and/or Diploma courses. Candidate with at least Thirty Five percent (35%) marks either in 12th and/or 10+2 board or equivalent will be eligible for B.Sc. HM and BHMCT. Candidates having 35% marks in 12th or 10+2 board or equivalent will be eligible for integrated MHMCT Program (5 Years).

- a. Candidates belonging to SC/ST category must have passed marks in above or other equivalent examination.
- b. Reservation and relaxation, if any, for SC/ST/OBC/EWS and any other applicable categories shall be as per the rules of State government.

9. CURRICULUM

For the purpose of awarding degrees, the curriculum for all Hotel Management programs are structured to have a minimum of credits+ NCC (Non-credit Audit Courses) as specified in the evaluation scheme approved by the university's Board of Studies and spread out across eight semesters of study.

Under CBCS, the degree program will consist of the following categories of courses:

- a. Core courses
- b. Discipline specific Elective
- c. Ability Enhancement compulsory courses
- d. Practicum/skill enhancement cum School Observation and Internship Courses

- a. **Core Courses:** The core courses are divided into five years (1,2,3,4,5 as Certificate, Diploma, B.Sc. HM, BHMCT, and MHMCT respectively).

Transaction of theory courses shall be carried out through theory and practicum, which may include discussion-groups, workshops, presentation, seminars, assignments, reports, specified activities etc. to enhance professional skills and understanding of

student(s). These shall be part of the teaching modality.

- b. **Discipline Specific Elective:** Discipline Centric Elective Courses are prescribed to enhance and develop the professional and teaching skills of pupil in their particular discipline.
- c. **Ability Enhancement Compulsory Course:** To fulfill the guidelines of NEP 2020, in the syllabi of Hotel Management Courses for Enhancing Professional ability Competencies have been incorporated as essential components with respect to developing professional competencies among pupil-teachers. Transaction of these courses will be carried out in activity-centered, interactive, workshop/ block programs mode of suitable duration, to be decided by Head of the Department in consultation with teacher(s) designated for teaching these courses.
- d. **Practicum/Skill Enhancement cum School Observation and Internship:** Specific course of school observation has been incorporated to provide opportunities to train the students to have professional skills before joining actual full-time internship. It is preparatory engagement with school functioning, requiring observation of various facets of hospitality sector. Industrial Internship shall provide for sustained, intensive full-time engagement with learners and Hospitality organizations. Interns shall be provided opportunities to learn in hospitality organizations/Hotels with systematic supervisory support and feedback from the Head of the Operations. Total duration of Internship shall be of twenty-two weeks or 6 months.

10. MEDIUM OF INSTRUCTION

The medium of instruction is **English** for all courses, examinations, seminar presentations and project reports.

11. CHOICE BASED CREDIT SYSTEM (CBCS)/LOCF/OBE)

The university follows a flexible Choice based Credit System and Slot based table. Accordingly, the students shall be given the option for selecting their courses, credits, teachers, slots and create their timetable. The student is given the option of selecting the number of credits to undergo in a semester, subject to the curriculum requirements of minimum and maximum. Except for the first-year courses, registration for a semester will be done during a specified week before the start of the semester as per the Academic Calendar. Late registration/enrolment will be permitted by the Dean of the School for genuine cases, on recommendation by the Head of the respective department, with a late fee as decided from time to time.

12. REGISTRATION FOR COURSES IN A SEMESTER

A student will be eligible for registration of courses only if he/she satisfies the regulation clause 7.0 (progression), and clause 10.0 (maximum duration) and has cleared all dues of the University, Hostel and Library up to the end of the previous semester if student is not debarred from enrolment on disciplinary grounds.

13. ATTENDANCE

- a. Condonation of medical cases

- b. **Additional Condonation**
The faculty handling a course must finalize the attendance, calendar days before the last instructional day of the course and submit to the HoD through the class teacher.
- a. A student with less than 75% attendance (Total Contact Hours - "TCH") in any course will not be permitted to appear for the end-semester examination in that course, irrespective of the reason for the shortfall of the attendance. The student is however permitted to avail Academic Leave up to 10% for attending academic related activities like, Industrial Visits, Seminars, Conferences, Competitions etc., with the prior approval of the HoD. After the event, the student should submit the relevant documents for proof to the HoD for approval of the Academic Leave.
- b. The remaining 25% allowance in attendance is given to account for activities under NCC / NSS / Cultural / Sports/ Minor Medical exigencies etc.
- c. A student with an attendance ("TCH" – Total Contact Hours) between 40% and 75% in any course will fall under the category "CO (Carry Over)", which means repeat the Course during the summer / Winter break. Students under "CO (Carry Over)" category will not be permitted to attend the Regular End Semester Examinations for that course. During the summer / Winter break, the regular courses of the respective semester will be offered as Summer/Winter Courses, to enable the students to get required attendance and internal assessment marks to appear in the Repeat examination.
- d. Students under "CO (Carry Over)" category in any course shall attend the immediately following summer / winter course. The detailed schedule of the summer/winter courses offered in every semester will be announced during the end of that semester. The student who has obtained "CO (Carry Over)" has to select their appropriate slots and courses, optimally to attend the courses. The student, whose attendance falls below 40% for a course in any semester, will be categorized as "RA", meaning detained in the course for want of attendance and they will not be permitted to write the End semester exam for that course. The procedure for repeating the course categorized as "RA" is mentioned in Clause 9.2.
- a. **ADDITIONAL CONDONATION**
Additional condonation may be considered in rare and genuine cases which includes, approved leave for attending select NCC / Sports Camps, cases requiring prolonged medical treatment and critical illness involving hospitalization. For such select NCC / Sports Camps prior permission for leave shall be obtained by the respective faculty coordinator / Director of sports from the designated authority, before deputing the students.
- b. **CONDONATION FOR MEDICAL CASES**
For medical cases, submission of complete medical history and records with prior information from the parent / guardian to Dean (Students Welfare) is mandatory. The assessment of such cases will be done by the attendance sub – committee on the merit of the case and put-up recommendations to the Vice – Chancellor. Such condonation is

permitted only twice for a student in the entire duration of the program.

The Vice-Chancellor, based on the recommendation of the attendance sub-committee may then give condonation of attendance, only if the Vice-Chancellor deems it fit and deserving. But in any case, the condonation cannot exceed 10%.

14. ASSESSMENT PROCEDURE

- Internal Assessment (IA)
- External Assessment (EA)
- Practical Assessment

Table 3: Weightage of the IA and ES for various categories of the courses.

S. No.	Category of Courses	IA weightage	IA Minimum	ESE	ESE Minimum	Passing minimum (IA+ ESE)
1	Theory Course	25%	---	75%	30%	40%
2	Practical Course	40%	---	60%	---	50%
3	Theory Course with Practical Components	25%	---	75%	30%	40%
4	Design/ Semester Project	25%	---	75%	50%	50%
5	Student Discipline	100%	---	---	---	50%
6	Research Project (Major & Minor) and Viva Voce	25%	---	75%	50%	50%

a. THEORY COURSE ASSESSMENT WEIGHTAGES

The general guidelines for the assessment of Theory Courses shall be done on a continuous basis are given in Table 4.

Table 4 (a): Weightage for theory Assessment.

S. No.		Assessment Theory, DE, NE courses	Weightage Theory, DE, NE courses	Duration
1	IA	First Internal Assessment (Sessional Exam-I)	5%	Based on Credit
2		Second Internal Assessment (Sessional Exam- II)	5%	Based on Credit
3		Assignments (Sessional Exam-I)	5%	--
		Assignments (Sessional Exam-II)	5%	--
4		Seminar/Project (Thrice a Semester with equal weightage)	2%	--
5		Surprise Test / Quiz etc.,	3%	30 Mins.
6	ESE	End Semester Exam	75%	Based on Credit

b. PRACTICAL COURSE ASSESSMENT WEIGHTAGES

Practical course - Internal Assessment.

For practical courses, the assessment will be done by the course teachers as below:
Assignment/Observation/lab records and viva as approved by the Department Exam

Committee.

- a. Internal Assessment -- 40%
- b. End Semester Examination -- 60%

Table 4(b): Weightage for Practical course Assessment.

S. No.		Assessment Theory, DE, NE courses	Weightage Theory, DE, NE courses	Duration
1	IA	First Internal Assessment/ Sessional Exam-I (Inc: Viva-voice / Attendance)	10%	Based on Credit
2		First Internal Assessment/ Sessional Exam-II (Inc: Viva-voice / Attendance)	10%	Based on Credit
3		Presentation/ Case Study/ Seminar/Project.	20%	--
4	ESE	End Semester Exam	60%	Based on Credit

“DEC”

Hotel management course shall have two components of assessment namely,

- a. Internal Assessment Marks “IA”: This assessment will be carried out throughout the semester as per the Academic Schedule.
- b. End Semester Examination Marks “ES”: This assessment will be carried out at the end of the Semester as per the Academic Schedule.

Practical Assessment

Evaluation will contain internal as well as external evaluation. Under CBCS pattern Annual grade point average (AGPA) and cumulative grade point average (CGPA) will be calculated for each student.

- The AGPA is the ratio of sum of the product of the number of credits with the grade points score by the students in all the papers / courses taken by a student and the sum of the number of credits of all the courses undergone by a student.
- The CGPA is also calculated in similar manner taking into consideration all the courses undergone by a student over the year of a programme.
- Letter grade will be assigned to students as per their performances in courses. Letter grade is an index of performance of students and then denoted by letters such as:

S.N.	Letter	Percentage	Grade Point	Remarks
1	O	Above 90%	9-10	Extra Ordinary
2	E	80-90%	8-<9	Excellent
3	A+	70-79.99%	7-<8	Very Good
4	A	60-69.99%	6-<7	First
5	B	55-59.99%	5.5-<6	Good
6	C	50-54.99%	5-<5.5	Pass

7	D	Below 50%	<5	Not Success

- a. To pass and to complete the course the student is supposed to secure 40% marks in each theory paper, 50 % marks in Practical paper & 40% marks in aggregate.
- b. Mark sheet and Degree will be awarded as Masters in Hotel Management and Catering Technology after the successfully completion of the programme according to rules mentioned above.

The Board of Studies of School of Hotel Management Catering & Tourism, IIMT University Meerut frames the syllabi keeping in view the curriculum as developed by the

- a. Internal Assessment (IA)
- b. External Assessment (EA)
- c. Practical Assessment

Hotel management course shall have two components of assessment namely,

- a. Internal Assessment Marks “IA”: This assessment will be carried out throughout the semester as per the Academic Schedule.
- b. External Assessment Examination Marks “EA”: This assessment will be carried out at the end of the Semester as per the Academic Schedule.
- c. Practical Assessment

Awarding Grace Marks

Any examinee/student of the courses of university shall be eligible for getting Grace Marks, as per the following guidelines:-

- The grace marks of maximum 5 marks shall be given in two subjects in a semester in semester-based programmes and three subjects in a year in annual programmes, if the student is failing only in two subjects in a semester in semester-based programmes and fail only in three subjects in annual programmes. Grace marks shall only be incorporated in the mark-sheet at the time of printing of final semester/ year mark-sheet.
- At the time of printing of final semester/ year mark-sheet, grace marks of maximum 10 marks on mercy ground can also be awarded in one subject if student has passed all other subjects.
- If student will avail the facility of grace marks in final semester / year, that will be reflected in the mark-sheet.
- Grace marks are not a matter of right of the student but the discretion of the University.
- Further, benefit of grace marks may be given only to the candidate who will pass the entire concerned examination of the semester*/ year after awarding the grace marks and not for the purpose of promoting the student to next year with back papers or for improvement of division of percentage.

6. It is mandatory to pass in Theory, Practical or Sessional Examinations separately to get the benefit of grace marks which shall be given only in Theory examination.
15. **RESEARCH PROJECT/ SEMESTER PROJECT ASSESSMENT CRITERIA**
The general guidelines for assessment of Project are given in Table 5.

Table 5: Assessment pattern for Research Project Semester Project

S. No.	Review/Examination scheme	Broad Guidelines	Weightage
1	First Review	Concept	10%
2	Second Review	Design	10%
3	Third Review	Experiment/Analysis	20%
4	Final Review/ESM	Project report and Conclusion and Viva–Voce, Results	60%

* **Note – Novel Ideas shall be protected by IP Filling (Patent / Design / Copyright).**

16. INTERNSHIP –RESEARCH /INDUSTRIAL INTERNSHIP

Course Category	Course Code	Course Title	Contact Hours			Evaluation Scheme			Credits
			L	T	P	IA	EA	TOTAL	
Core Industrial Training	NBHM-231(T)	Industrial Training & Viva	0	0	0	150	225	375	15

- **NOTE:**
 - a. Minimum 15 weeks working days i.e. 90 days is required to pursue training in the hotel to be awarded with requisite credits
 - b. One week is equivalent to 1 credit.
 - c. Maximum 24 weeks training is allowed in semester

A student has to compulsorily attend industrial training deciding as per their evaluation scheme during for a minimum period of 24 weeks. In lieu of industrial training/ internship, the student is permitted to register for undertaking case study / project work under a faculty of the University and carry out the project for minimum period of 24 weeks. In both the cases, the training/ internship report in the prescribed format duly certified by the faculty in-charge shall be submitted to the HoD. The evaluation will be done through Viva & presentation. The course will have a weightage as defined in the respective curriculum.

Table: Assessment pattern for Internship

S. No.	Category	Weightage
1	Performance Appraisal	20%
2	Log Book	20%
3	Training Report	20%
4	Presentation	15%
5	Viva-Voce	25%

17. FOR NON –CREDIT COURSES/ AUDIT COURSES

The assessment will be graded “Satisfactory/Not Satisfactory” and grades as Pass/Fail will be

21. CREDIT SYSTEM & GRADING CGPA/SGPA

IIMT-University implemented the UGC guidelines to all Universities in 2015 for implementation of the choice-based credit system with a view to offer student's choice of courses within a program with a flexibility to complete the program by earning credits at a pace decided by the students themselves. The system allowed students to choose inter-disciplinary, intra-disciplinary courses according to their learning needs, interest and aptitude. It was considered as a cafeteria approach and was expected to provide mobility to students.

As per the Current credit system practiced in institutions needs comprehensive reforms as they offer very little flexibility, choice and are less learner centric. Degrees offered today are more self-contained focusing on a specialization area and depend a lot on knowledge available with the faculty from the department only. Though the most requisite credit system does exist, wherein students are given a wide choice and flexibility, these exist as small islands in the vast ocean of thousands of educational institutes in India. In such institutions, the curriculum is frequently designed which is learner centric and offering a wide specialization area for students to pick and choose courses from. The institutions shall make attempts wherein the design of the credit system and the teaching and evaluation modes shall be the responsibility of individual course teachers. The students should have the freedom to opt for courses from other specializations and not just from their core specialization. For this there has to be stronger collaborations between departments of the University and outside.

GRADING SYSTEM

Most institutions follow the absolute grading system which is a simple procedure wherein the marks obtained by students correspond to a specific grade and grade point. It reflects the individual performance in a particular subject without any reference to the group/class. The absolute grading system has limitations and may be susceptible to some inconsistencies.

The relative grading system on the other hand provides relative performance of a student to a group/class wherein the student is ranked in a group/class on basis of relative level of achievement. In this system decisions are made in advance by the faculty members as to what proportion of students would be awarded a particular grade on the basis of their relative performance and which is done by assigning grades on basis of a normal curve. This facilitates comparative performance and eliminates negative effect of pass or fail.

Relative grading system may be used if the number of students registered for the course is at least 30. For a class of smaller size, an absolute grading scheme may be used. The statistical method may be used with adjustments to calculate the mean (M), median (Md) and standard deviation (SD) of the total marks (TM) obtained by the students registered for the course. If the mean and median coincide, the mean may be used for further computations, otherwise the median may be used. If suppose the mean is used, then the letter grades may be awarded based on the ranges specified in table below. A grading system as shown in below given Table will be followed.

Table: Grading system

Letter Grade	Range

A+	TM>M+1.75SD
A	M+1.25 SD ≤ TM < M+1.75SD
B+	M+0.75 SD ≤ TM < M+1.25SD
B	M+0.25 SD ≤ TM < M+0.75 SD
C+	M-0.25 SD ≤ TM < M-0.25 SD
C	M-0.75 SD ≤ TM < M-0.25 SD
D+	M-1.25 SD ≤ TM < M-0.75 SD
D	M-1.75 SD ≤ TM < M-1.25 SD
E+	M-2.0 SD ≤ TM < M-1.75 SD
E	M-2.25 SD ≤ TM < M-2.0 SD
F	M-2.25 SD > TM
CO	Carry Over (Summer / Winter) due to Attendance deficiency (between 40% and 75%) and/or I. Lack of minimum IA marks as specified in clause 10.0 Table 3.
RA	Repeat the course due to (i) Lack of minimum attendance (below 40%) in regular course.
--	DETAINED “RC” or “RA” or both in all registered theory courses of a semester. The student is detained and has to repeat the entire semester. Clause 12.3

Letter grades may be improved based on the following scheme: Use the table above to determine grade boundaries. Look for natural gaps in the neighborhood of grade boundaries. Choose the largest gap in the neighborhood and make this as the grade boundary.

An ‘E’, ‘E+’ and ‘F’ grade may not be a purely relative grade. These may be assigned on the following basis:

- A minimum, say 30/100, may be set as pass marks for the course. A fail grade may then be awarded only if the Total Marks for the course are less than 30. Otherwise, the students may be awarded the Just Pass Grade D.
- A fail grade may be awarded to students whose marks are below the prescribed minimum even if the table above leads to a pass grade.

Similarly, a lower limit may be set for the A grade also, for instance greater than or equal to 86. Students not achieving the prescribed minimum may be awarded a lower letter grade even if the table above indicates otherwise. A pass grade may be made mandatory for both internal as well as external examinations in the case of a separate internal and external assessment,

- a. Internal and External marks may be summed up with appropriate weightage to compute a total out of 100 marks. The letter grade may be assigned on this computed total.
- b. Internal and external marks may be graded separately and then the assigned grade points may be used, with appropriate weightage, to compute a final grade point and letter grade.

Grading in the case of Re-evaluations, Retests and Remedial Examinations may be based on the following guidelines:

- a. The ranges of marks once computed for awarding letter grades the first time, called the First Distribution (FD), will not be modified.

- b. If a re-evaluation leads to a change in marks, then FD will be used to award an appropriate letter grade.
- c. A retest may be permitted if: -
 - i. A student gets a letter grade of E+ or E. In this case, irrespective of the marks obtained, at most D grade may be awarded.
 - ii. A student is unable to complete course requirements because of certified illness or tragedy. In this case FD will be used to award an appropriate letter grade.

The use of relative grading system may be recommended in autonomous institutions, institutes of national importance and institutions with high ranking. The results of the relative grading system may be shared by such institutions later with other interested institutions to implement the same.

GPA AND CGPA

GPA is the ratio of the sum of the product of the number of credits C_i of course “i” and the grade points P_i earned for that course taken over all courses “i” registered and successfully completed by the student to the sum of C_i for all “i”. That is,

$$GPA = \frac{\sum_i C_i P_i}{\sum_i C_i}$$

CGPA will be calculated in a similar manner, in any semester, considering all the courses enrolled from the first semester onwards. The Grade card will not include the computation of GPA and CGPA for courses with letter grade CO, RC and U until those grades are converted to the regular grades. A course successfully completed cannot be repeated.

GRADE SHEET

LETTER GRADE

Based on the performance, each student is awarded a final letter grade at the end of the semester in each course. The letter grades and corresponding grade points are given in Table 8. A student is considered to have completed a course successfully and earned credits if he/she secures a letter grade other than F, CO, RA in that course. After results are declared, grade sheet will be issued to each student which will contain the following details:

- a. Program and discipline for which the student has enrolled.
- b. Semester of registration.
- c. The course code, name of the course, category of course and the credits for each course registered in that semester
- d. The letter grade obtained in each course

- e. Semester Grade Point Average (GPA)
- f. The total number of credits earned by the student up to the end of that semester in each of the course categories.
- g. The Cumulative Grade Point Average (CGPA) of all the courses taken from the first semester.
- h. Credits earned under Non CGPA courses.
- i. Medium of Instruction is English.
- j. Grade Equivalency.

22. CLASS/DIVISION

- (i) CLASSIFICATION IS BASED ON CGPA AND IS AS FOLLOWS: $CGPA \geq 8.0$:
First Class with distinction
 $6.5 \leq CGPA < 8.0$: First Class
 $5.0 \leq CGPA < 6.5$: Second Class.

FIRST CLASS WITH DISTINCTION

- (ii) Further, the award of 'First class with distinction' is subject to the candidate becoming eligible for the award of the degree having passed the examination in all the courses in his/her first appearance with effect from II semester, within the minimum duration of the program.
- (iii) The award of 'First Class' is further subject to the candidate becoming eligible for the award of the degree having passed the examination in all the courses within 4 years for undergraduate Hotel Management.
- (iv) The period of authorized break of the program (vide clause 11.0) will not be counted for the purpose of the above classification.

23. TRANSFER OF CREDITS

Within the broad framework of these regulations, the Academic Council, based on the recommendation of the Credit Transfer Committee so constituted may permit students to transfer part of the credit earned in other approved Universities of repute & status in the India or abroad.

The Academic Council may also approve admission of students who have completed a portion of course work in another approved Institute of repute under Multiple entry & Exit system, based on the recommendation of the credit transfer committee on a case-to-case basis.

Students who have completed coursework, at least first year, at some university other than the university to which transfer is sought, may request for transfer of admission to this university.

A student may be granted admission only through an admission process that will follow the

same policy as for fresh admissions. However, a uniform credit system must be followed by all universities to effect transfer of credits.

Credit Transfer request can be submitted only after the student has been admitted in the concerned program and the following conditions are met:

- i. The course work has been completed at a UGC approved and accredited University through fulltime formal learning mode.
- ii. The university accreditation grade/ ranking is not lower than that of the university to which the transfer is sought.
- iii. The courses prescribe to the common minimum syllabus under UGC CBCS system.
- iv. The letter grade obtained in the courses is “B” or better.
- v. The number of credits to be transferred does not exceed the prescribed limit.
- vi. The program in question must have a similar credit system, in particular, modular or semester and the same numeric and letter grading system along with common meaning of the term “credit” in numerical terms.

The aspect of shelf life of courses needs to be considered while accepting credits as obsolescence of knowledge of certain field in terms of its current relevance needs to be investigated. The time lapsed between successful completion of certain courses of the program and the admission to which program transfer is sought needs to be considered. The maximum number of credit points that may be considered under a credit transfer needs to be specified. Contextual variables such as teaching-learning approach adopted, learning facilities offered, use of evaluation modes may also be considered while preparing the credit transfer policy.

24. CHANGE OF DISCIPLINE

If the number of students in any discipline of Hotel Management program as on the last instructional day of the First Semester is less than the sanctioned strength, then the vacancies in the said disciplines can be filled by transferring students from other disciplines subject to eligibility.

If any Student of Hotel Management program wants to change from Hotel Management to any program/ any discipline as per their eligibility they are permitted to change on or before 30 calendar days from the first day of commencement of program as per academic calendar.

All students who have successfully completed the first semester of the course will be eligible for consideration for change of discipline subject to the availability of vacancies and as per norms.

All such transfers will be allowed based on merit of the students. The decision of the Vice-Chancellor shall be final while considering such requests.

25. USE OF TECHNOLOGICAL INTERVENTION

With the proliferation of different types of access devices, especially mobile access devices, technology has the potential to augment traditional classroom practices and revolutionize learning and evaluation methods. Technology, in fact can be an important driver to enable lifelong learning. Learning and engagement of students is facilitated by use of technology through several modes such as synchronous learning, semi-synchronous learning, blended learning, collaborative learning, flipped classroom etc. MOOC's, especially provided through SWAYAM, are a window of opportunity for lifelong learning and are offered through technology-based platforms. Learning management systems (LMS) may be used by institutions to integrate the entire teaching, learning and evaluation process. The Learning Management System may be used by institutions to deliver academic content in blended form and to assess learning through thesis, assignments etc. Open-source learning management systems such as Moodle, Edmodo may be used for posting content in the form of videos, audios, e-learning modules, live class sessions etc. Use of plagiarism detection software will be highly recommended to check originality of content. In the conduct of examinations, universities face tremendous challenges such as need for trained manpower, distribution of question paper without delays and errors, delays in evaluation of answer scripts, lack of infrastructure to conduct examinations at a large scale, non-availability of faculty members for assessment, security issues faced during paper setting and paper distribution, tampering of certificates and answer scripts etc.

For a typical examination department of an institution will be an autonomous body right from registration of student to convocation through an integrated system. In fact, steps must be taken to implement a complete examination management system that considers the complete life cycle of examination process. The use of technology will reduce dependency on human intervention and be error free. The following functions will be automated:

- i. Registration of students and generating unique PRN.
- ii. Filling up of examination form.
- iii. Generation of seat numbers and admit cards/hall tickets.
- iv. Preparation of list of paper setter.
- v. Use of question bank system to draw question sets, question paper generation.
- vi. Online distribution of question papers on the day of examination with system of encryption.
- vii. Bar code system for answer books (this will eliminate issues related to errors, avoid malpractices etc.).
- viii. Digitization of answer scripts and onscreen evaluation of answer sheets.
- ix. Tracking of student's performance.
- x. Marks submission through online software.

- xi. Viewing of result through online system.
- xii. Online verification and revaluation system.
- xiii. Digitization of certificates and mark sheets (to avoid tampering and easy retrieval).
- xiv. Certificate authentication system.
- xv. Submission of various other applications through online system.

The above will lead to conduct of functions of the examination system in an efficient and transparent manner and timely availability of information to students.

26. STUDENT DISCIPLINE

Student is required to observe utmost discipline and decorum both inside and outside the campus and not to indulge in any activity which may affect adversely the prestige reputation of the University.

27. STUDENT WELFARE

Any act of indiscipline of a student reported to the Dean (Students Welfare) and Head of the Department will be referred to a Discipline Committee constituted for the purpose. The Committee will enquire into the charges and decide on a suitable punishment if the charges are substantiated. The committee will also authorize the Dean (Students Welfare) to recommend to the Vice-Chancellor for the implementation of the decision. The student concerned may appeal to the Vice-Chancellor, whose decision will be the final.

28. RAGGING

Ragging in any form is a criminal and non-bailable offence in our country. The current State and Central legislations provide stringent punishments including imprisonment. Once the involvement of a student(s) is established in ragging, offending fellow students/staff, harassment of any nature to the fellow students/staff etc. the student(s) will be liable to be dismissed from the University, as per the laid down procedures of the UGC / Govt. / Institute. Every senior student at the University, along with their parent, shall give an undertaking every year in this regard and the same should be submitted at the time of Registration.

29. POWER OF MODIFY

Notwithstanding all that has been stated above, the Academic Council is vested with powers to modify any or all the above regulations from time to time, if required, subject to the approval by the board of Studies and Final approval by Vice-Chancellor

30. EXIT POINT

CBCS: Statement of Credit distribution

College/School: School of Hotel Management Catering & Tourism Program: Bachelor of Science (Hotel Management) Duration: 3 years Annual/Semester : Semester	Credit range: 160-190 (Suggested by CBCS Committee)

Attached guidelines to be followed:

COU RSE	CRE DIT	SEME STER	CORE (Th 4+P 2) Major	DSE (Th 4+P 2) Minor	AECC (Th 3)	SEC **	GE (Th 4) Interdi sciplina ry	General Elective (2)	Value Added Course (VAC) (2)	Industri al Trainin g/ Survey / Researc h Project (4)	Total Credits
Certificate Course in hotel management.....		Ist	C1(Th 4Cr+P1(P 2 Cr) FUNDAME NTALS OF FOOD PRODUCTI ON + FUNDAME NTALS OF FOOD PRODUCTI ON LAB C 2 (Th 4 Cr + P2 (P 1 Cr) FUNDAME NTALS OF FOOD AND BEVERAGE SERVICE + FUNDAME NTALS OF FOOD AND BEVERAGE SERVICE LAB C3 (P Th 2 Cr + P3 (P 1 Cr) FUNDAME NTALS OF ACCOMMO DATION OPERATIO NS + FUNDAME NTALS OF ACCOMMO DATION OPERATIO NS LAB	DSE 1- (Th-2 + P 1 Cr) LARDER-1/F&B SERVICE-1/FUNDAM ENTALS OF FRONT OFFICE + BAKERY & CONFECTI ONARY LAB-I/F&B SERVICE LAB-1/FUNDAM ENTALS OF FRONT OFFICE LAB-1	AECC 1 (Th 2 Cr) FUNDAMEN TALS OF FRENCH	SEC-1 (Th.2 Cr + P . 1 Cr) FUNDAM ENTALS OF COMPUTE RS + FUNDAM ENTALS OF COMPUTE RS LAB	-----	---		----	23

		2nd	Cr+ P5 (P 1 Cr) FOOD AND BEVERAGE SERVICE + FOOD AND BEVERAGE SERVICE LAB C6-(Th 2 Cr + P6 (P 1 Cr) ACCOMMODATION OPERATION NS + ACCOMMODATION OPERATION NS LAB	DSE -2 (Th 2 Cr + P1 Cr) LARDER-II/F&B SERVICE-II/ FRONT OFFICE-II + BAKERY & CONFECTIONARY LAB-II/F&B SERVICE LAB-II/ OFFICE LAB-II	AECC-2 (Th 3 Cr) ENVIRONMENT & ECOLOGY	SEC 2 – (Th 2 Cr) FUNDAMENTALS OF GERMAN		VAC-1 (Th 2 Cr) MOOCS/ NPTEL		25
Entry and Exit point										
Diploma in hotel management		3 rd /4 th	C7 (Th. 4 Cr.) + P7 (P. 2Cr.) FOOD PRODUCTI ON-I + FOOD PRODUCTI ON LAB-I C8 (Th 4 Cr) + P8(P. 1 Cr) FOOD AND BEVERAGE SERVICE-I + FOOD AND BEVERAGE SERVICE LAB-I C9 (Th 2 Cr) + P9 (P. 1 Cr) C10(Th.2 Cr) ACCOMMODATION OPERATION N-I + CCOMMODATION OPERATION N LAB-I	DSE-3/4 (Th 2 Cr) RESORT MANAGEMENT SPA MANAGEMENT	AECC 3/4-(Th.3 Cr) HUMAN VALUES & PROFESSIONAL ETHICS			VAC-2/3 (Th 2 Cr) MOOCS/ NPTEL		27

			C10(Th 2 Cr +P 1 Cr) + FRONT OFFICE LAB-I C11 (Th 2 Cr) HOTEL ENGINEERING								
		3 rd /4 th	Industrial Training (15 Cr)								15
Entry and Exit point											
Bachelor of Science (Hotel Management)		5 th	C17 (Th. 4 Cr) + P10 (P.2 Cr.) FOOD PRODUCTI ON-II + FOOD PRODUCTI ON LAB II C18 (Th 4 Cr) +P11 (P 1 Cr) FOOD & BEVERAGE SERVICE-II	DSE 5 (Th 2 Cr + P 1 Cr) INDIAN REGIONAL CUISINE/ BAKERY SCIENCE + INDIAN REGIONAL CUISINE LAB/ BAKERY SCIENCE LAB	AECC 5-(Th.2Cr) TOURISM ENTREPREN EURSHIP	SEC-3 (Th-2 Cr) FAST FOOD CHAIN MANAGE MENT / FOOD SAFETY AND HACCP					24
			+ FOOD & BEVERAGE SERVICE LAB-II C19 (Th. 2 Cr) +P12 (P.1 Cr) Front Office- II + Front Office LAB II C20 (Th. 2 Cr) +P12 (P.1 Cr) ACCOMMO DATION OPERATIO N-II + ACCOMMO DATION OPERATIO N LAB-II								

		6 th	C21-(Th 4 Cr) +P 13 (P. 2 Cr) Food Production-III + Food Production LAB-III C22--(Th 4 Cr) +P 14 (P. 1 Cr) Food &	DSE-6 (Th 2 Cr) TOURISM & HOTEL ECONOMI CSS/ FUNDAME NTALS OF HOSPITALI TY ACCOUNTI NG		SEC 4 (Th 3 Cr) APPLICAT ION OF COMPUTE RS & CYBER LAW	GE-1 (Th. 2 Cr)		VAC-4 (Th 2 Cr) MOOCS/ NPTEL		27
			Beverage-III + Food & Beverage LAB-III C23 ((Th 2 Cr) +P 15 (P. 1 Cr) Accomodati on operation-III + Accomodati on operation LAB-III C24 ((Th 2 Cr) +P 16 (P. 1 Cr) Front Office- III/ Front Office LAB- III								
		Total Credits	T- 60 P-37 P- 47	T-12 P-3	T-12	T-5	T-5		T-6 P-1	12	
		Grand Total	189								

31. NC/CREDIT COURSE

Following is the Non-Credit Courses in Bachelor of Science (Hotel Management)

Course Code	Course Title	Evaluation Scheme		
		IA	EA	Total
NECC-111/121/231/351/361	Industrial Visit/ Presentation on Report/Seminar	25	NC	
NECC-112/122/232/352/362	Universities Social Responsibilities– Community Outreach	25	NC	
MV-111/121/231/351/361	Sanskrit/ Spiritual	25	NC	
SPT-111/121/231/351/361	Sports	50	NC	

32. ANY OTHER HEADING AS PER YOUR PROGRAM



Evaluation Scheme

Bachelor of Science (Hotel Management)										
Year: I / Semester: I										
S. NO.	COURSE CATEGORY	COURSE TITLE	COURSE CODE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
(THEORY)										
1	CORE THEORY-1	FUNDAMENTALS OF FOOD PRODUCTION	RHM-111	4	0	0	25	75	100	4
2	CORE THEORY-2	FUNDAMENTALS OF FOOD AND BEVERAGE SERVICE	RHM-112	4	0	0	25	75	100	4
3	CORE THEORY-3	FUNDAMENTALS OF ACCOMMODATION OPERATIONS	RHM-113	2	0	0	15	35	50	2
4	DSE-1	LARDER-I	RHM-114 A	2	0	0	15	35	50	2
5		F&B SERVICE-I	RHM-114 B							
6		FUNDAMENTALS OF FRONT OFFICE	RHM-114 C							
7	SEC-1	FUNDAMENTALS OF COMPUTERS	SEC-RHM-111	2	0	0	15	35	50	2
8	AECC-1	FUNDAMENTALS OF FRENCH	NHU-111F	2	-	-	15	35	50	2
9	NC	INDUSTRIAL VISIT/SEMINAR/PRESENTATION ON THE REPORT	NECC-111	-	-	-	25	-	-	NC
10	NC	UNIVERSITY SOCIAL RESPONSIBILITIES – COMMUNITY OUTREACH	NECC-112	-	-	-	25	-	-	NC
11	NC	SANSKRIT / SPIRITUAL	MV-111	-	-	-	25	-	-	NC
12	NC	SPORTS	SPT-111	-	-	1	50	-	-	NC
(PRACTICAL)										
13	CORE LAB-1	FUNDAMENTALS OF FOOD PRODUCTION LAB	RHM-111P	0	0	4	20	30	50	2
14	CORE LAB-2	FUNDAMENTALS OF FOOD AND BEVERAGE SERVICE LAB	RHM-112P	0	0	2	10	15	25	1
15	CORE LAB-3	FUNDAMENTALS OF ACCOMMODATION OPERATIONS LAB	RHM-113P	0	0	2	10	15	25	1
16	SEC LAB	FUNDAMENTALS OF COMPUTERS LAB	SEC-111NP	0	0	2	10	15	25	1
17	DSE LAB	BAKERY & CONFECTIONARY LAB-I	RHM-114 AP	0	0	2	10	15	25	1
18		F&B SERVICE LAB-1	RHM-114 BP							
19		FUNDAMENTALS OF FRONT OFFICE LAB	RHM-114 CP							
		TOTAL							575	23

Bachelor of Science (Hotel Management)										
Year: I / Semester: II										
S. NO.	COURSE CATEGORY	COURSE TITLE	COURSE CODE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
(THEORY)										
1	CORE THEORY-4	FOOD PRODUCTION	RHM-121	4	0	0	25	75	100	4
2	CORE THEORY-5	FOOD AND BEVERAGE SERVICE	RHM-122	4	0	0	25	75	100	4
3	CORE THEORY-6	ACCOMMODATION OPERATION	RHM-123	2	0	0	15	35	50	2
5	DSE-2	LARDER-II	RHM-125A	2	0	0	15	35	50	2
6		F&B SERVICE-II	RHM-125B							
7		FRONT OFFICE	RHM-125C							
8	VAC	MOOCS/NPTEL	SEC-122N	2	0	0	15	35	50	2
9	AECC-2	ENVIRONMENT & ECOLOGY	NHU-NPR-122	3	0	0	25	75	100	3
10	SEC	FUNDAMENTALS OF GERMAN	SEC-121G	3	0	0	25	75	100	3
11	NC	INDUSTRIAL VISIT / SEMINAR/ PRESENTATION ON THE REPORT	NECC-121	-	-	-	25	-	-	NC
12	NC	UNIVERSITY SOCIAL RESPONSIBILITIES COMMUNITY OUTREACH	NECC-122	-	-	-	25	-	-	NC
13	NC	SANSKRIT/ SPIRITUAL	MV-122	-	-	1	25	-	25	NC
	NC	SPORTS	SPT-PC-211	-	-	1	50	-	-	1
(PRACTICAL)										
14	CORE LAB-4	FOOD PRODUCTION-LAB	RHM-121P	0	0	4	20	30	50	2
15	CORE LAB-5	FOOD AND BEVERAGE SERVICE LAB	RHM-122P	0	0	2	10	15	25	1
16	CORE LAB-6	ACCOMMODATION OPERATION LAB	RHM-123P	0	0	2	10	15	25	1
17	DSE -2 LAB	BAKERY & CONFECTIONARY LAB-II	RHM-125AP							
18		F&B SERVICE LAB-II	RHM-125BP							
19		FRONT OFFICE LAB	RHM-125CP	0	0	2	10	15	25	1
		TOTAL							625	25

Bachelor of Science (Hotel Management) Year: II / Semester: III/IV										
S. NO.	COURSE CATEGORY	COURSE TITLE	COURSE CODE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
1	CORE INDUSTRIAL TRAINING	INDUSTRIAL TRAINING & VIVA	NBHM-231 (T)	0	0	0	150	225	375	15

Bachelor of Science (Hotel Management) Year: II / Semester: III/ IV										
S. NO.	COURSE CATEGORY	COURSE TITLE	COURSE CODE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
(THEORY)										
1	CORE THEORY-8	FOOD PRODUCTION-I	RHM-241	4	0	0	25	75	100	4
2	CORE THEORY-9	FOOD AND BEVERAGE SERVICE-I	RHM-242	4	0	0	25	75	100	4
3	CORE THEORY-10	FRONT OFFICE -I	RHM-243	2	0	0	15	35	50	2
4	CORE THEORY-11	ACCOMMODATION OPERATION-I	RHM-244	2	0	0	15	35	50	2
	CORE THEORY-12	HOTEL ENGINEERING	NHU-241H	3	0	0	25	75	100	3
5	DSE-3	RESORT MANAGEMENT	RHM-245A	2	0	0	15	35	50	2
6		SPA MANAGEMENT	RHM-245B							
7	SEC-3	Moocs/ NPTEL	VAC-RHM-002	2	0	0	15	35	50	2
8	AECC-3	HUMAN VALUES AND PROFESSIONAL ETHICS	UVE-401	3	0	0	25	75	100	3
9	NC	INDUSTRIAL VISIT / SEMINAR / PRESENTATION ON THE REPORT	NECC-241	-	-	-	25	-	-	NC
10	NC	UNIVERSITY SOCIAL RESPONSIBILITIES – COMMUNITY OUTREACH	NECC-242	-	-		25	-		NC
11	NC	SANSKRIT/ SPIRITUAL	MV-241	-	-	1	25	-	25	NC
12	NC	SPORTS	SPT-PC-411	-	-	1	50	-	-	NC
(PRACTICAL)										
13	CORE LAB-7	FOOD PRODUCTION-LAB-I	RHM-241P	0	0	4	20	30	50	2
14	CORE LAB-8	FOOD AND BEVERAGE SERVICE LAB-I	RHM-242P	0	0	2	10	15	25	1
15	CORE LAB-9	FRONT OFFICE-I	RHM-243P	0	0	2	10	15	25	1
16	CORE LAB-10	ACCOMMODATION OPERATION LAB-I	RHM-244P	0	0	2	10	15	25	1

		TOTAL							625	27

Bachelor of Science (Hotel Management) Year: III / Semester: V										
S. NO.	COURSE CATEGORY	COURSE TITLE	COURSE CODE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
(THEORY)										
1	CORE THEORY-12	FOOD PRODUCTION-II	NBHM-351	4	0	0	25	75	100	4
2	CORE THEORY-13	FOOD AND BEVERAGE SERVICE–II	NBHM-352	4	0	0	25	75	100	4
3	CORE THEORY-14	FRONT OFFICE –II	NBHM-353	2	0	0	15	35	50	2
4	CORE THEORY-15	ACCOMMODATION OPERATION-II	NBHM-354	2	0	0	15	35	50	2
5	SEC-4	FAST FOOD CHAIN MANAGEMENT	NBHM-355A	2	0	0	15	35	50	2
6		FOOD SAFETY AND HACCP	NBHM-355B							
7	DSE-4	INDIAN REGIONAL CUISINE	NBHM-356A	2	0	0	15	35	50	2
8		BAKERY SCIENCE	NBHM-356B							
9	AECC-4	TOURISM ENTREPRENEURSHIP	NHU-351N	3	0	0	25	75	100	3
10	NC	INDUSTRIAL VISIT/SEMINAR / PRESENTATION ON THE REPORT	NECC-351	-	-	-	25	-	-	NC
11	NC	UNIVERSITY SOCIAL RESPONSIBILITIES – COMMUNITY OUTREACH	NECC-352	-	-	-	25	-	-	NC
12	NC	SANSKRIT/ SPIRITUAL	NECC-353	-	-	1	25	-	25	NC
13	NC	SPORTS	SPT-351	-	-	1	50	-	-	NC
(PRACTICAL)										
14	CORE LAB-11	FOOD PRODUCTION-LAB-II	NBHM-351P	0	0	4	20	30	50	2
15	CORE LAB-12	FOOD AND BEVERAGE SERVICE LAB-II	NBHM-352P	0	0	2	10	15	25	1
16	CORE LAB-13	FRONT OFFICE LAB-II	NBHM-353P	0	0	2	10	15	25	1
17	CORE LAB-14	ACCOMMODATION OPERATION LAB-II	NBHM-354P	0	0	2	10	15	25	1
18	DSE LAB-4	Indian Regional Cuisine Lab	NBHM-356AP	0	0	2	10	15	25	1
		Bakery Science Lab	NBHM-356BP							
		TOTAL							625	25

Bachelor of Science (Hotel Management) Year: III / Semester: VI										
S. NO.	COURSE CATEGORY	COURSE TITLE	COURSE CODE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
(THEORY)										
1	CORE THEORY-16	FOOD PRODUCTION-III	NBHM-361	4	0	0	25	75	100	4
2	CORE THEORY-17	FOOD AND BEVERAGE SERVICE-III	NBHM-362	4	0	0	25	75	100	4
3	CORE THEORY-18	FRONT OFFICE -III	NBHM-363	2	0	0	15	35	50	2
4	CORE THEORY-19	ACCOMMODATION OPERATION-III	NBHM-364	2	0	0	15	35	50	2
5	SEC-5	MOOCS/NPTEL	VAC-RHM-004	2	0	0	15	35	50	2
	GE	General Elective								
	DSE-5	TOURISM & HOTEL ECONOMICSS	NBHM-365A	2	0	0	15	35	50	2
		FUNDAMENTALS OF HOSPITALITY ACCOUNTING	NBHM-365B							
8	AECC-5	APPLICATION OF COMPUTERS & CYBER LAW	SEC-NBHM-361	3	0	0	25	75	100	3
9	NC	INDUSTRIAL VISIT/SEMINAR/PRESENTATION ON THE REPORT	NECC-361	-	-	-	25	-	-	NC
10	NC	UNIVERSITY SOCIAL RESPONSIBILITIES-COMMUNITY OUTREACH	NECC-362	-	-		25	-		NC
11	NC	SANSKRIT/ SPIRITUAL	NECC-363N	-	-	1	25	-	25	NC
12	NC	SPORTS	SPT-361	-	-	1	50	-	-	NC
(PRACTICAL)										
13	CORE LAB-15	FOOD PRODUCTION-LAB III	NBHM-361P	0	0	4	20	30	50	2
14	CORE LAB-16	FOOD AND BEVERAGE SERVICE LAB-III	NBHM-362P	0	0	2	10	15	25	1
15	CORE LAB-17	FRONT OFFICE-III	NBHM-363P	0	0	2	10	15	25	1
16	CORE LAB-18	ACCOMMODATION OPERATION LAB-III	NBHM-364P	0	0	2	10	15	25	1
		TOTAL								

Format-3

Format-3

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 4		Subject: FUNDAMENTALS OF FOOD PRODUCTION
Theory: 4		
Practical: 0		
Course Code: RHM-111		Title: FUNDAMENTALS OF FOOD PRODUCTION
Course Objectives: The students will get knowledge about:- 1. History of cooking, Culinary History & Hierarchy of Kitchen department 2. Various methods of cooking food and types of sauces 3. Basic principles of food production: Vegetable, Stocks & soups 4. Commodities: Fats & oils, raising agents and thickening agents		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
I	INTRODUCTION TO COOKERY Levels of skills and experiences, Attitudes and behaviour in the kitchen, Personal hygiene in kitchen, Cleaning and up keep of working area, Various uniforms & protective clothing, Importance and use of safety procedure in handling equipment CULINARY HISTORY Origin of modern cookery HIERARCHY OF KITCHEN Classical Brigade, modern staffing of kitchen personnel in various category hotels Roles and duties of executive chef, Duties and responsibilities of various chefs, Co-operation with other departments. AIMS & OBJECTS OF COOKING FOOD Aims and objectives of cooking food, Techniques used in pre-preparation of food, Techniques used in preparation of food	15
II	METHODS OF COOKING FOOD Principles of: Grilling, Roasting, Frying, Broiling, Poaching, Boiling, Baking, Care and precautions to be taken, Selection of food for each type of cooking SAUCES Classification of sauces, Recipes for mother sauces and their derivatives,	10

	Storage & precautions while making sauces	
III	BASIC PRINCIPLES OF FOOD PRODUCTION VEGETABLE COOKERY Introduction–classification of vegetables, Cuts of vegetables, Classification of fruits, Uses of fruits & vegetables in cookery STOCKS Definition of stock, Types of stock, Preparation of various stocks, Recipes of various stocks, Storage of stocks, Uses of stocks, Care and precautions to be taken while preparing stocks. SOUPS: Classification with examples, Basic recipes of Consommé with 10 Garnishes	10
IV	COMMODITIES: Shortenings (Fats & Oils) Role of Shortenings, Varieties of Shortenings, Advantages and Disadvantages of using various, Shortenings, Fats & Oil – Types, varieties Raising Agents Classification of Raising Agents, Role of Raising Agents Actions and Reactions Thickening Agents: Classification of thickening agents B. Role of Thickening agents Eggs- uses of eggs in cooking, characteristics of fresh eggs, deterioration of eggs, storage of Eggs.	10

REFERENCE BOOKS:

1. Theory of Cookery- K. Arora
2. The Art of Culinary Preparations
3. Modern Cookery: Thangam E Phillip Vol-1 & Vol-2

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	15
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report/ Seminar On Research Project Report	-
5) ESE	75
Total:	100

Prerequisites for the course:

Course Learning Outcomes:

CO1: Students will be able to demonstrate essential skills and knowledge in cookery, including proper personal hygiene practices
 CO2: Interpret of the culinary history and the origin of modern cookery; comprehend the hierarchy of kitchen personnel in various categories of hotels.
 CO3: Recognize the roles and responsibilities of kitchen staff along with the importance of effective cooperation with other departments
 CO4: Students will be able to proficiently utilize different cooking methods and classify the mother sauces
 CO5: Classify and utilize vegetables, fruits and eggs in cookery, prepare various stocks, egg dishes and demonstrate knowledge of soup & Consommé
 CO6: Identify and evaluate different shortenings, fats, and oils, classification and role of raising agents, thickening agents.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 4 Theory: 4 Practical: 0		Subject: FUNDAMENTALS OF FOOD AND BEVERAGE SERVICE
Course Code: RHM-112		Title: FUNDAMENTALS OF FOOD AND BEVERAGE SERVICE
Course Objectives: The Student will get knowledge about: 1. Introduction and growth of hospitality in India and types of catering, Departmental Organization and attributes of a waiter. 2. Familiarization & Selection of various equipment's used in service 3. Various F&B Outlets and ancillary departments 4. Different non-alcoholic beverages with their preparation and services.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 Credits T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	THE HOTEL & CATERING INDUSTRY Introduction to the Hotel Industry and its growth in India. Role of various Catering establishments in the travel/tourism industry. Types of F&B operations Classification of catering: Residential & Non-residential, Commercial, Welfare Catering-Industrial/Institutional and Transport catering such as air, road, rail, sea, etc. DEPARTMENTAL ORGANISATION & STAFFING Organisation structure of F&B department of 5 star hotel, Key staff of various types of F&B operations, French terms related to F&B staff, Duties & responsibilities of F&B staff, Attributes of a waiter Personal hygiene, Grooming of F & B staff, Inter-departmental relationships	15
II	F & B SERVICE EQUIPMENT and THEIR USES Familiarization & Selection factors of: Crockery, Cutlery, Hollowware, Flatware, Glassware, All other equipment used in F&B Service	10
III	FOOD SERVICE AREAS (F & B OUTLETS) Coffee Shop, Fast Food (Quick Service Restaurants), Specialty Restaurants, Cafeteria, Grill Room, Bar, Vending Machines, Discotheque, Banquets, Kiosks, IRD etc. ANCILLIARY DEPARTMENTS	10

	F&B Store, Pantry, Linen room, Food pick-up area, Kitchen stewarding (KST)	
IV	NON-ALCOHOLIC BEVERAGES Classification (Nourishing, Stimulating and Refreshing beverages) Juices, Soft Drinks Mocktails Coffee –Its Origin & Manufacturing, Types of coffee & Brands Tea - its Origin & Manufacturing, Types of tea & its Brands Cocoa & Malted Beverages - Their origin & Manufacture	10

Reference / Text Books:

1. Food & beverage training manual-Sudhir Andrews
2. Food & Beverage Service – Singaravelavan
3. Food & Beverage Service – S N Bagchi
4. Food and beverage service - D.R. Lilicrap
5. Lexicon of Hospitality – Deepanshu Nitin

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	15
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total:	100

Prerequisites for the course:

Course Learning Outcomes:

At the end of course the student will learn about:-

- CO1: Demonstrate a comprehensive understanding of the hotel industry and its growth in India.
 CO2: Review the significant role of different catering establishments in the travel/tourism industry
 CO3: Students will be able to illustrate and select suitable crockery, cutlery, and other F&B service equipment, while also recognizing the corresponding French terms
 CO4: Students will be able to identify and comprehend a wide range of food service areas in the F&B industry and their unique features
 CO5: Capable to manage and coordinate ancillary departments in F&B operations and interdepartmental coordination for efficient F&B service operations.
 CO6: Students will be able to classify and differentiate beverages and by understanding their origins.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 2		Subject: FUNDAMENTALS OF ACCOMMODATION OPERATIONS
Theory: 2		
Practical: 0		
Course Code: RHM-113		Title: FUNDAMENTALS OF ACCOMMODATION OPERATIONS
Course Objectives: The students will get knowledge about:- 1. Importance and Responsibility of Housekeeping department and its different sections and organization structure 2. Type of guest rooms with their sizes and facilities provided. 3. Procedure of cleaning different status of room. 4. Classification and selection criteria of cleaning equipment’s and cleaning agent.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Housekeeping As A Department: Importance of housekeeping department. Responsibilities of housekeeping department and layout of housekeeping department. Different sections of Housekeeping departments. Organization Structure Of Housekeeping Department: Small hotels, Medium hotels, large hotels. Duties& responsibilities of Executive Housekeeping. Duties & responsibilities of various Housekeeping Staff.	
II	Interdepartmental Relationship- 1. With Front Office 2. With Maintenance 3. With Security 4. With Stores 5. With Accounts 6. With personnel Use of Computer in Housekeeping department	5
III	Cleaning Organization Principles of cleaning, Method of organizing cleaning, Frequency of cleaning daily, periodic and special. Design features that simplify cleaning.	5

IV	Cleaning equipment: General considerations & selections, Classification & Types of equipments, Floor trolley, Vacuum Cleaner etc. Method of use & mechanism for each type, Care & maintenance. Cleaning agents: General criteria for selection, Classification.	10
Reference books: 1. Sudhir Andrews: Hotel Housekeeping 2. Joan C. Branson: Hotel, Hostel & Hospital Housekeeping 3. Georgira Tucker: The Professional Housekeeper 4. Rose Mary & Heinemann: Housekeeping Management for Hotels 5. Devid Allen, Hutchinson: Accommodation & Cleaning Services 6. G. Raghubalan – Hotel Housekeeping		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		2
3) Assignments		3
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: At the end of course the student will learn about:- CO1: Discuss the importance and responsibilities of the Housekeeping department in a hospitality organization. CO2: Familiarize with the different sections and organizational structure of the Housekeeping department. CO3: Identify and describe the types of guest rooms and their facilities CO4: Recognize the cleaning procedures for different room statuses. CO5: Illustrate the classification and selection criteria of cleaning equipment and agents. CO6: Build practical knowledge to maintain cleanliness, hygiene, and guest satisfaction in the Housekeeping department.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 2		Subject: LARDER-I
Theory: 2		
Practical: 0		
Course Code: RHM 114A		Title: LARDER-I
Course Objectives: The students will get knowledge about: 1. Staff organization & Layout of Larder Department 2. Maintenance & care of Larder Equipments 3. Classification of Hors d’oeuvre and salad 4. Various types of forcemeat and Carving		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Organization and Layout of Larder department. Functions of Larder department. Duties and responsibilities of Larder hierarchy.	10
II	Larder control Maintenance & upkeep of larder equipment and supplies, Cleaning and care of Larder equipment.	5
III	Introduction and classification of Hors d’oeuvre and salads. Uses and examples of Hors d’oeuvre and salads	5
IV	Forcemeat- Introduction, Types and uses. Sausages- Introduction, Types and uses.	10
Reference / Text Books:		
Reference books:		
1. Cold Kitchen –DD Sharma 2. Theory of catering- Ronald Kinton		
If the course is available as Generic Elective then the students of following departments may opt it.		
1. Anyone can opt		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		2
3) Assignments		3
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35

Total:	50
Prerequisites for the course:	
Course Learning Outcomes: At the end of course the student will learn about:- CO1: Summarize the organization and layout of the Larder Department, including staff roles and workstation setup CO2: Express proper maintenance and care techniques for larder equipment. CO3: Classify and identify different types of Hors d'oeuvre, salads, forcemeat, and carving techniques. CO4: Develop practical skills in preparing and presenting Hors d'oeuvre, salads, forcemeat, and carving. CO5: Recognize the importance of attention to detail and creativity in the Larder Department's operations. CO6: Invent a comprehensive understanding of the significance of the Larder Department in a professional kitchen environment.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 2		Subject: Food & Beverage Service- I
Theory: 2		
Practical: 0		
Course Code: RHM-114B		Title: Food & Beverage Service- I
Course Objectives: The students will get knowledge about: 1. Various methods of KOT flow system and order taking 2. Various type of Breakfast 3. Buffet layout and toasting procedure 4. Room service operations and bar operations		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Simple methods of restaurant sales, controls - K.O.T. flow and billing. Computerized order taking and billing	10
II	Breakfast -English, American, Continental and Indian Breakfast (laying & service). Ice creams/Sundaes! Shakes Different types and their service.	5
III	Knowledge – Buffet, Layout, Display & Service Banquets, inquiry forms, sitting space, seating arrangements, service formalities, toast procedures.	5
IV	Room Service – Centralized and decentralized, Types of dishes served in room service, Night Menu, Room service of breakfast, snacks, lunch, dinner, Beverages alcoholic or non-alcoholic, Room Service flow chart.	10
Reference / Text Books: 1. Food and beverage service- Singarabelavan 2. Food and beverage service- Lily crap		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		2
3) Assignments		3

4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: At the end of course the student will be able to:- CO1: Understand different methods of KOT flow and order taking CO2: Identify various types of breakfast offerings. CO3: Learn buffet layout and toasting procedures. CO4: Gain knowledge of room service and bar operations. CO5: Develop practical skills in managing KOT flow, breakfast preparation, buffet setup, and room service and bar operations. CO6: Enhance understanding of efficient and personalized service in the hospitality industry.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I	
Class: Hotel Management		Semester: I	
Credits: 2 Theory: 2 Practical: 0		Subject: FUNDAMENTALS OF FRONT OFFICE OPERATIONS	
Course Code: RHM-114C		Title: FUNDAMENTALS OF FRONT OFFICE OPERATIONS	
Course Objectives: The students will get knowledge about: 1. Introduction to Tourism, Hospitality and Hotel Industry and its Evolution. 2. Classification of Hotels. 3. Types of rooms, food plan, Tariff and room rent. 4. Front Office Organization. 5. Basic Terminologies of front office.			
Nature of Paper: DSE			
Minimum Passing Marks/Credits: 40% Marks / 1 Credits			
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)			
Unit	Contents	No. of Lectures Allotted	
I	INTRODUCTION TO TOURISM, HOSPITALITY & HOTEL INDUSTRY Tourism and its importance, Hospitality and its origin Hotels, their evolution and growth	5	
II	CLASSIFICATION OF HOTELS Size, Star, Location & clientele, Ownership, basis, Independent hotels Management contracted hotel, Chains, Franchise/Affiliated, Supplementary accommodation Time shares and condominium	10	
III	TELECOMMUNICATIONS Equipment's, procedure, hierarchy, roles and responsibilities, operator, telephonic queries Communicating with various sections: verbal, written & verbal, Interdepartmental Coordination with other departments: Housekeeping, Engineering and Maintenance, Revenue Centers, Marketing and Public Relations, Communications: Log Book, Information Directory, Mail and Package Handling, Telephone Services	5	
IV	FRONT OFFICE ORGANIZATION Brief Introduction to hotel core area with a special reference to Front office. Function areas, Front office hierarchy, Duties and responsibilities, Personality traits, Layout	10	

	Job specifications, job description, front office manager, duty manager and Guest Relations Executive	
Reference / Text Books: REFERENCE BOOKS 1. Hotel Front Office Management – James. A. Bardi 2. Front Office Management – S.K. Bhatnagar		
If the course is available as Generic Elective then the students of following departments may opt it. 1.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		2
3) Assignments		3
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: At the end of course the student will be able to:- CO1: Contrast the tourism, hospitality, and hotel industry and its evolution. CO2: Identify and classify hotels based on their characteristics. CO3: Categorize about different room types, food plans, tariffs, and rates. CO4: Design the organization and structure of the front office department. CO5: Identify with basic front office terminologies. CO6: Develop practical skills in front office procedures and customer service.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 2		Subject: FUNDAMENTALS OF COMPUTERS
Theory: 2		
Practical: 0		
Course Code: SEC-RHM-111		Title: FUNDAMENTALS OF COMPUTERS
Course Objectives: 1. Computer components and classification, Generation of Computers. 2. Concept and user interface of operating systems. 3. Basics of Office suite. 4. Basics of computer network and applications of internet.		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Knowing computer: What is Computer, Basic Applications of Computer; Components of Computer System, Classification of Computers, Generation of Computers, Central Processing Unit (CPU), Keyboard and Mouse, Other input/output Devices, Computer Memory, Concepts of Hardware and Software; Connecting keyboard, mouse, monitor and printer to CPU and checking power supply.	5
II	Operating Computer using GUI Based Operating System: What is an Operating System; Basics of Popular Operating Systems; The User Interface, Using Mouse; Using right Button of the Mouse and Moving Icons on the screen, Use of Common Icons, Status Bar, Using Menu and Menu-selection, Running an Application, Viewing of File, Folders and Directories, Creating and Renaming of files and folders, Opening and closing of different Windows; Using help; Creating Short cuts, Basics of O.S Setup; Common utilities	5
III	Understanding Word Processing: Word Processing Basics; Opening and Closing of documents; Text creation and Manipulation; Formatting of text; Table handling; Spell check, language setting and thesaurus; Printing of word document. Creating various labels and brochures Using Spread Sheet: Basics of Spreadsheet; Manipulation of cells; Formulas and Functions; Editing of Spread Sheet, formatting of content, creation of table and charts, Printing of Spread Sheet. Use of Pivot table Making Small Presentation: Basics of presentation software; Creating	15

	Presentation; Preparation and Presentation of Slides; Slide Show; Taking printouts of presentation / handouts. Inserting tables and charts in slide.	
IV	Introduction to Internet , WWW and Web Browsers: Basic of Computer networks; LAN, WAN; Concept of Internet; Applications of Internet; connecting to internet; What is ISP; Knowing the Internet; Basics of internet connectivity related troubleshooting, Web Browsing software, Search Engines; Understanding URL; Domain name; IP Address; Using e-governance website	5

Reference / Text Books:

- Management Information Systems, Effy Oz.
- The Complete Reference 2000.
- Computer Fundamentals Goel, Anita Pearson
- Computer Fundamentals: Concepts, Systems & Applications Sinha, P. K/ Sinha, P. 3rd ed BPB

If the course is available as Generic Elective then the students of following departments may opt it.
NIL

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	2
3) Assignments	3
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50

Prerequisites for the course:

Course Learning Outcomes:

CO1- Demonstrate computer components, their classification, and the evolution of computers.
CO2- Discuss with operating systems and their user interfaces
CO3- Develop proficiency in using office suite software.
CO4- Generate a basic understanding of computer networks and internet applications.
CO5- Apply knowledge to effectively utilize computer systems for various tasks.
CO6- Assess common computer issues and perform basic maintenance tasks.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate		Year: I
Class: Hotel Management		Semester: I
Credits: 2		Subject: FUNDAMENTALS OF FRENCH
Theory: 2		
Practical: 0		
Course Code: NHU-111F		Title: FUNDAMENTALS OF FRENCH
Course Objectives: The students will get knowledge about:- 1. Letter, Numbers, Months and Weeks in French 2. Knowledge of verbs and how to make sentences 3. How to converse in French		
Nature of Paper: AECC-2		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Pronunciation - The Alphabet - The Accents; ‘Formulas de politesse’; The numbers: Cardinal– Ordinal; Time (only 24 hr clock); Weights & Measures; The subjective pronouns; Auxiliary verbs: etre and avoir	10
II	Self-introduction; presenting and introducing other person; Name of vegetables and fruits; Conjugation of first group of verbs; Days of the week; Months of the year; Date; The definite and indefinite articles	10
III	Name of the Countries and their Nationalities; Conjugation of second group of verbs; Adjectives of place; Preposition of place; Describing a place (your city/ tourist place)	10
IV	Vocabulary describing family; Describe your family; Name of dairy products and Cereals; Negation; Conjugation of irregular verbs: venir, aller; Demonstrative Adjectives, Simple translation	10
REFERENCE BOOKS: 1. G Mauger Blue - Cours de Langue et de Civilization Francaise 1 with Cd (Lecon 1-14) (French) (Prescribed book) 2. Larousse compact Dictionary: French-English/ English-French 3. Conjugaison - Le Robert & Nathan 4. Larousse French Grammar 5. Grammaire Collection "Le Nouvel Entraenezvous" level debutant 6. Parlez à l’hotel by A. Talukdar 7. A Votre Service 1 8. French for Hotel and Torism Industry by S. Bhattacharya		

9. Basic French Course for The Hotel Industry by Catherine Lobo & Sonali Jadhav	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: CO1- Identify & use French Alphabet, numbers, time & auxiliary verbs. CO2- Read & Recite basic French introduction, fruits, vegetables & 1 st group French verbs. CO3- Describe places, Use adjectives & 2 nd group verbs. CO4- Constructs negative sentences & use irregular verbs.	

Format-3

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: NC		Subject: Industrial Visit/Seminar/Presentation On The Report
Theory: NC		
Practical: NC		
Course Code: NECC-111		Title: Industrial Visit/Seminar/Presentation On The Report
Course Objectives: 1. To get industrial exposure		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4 Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS HAVE TO GIVE A PRESENTATION ON THEIR OBSERVATIONS DURING THEIR INDUSTRIAL VISITS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: 1. STUDENTS HAVE TO GIVE A PRESENTATION ON THEIR OBSERVATIONS DURING THEIR INDUSTRIAL VISITS.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: NC		Subject: University Social Responsibilities–Community Outreach
Theory: NC		
Practical: NC		
Course Code: NECC-112		Title: University Social Responsibilities–Community Outreach
Course Objectives:		
1. To develop intention of giving back to society		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L:02		
T:0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	THIS ACTIVITY IS AN ESSENTIAL PART OF THE CURRICULAM WHICH BELIEVES THAT WHAN WE ARE TAKING FROM THE SOCIETY THEN IT IS OUR MORAL DUTY TO GIVE SOMETHING BACK TO THE SOCIETY. IT ALSO DEVELOPS HABIT OF HELPING OTHERS IN THE STUDENTS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
1. To develop moral values in students.		

Format-3

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: NC		Subject: Sanskrit / Spiritual
Theory: NC		
Practical: NC		
Course Code: MV-111		Title: Sanskrit / Spiritual
Course Objectives:		
1. To teach Sanskrit to students		
Nature of Paper: MV		
Minimum Passing Marks/Credits: NC		
L: 2		
T:0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE TAUGHT THE BASICS OF SANSKRIT / SPIRITUAL TEACHING FROM BHAGWAT GEETA. THE MAIN MOTIVE OF THIS COURSE IS TO DEVELOP MORAL VALUES IN STUDENTS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
1. TO DEVELOP MORAL VALUES IN STUDENTS.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: NC Theory: NC Practical: NC		Subject: Sports
Course Code: SPT-111		Title: Sports
Course Objectives: 1. To engage students in sports		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE ENCOURAGED TO PLAY VARIOUS GAMES OF THEIR CHOICE WHETHER INDOOR OR OUTDOOR. LIKE; CARROM, CHESS, TABLE TENNIS, FOOTBALL, BASKETBALL ETC.	
Reference / Text Books: NC		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: 1. Students can play various games		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree	Year: I	
Class: Hotel Management	Semester: I	
Credits: 2 Theory: 0 Practical: 2	Subject: FUNDAMENTALS OF FOOD PRODUCTION LAB	
Course Code: RHM–111P	Title: FUNDAMENTALS OF FOOD PRODUCTION LAB	
Course Objectives: The student will get knowledge about :- 1. Identification of various kitchen equipment. 2. Classification and various vegetable cuts. 3. Preparation of various kind of stock and Identification of cooking ingredients. 4. Basic cooking techniques. 5. Preparation of Mother Sauces. 6. Bread Making.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0 T: 0 P: 4 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	- Equipments - Identification, Description, Uses & handling - Hygiene - Kitchen etiquettes, Practices & knife handling - Safety and security in kitchen	
II	- Vegetables - classification - Cuts - julienne, jardinière, Macedonia’s, brunoise, payssane, mignonnete, dices, cubes, shred, mirepoix - Preparation of salad dressings	5
III	Identification and Selection of Ingredients - Qualitative and quantitative measures – Market Surveys - Stocks - Types of stocks (White and Brown stock) - Fish stock	5
IV	- Basic Cooking methods and pre-preparations - Blanching of Tomatoes and Capsicum - Preparation of concasse - Boiling (potatoes, Beans, Cauliflower, etc.) - Frying - (deep frying, shallow frying, sautéing) - Aubergines, Potatoes, etc.	5

	- Braising - Onions, Leeks, Cabbage - Starch cooking (Rice, Pasta, Potatoes)	
V	SAUCES -Basic mother sauces Béchamel, Espagnole, Veloute, Hollandaise, Mayonnaise, Tomato Preparation of various egg dishes like scrambled, sunny side up, omelette etc.	5
VI	BREAD MAKING Demonstration & Preparation of Simple and enriched bread recipes, Bread Loaf (White and Brown), Bread Rolls (Various shapes), French Bread, Brioche	5
Reference / Text Books:		
1. Theory of Cookery, the Art of Culinary Preparations		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		10
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		30
Total:		50
Prerequisites for the course:		
Course Learning Outcomes:		
By the end of this course student would be able to:-		
CO1- Identify and utilize the various kitchen equipment effectively.		
CO2- Classify and execute different vegetable cuts with precision.		
CO3- Prepare a variety of stocks and identify cooking ingredients accurately.		
CO4- Apply basic cooking techniques to achieve desired results.		
CO5- Design and utilize mother sauces in culinary preparations.		
CO6- Develop skills in bread making for producing quality bread products.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 1 Theory: 0 Practical: 1		Subject: Fundamentals Of Food And Beverage Service Lab-I
Course Code: RHM-112P		Title: Fundamentals Of Food And Beverage Service Lab-I
Course Objectives: The student will get knowledge about:- 1) Various equipment used in restaurant service. 2) Various cleaning and polishing methods. 3) Basic service techniques.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Food Service areas – Induction & Profile of the areas Ancillary F&B Service areas – Induction & Profile of the areas Familiarization of F&B Service equipment Care & Maintenance of F&B Service equipment	3
II	Cleaning / polishing of EPNS items by: Plate Powder method, Polivit method, Silver Dip method, Burnishing Machine	2
III	Basic Technical Skills Task-1: Holding Service Spoon & Fork Task-2: Carrying a Tray / Salver Task-3: Laying a Table Cloth Task-4: Changing a Table Cloth during service Task-5: Placing meal plates & Clearing soiled plates Task-6: Stocking Sideboard Task-7: Service of Water Task-8: Using Service Plate & Crumbing Down Task-9: Napkin Folds Task-10: Changing dirty ashtray Task-11: Cleaning & polishing glassware	5
IV	Tea – Preparation & Service Coffee - Preparation & Service Juices & Soft Drinks - Preparation & Service, Mocktails	5

Juices, Soft drinks, Mineral water, Tonic water Cocoa & Malted Beverages – Preparation & Service	
Reference / Text Books: 1. Mastering restaurant service-H.L. craschnell and G Nobis 2. Food abd beverage training manual-Sudhir Andrews 3. The waiter-fuller and curie 4. Food and beverage service-D.R. Liilicrap 5. Modern restaurant service –John fuller 6. Essential table service-John fuller	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	-
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	15
Total:	25
Prerequisites for the course:	
Course Learning Outcomes: By the end of this course student would be able to:- CO1- Discuss the purpose and profile of food service and ancillary F&B service areas. CO2- Review with F&B service equipment and learn proper care and maintenance techniques. CO3- Develop proficiency in cleaning and polishing EPNS (Electroplated Nickel Silver) items using various methods. CO4- Develop proficiency in basic technical skills essential for food and beverage service. CO5- Determine comprehensive knowledge and skills in the preparation and service of tea. CO6- Discuss the preparation techniques and service standards for juices, soft drinks, mineral water, and tonic water.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 1 Theory: 0 Practical: 1		Subject: FUNDAMENTALS OF ACCOMMODATION OPERATIONS LAB-I
Course Code: RHM-113P		Title: FUNDAMENTALS OF ACCOMMODATION OPERATIONS LAB-I
Course Objectives: The student will get knowledge about:- 1) Layout of various rooms. 2) Standard supplies and amenities in various rooms. 3) Care and maintenance of various surfaces.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Sample Layout of Guest Rooms Single room, Double room, Twin room, Suite	
II	Guest Room Supplies and Position. Standard room, Suite, VIP room special amenities, Cleaning Equipment-(manual and mechanical) Familiarization, Different parts, Function	3
III	Care and maintenance Cleaning Agent, Familiarization according to classification Function Public Area Cleaning (Cleaning Different Surface) A. WOOD Polished, Painted, Laminated B. SILVER/ EPNS Plate powder method, Polivit method, Proprietary solution (Silvo) C. BRASS D. Traditional/ domestic 1 Method, Proprietary solution 1 (brasso) E. GLASS Glass cleanser, Economical method(newspaper) F. FLOOR -Cleaning and polishing of different types Wooden, Marble, Terrazzo/ mosaic etc. G. WALL -care and maintenance of different types and parts Skirting, Dado Different types of paints (distemper Emulsion, oil paint etc)	10

	Maid's trolley Trolley setup Familiarizing with different types of Rooms, facilities and surfaces, win/double, Suite Conference etc.	
Reference / Text Books: 1. Sudhir Andrews: Hotel Housekeeping 2. Joan C. Branson: Hotel, Hostel & Hospital Housekeeping 3. Georgira Tucker: The Professional Housekeeper		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25
Prerequisites for the course:0		
Course Learning Outcomes: By the end of this course student would be able to:- CO1- Understand room layout and design principles. CO2- Identify and provide standard supplies and amenities for different rooms. CO3- Develop skills in care and maintenance of various surfaces. CO4- Assess room arrangement and organization. CO5- Classify cleanliness and hygiene in guest rooms. CO6- Identify practical troubleshooting skills for common maintenance issues.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 1		Subject: Fundamentals Of Computer Operations Lab-I
Theory: 0		
Practical: 1		
Course Code: SEC-RHM-111P		Title: Fundamentals Of Computer Operations Lab-I
Course Objectives: The student will get knowledge about:- 1) Basic DOS Commands and customization of display. 2) Formatting of text in word processing. 3) Various elements of Spread Sheet. 4) Creating Power point Presentation.		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Basis DOS commands: Internal and External Changing system date and time, Changing display property, Changing mouse properties,	2
II	Word Processing Basics: Opening and closing Documents, Save and Save as, Page Setup, Document Creation, Editing Text, Cut, Copy and Paste, Font and Size selection, Alignment of Text, Paragraph Indenting, Changing case, Draw Table, Changing cell width and height, Alignment of Text in cell, Delete / Insertion of row and column	3
III	Elements of Electronic Spread Sheet: Opening of Spread Sheet, Addressing of Cells, Printing of Spread Sheet, Saving Workbooks, Entering Text, Numbers and Dates, Creating Text, Number and Date Series, Editing Worksheet Data, Inserting and Deleting Rows, Column, Changing Cell Height and Width, Using Formulas, Function, Formatting of content	5
IV	Using PowerPoint: Opening A PowerPoint Presentation, Creating a Presentation Using a Template, Creating a Blank Presentation, Entering and Editing Text, Inserting And Deleting Slides in a Presentation, Inserting Word Table or An Excel Worksheet, Adding Clip Art Pictures, Inserting Other Objects, Resizing and Scaling an Object, Viewing A Presentation, Choosing a Set Up for Presentation, Printing Slides And Handouts, Running a Slide Show, Transition and Slide Timings, Automating a Slide Show	5

Reference / Text Books:

1. Computer Fundamentals Goel, Anita Pearson
2. Computer Fundamentals: Concepts, Systems & Applications Sinha, P. K/ Sinha, P. 3rd ed BPB

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	-
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	15
Total:	25

Prerequisites for the course:

Course Learning Outcomes:

By the end of this course student would be able to:-

- CO1- Use basic DOS commands and customize display settings efficiently.
- CO2- Generate text effectively in word processing.
- CO3- Understand and utilize spreadsheet elements.
- CO4- Create engaging PowerPoint presentations.
- CO5- Apply advanced formatting techniques in word processing.
- CO6- Demonstrate proficiency in creating dynamic spreadsheets.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 1 Theory: 0 Practical: 1		Subject: Bakery and Confectionary Lab-I
Course Code: RHM-114 AP		Title: Bakery and Confectionary Lab-I
Course Objectives: The student will get knowledge about:- 1) Basic Biscuit making techniques 2) Knowledge of basic breads 3) Knowledge of Basic Sponges and Cakes		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Simple Cookies: Melting Moments, Tri color cookies, Choco chip cookies, Coconut cookies etc.	5
II	Simple breads: Sweet bun, Cheese Bun etc. Cakes: Fruit cake, Swiss Roll etc.	10
Reference / Text Books: 1. Theory of Cookery- K. Arora 2. The Art of Culinary Preparations 3. Modern Cookery: Thangam E Phillip Vol-1 & Vol-2		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25
Prerequisites for the course:		

Course Learning Outcomes:

By the end of this course student would be able to:-

CO1- Understand the making process of cookies

CO2- Demonstrate various types of cookies

CO3- Understand the making process of various types of breads and buns

CO4- Demonstrate various types of cakes

Format-3

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 1 Theory: 0 Practical: 1		Subject: Food & Beverage Service–II LAB
Course Code: RHM-114 BP		Title: Food & Beverage Service–II LAB
Course Objectives: The student will get knowledge about:- 1) How to serve various special dishes 2) How to serve various type of breakfasts 3) How to arrange small parties and banquets		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Service and accompaniments of special dishes smoked salmon, caviar, asparagus, grape fruit, artichoke, melon, cheese, fresh fruits.	
II	Service of breakfast English, Continental and Indian. (for Restaurant Room Service) Service of hot beverages Tea, Coffee & Coco. Pantry and Still room operation.	5
III	Layout and service of small tea parties and buffets. Laying and service of banquets.	5
Reference / Text Books: 1. Food & beverage training manual-Sudhir Andrews 2. Food & Beverage Service – Singaravelavan 3. Food & Beverage Service – S N Bagchi 4. Food and beverage service-D.R. Lillicrap 5. Lexicon of Hospitality – Deepanshu Nitin		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15

Total:	25
Prerequisites for the course:	
Course Learning Outcomes: By the end of this course student would be able to:- CO1- Invent special dishes with precision and elegance. CO2- Apply the art of serving diverse breakfast options. CO3- Generate and execute small parties and banquets seamlessly. CO4- Operate exceptional customer service during special dish service, breakfasts, and events. CO5- Illustrate food safety and hygiene during service. CO6- Apply effective teamwork and communication for smooth service delivery.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: I
Credits: 1 Theory: 0 Practical: 1		Subject: FRONT OFFICE
Course Code: RHM-114CP		Title: Fundamentals Of Front Office Operations Lab-I
Course Objectives: The student will get knowledge about: 1. SOP for left luggage. 2. Process and working of cashier desk. 3. Working of bell desk.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Welcoming of guest, Telephone handling Telecommunication skills – telephonic situation handling. Phonetic alphabets SOP I: How to monitor Telephone Problems SOP II: Emergency call Handling Procedures	10
II	Tariffs samples, Brochure skills, maintaining a log book register. SOP I: How to record logbook SOP II: How to review logbook	5
Reference / Text Books: 1. Hotel Front Office Management – James. A. Bardi 2. Front Office Management – S.K. Bhatnagar		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25

Prerequisites for the course:

Course Learning Outcomes:

By the end of this course student would be able to:-

CO1: Understand and manage provisions adjacent to the front desk.

CO2: Demonstrate emergency call handling procedure.

CO3: Demonstrate proper telephone handling procedure.

CO4: Use a welcoming experience to guests.

CO5: Set-up telephone handling skills.

CO6: Develop practical skills through role-playing exercises.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 4 Theory: 4 Practical: 0		Subject: FOOD PRODUCTION
Course Code: RHM- 121		Title: FOOD PRODUCTION
Course Objective:- The Student will get knowledge about: 1. Classification of soup and their garnishes, Basic sauces and gravies. 2. The various commodities required for food production, their market forms, selection, storage and use. 3. The fundamentals of menu planning & standard recipes 4. The basic culinary skills 5. Blending of spices, Different masalas used in Indian cookery.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	o. of Lectures Allotted
I	SOUPS ➤ Basic recipes other than consommé with menu examples - Broths, Bouillon, Puree, Cream, Veloute, Chowder, Bisque etc. Garnishes and accompaniments, International soups. SAUCES & GRAVIES ➤ Difference between sauce and gravy, Derivatives of mother sauces, Contemporary & Proprietary RICE, CEREALS & PULSES ➤ Introduction, Classification and identification, Cooking of rice, cereals and pulses, Varieties of rice and other cereals	10
II	MENU PLANNING & RECIPE FORMULATION: Menu Planning: Factors affecting menu planning. Standard Recipes: Definition, Format, writing, Costing. PRINCIPLES OF MENU PLANNING: ➤ Recipe development and conversion	10
III	BASIC COMMODITIES: i) Milk -Introduction A. Processing of Milk, Pasteurisation –Homogenisation, Types of Milk – Skimmed and Condensed, Nutritive Value	10

	ii) Cream -Introduction, Processing of Cream, Types of Cream iii) Cheese – Introduction, Processing of Cheese ➤ Types of Cheese, Classification of Cheese, Curing of Cheese, Uses of Cheese iv) Butter –Introduction, Processing of Butter, Types of Butter KITCHEN ORGANIZATION AND LAYOUT General layout of the kitchen in various organisations.	
IV	BASIC INDIAN COOKERY i) CONDIMENTS & SPICES ➤ Introduction to Indian food, Spices used in Indian cookery ➤ Role of spices in Indian cookery, Indian equivalent of spices (names) ii) MASALAS A. Blending of spices, Different masalas used in Indian cookery B. Wet masalas, Dry masalas, Composition of different masalas Varieties of masalas available in regional areas, Special masala blends	15
REFERENCE BOOKS: Books recommended:- 1. K. Arora & K. N. Gupta – Theory of cookery		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcome CO1: Classify soups and garnish them appropriately. CO2: Identify, select, store, and utilize various commodities used in food production. CO3: Analyze menus and create standard recipes. CO4; Understand kitchen layout in different organizations. CO5: Create spices and use different masalas in Indian cookery CO6: Prepare basic sauces and gravies.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 4		Subject: FOOD & BEVERAGE SERVICE
Theory: 4		
Practical: 0		
Course Code: RHM-122		Title: FOOD& BEVERAGE SERVICE
Course Objectives: The Student will get knowledge about: 1. Understand various types of restaurant services. 2. Understand type of meal and menu. 3. Develop knowledge of the restaurant control system. 4. Understand the processing manufacturing and service of cigar and cigarettes. 5. Understand about the sequence of French Classical menu.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	MEALS & MENU PLANNING: Origin of Menu, Objectives of Menu Planning Types of Menu, Types of Meals, Early Morning Tea, Breakfast (English, American Continental, Indian), Brunch, Lunch, Afternoon/High Tea Dinner, Supper	10
II	CONTROL SYSTEM KOT/Bill Control System (Manual) Triplicate Checking System, Duplicate Checking System, Single Order Sheet, Quick Service Menu & Customer Bill Making bill, Cash handling equipment Record keeping (Restaurant Cashier), Various equipment’s used by restaurant cashier (Table rack, POS terminal, Thermal printer, printer etc. with usage)	10
III	COURSES OF FRENCH CLASSICAL MENU Sequence, Examples from each course, Cover of each course Accompaniments, French Names of dishes	10
IV	I PREPARATION FOR SERVICE Organising Mise-en-scene Organising Mise en place II TYPES OF FOOD SERVICE Silver service, Pre-plated service, Cafeteria service, Room service, Buffet service Gueridon service, Lounge service)	10

V	TOBACCO History, Processing for cigarettes, pipe tobacco & cigars Cigarettes – Types and Brand names Pipe Tobacco – Types and Brand names Cigars – shapes, sizes, colours and Brand names Care and Storage of cigarettes & cigars	
REFERENCE BOOKS: 1. Mastering restaurant service-H.L. craschnell and G> Nobis 2. Food and beverage training manual-Sudhir Andrews		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course:		
Course Learning Outcomes: At the end of course the student will have the knowledge about:- CO1: Understand various types of restaurant services. CO2: Identify different types of meals and menus. CO3: Review knowledge of restaurant control systems. CO4: Understand the processing and service of cigars and cigarettes. CO5: Understand the sequence of a French Classical menu. CO6: Develop practical skills in executing a French Classical menu.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/ Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 2		Subject: ACCOMMODATION OPERATION
Theory: 2		
Practical: 0		
Course Code: RHM-123		Title: ACCOMMODATION OPERATION
Course Objectives: The students will get knowledge about:- 1. The public area cleaning task. 2. Handling Keys. 3. Learn about inspection of guest room. 4. Various Supervisory works. 5. Handling Various types pests control		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	ROOM LAYOUT AND GUEST SUPPLIES A. Standard rooms, VIP ROOMS, Guest’s special requests Supervision in Housekeeping: Role of supervisor, Guest room inspection, Handling Guest complaints.	8
II	AREA CLEANING A. Guest rooms B. Front-of-the-house Areas ,Back-of-the house Areas C. Work routine and associated problems e.g. high traffic areas, Façade cleaning etc. KEYS Types of keys, Computerised key cards, Key control	10
III	ROUTINE SYSTEMS AND RECORDS OF HOUSE KEEPING DEPARTMENT A. Reporting Staff placement B. Room Occupancy Report, Guest Room Inspection C. Entering Checklists, Floor Register, Work Orders, Log Sheet. Lost and Found Register and Enquiry File, Maid’s Report and Housekeeper’s Report, Handover Records, Guest’s Special Requests Register, Record of Special Cleaning, Call Register, VIP Lists	6

IV	TYPES OF BEDS AND MATTRESSES PEST CONTROL Areas of infestation Preventive measures and Control measure	6
REFERENCE BOOKS:		
1. Sudhir Andrews: Hotel Housekeeping		
2. Joan C. Branson: Hotel, Hostel & Hospital Housekeeping		
3. Georgira Tucker: The Professional Housekeeper		
4. Rose Mary & Heinemann: Housekeeping Management for Hotels		
5. Devid Allen, Hutchinson: Accommodation & Cleaning Services		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes:		
CO1: Demonstrate mastery of skills and techniques for efficient public area cleaning.		
CO2: Demonstration proficiency in conducting thorough inspections of guest rooms.		
CO3: Develop competence in various supervisory responsibilities in a hospitality setting.		
CO4: Build knowledge of effective methods for handling and controlling pests.		
CO5: Develop proficiency in handling keys securely and responsibly.		
CO6: Demonstrate professionalism and commitment to maintaining high cleanliness standards.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree/ Class: BHMCT		Year: I Semester: II
Credits: 2 Theory: 2 Practical: 0		Subject: Larder-II
Course Code: RHM-124A		Title: Larder-II
Course Objectives: The Student will get knowledge about: 1. Classification of fish, cleaning and preparation. 2. Beef, Lamb, Mutton and Pork. 3. Classification of poultry and game. 4. Cold buffet, sandwiches and canapé.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Fish classification, scaling, cleaning, preparation, basic cuts and its uses and storage	10
II	Butchery Cuts of beef, lamb, mutton and pork, its uses and weights	8
III	Poultry and Game: Poultry Classification, preparation, dressing and cuts with its uses. Game Furred game and feathered game, preparation cuts with its uses.	2
IV	Assembling of cold buffets, sandwiches and canapés. Proper storage of leftovers	10
Reference / Text Books: 1. Cold Kitchen –DD Sharma 2. Theory of catering- Ronald Kinton		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		5
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50

Prerequisites for the course:

Course Learning Outcomes:

By the end of this course student should be able to:

CO1- Classify and prepare fish effectively.

CO2- Understand the characteristics of beef, lamb, mutton, and pork.

CO3- Identify and classify poultry and game.

CO4- To preparation of cold buffet, sandwiches, and canapés.

CO5- Apply proper food safety and hygiene practices.

CO6- Create skillfully prepared dishes using fish, meat, poultry, and game.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 2		Subject: F & B SERVICE–II
Theory: 2		
Practical: 0		
Course Code: RHM-124B		Title: F & B SERVICE–II
Course Objectives: The Student will get knowledge about: 1. Staff organization and coordination within and outside the department and various silver polishing methods 2. Various spirits 3. Function and significance of Pantry, still room and KST 4. Liqueur and Various cocktails.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Staff organization of F&B Deptt, and inter & intra departmental coordination. Silver polishing methods (a) Polivit method, (b) Plate powder, (c) Burnishing method	5
II	Spirit – Whiskey, rum, brandy, gin, vodka, and their famous brands.	5
III	Significance of pantry & still room in F & B operation, Functions of the pantry, and sections of the pantry. Kitchen stewarding. Board specifications of light and heavy-duty equipment, Restaurant, Pantry, and Still room equipment	10
IV	Liqueurs: Different types with their predominant flavorings and famous ten brands. Cocktails – Classification, rules of making cocktail and recipe of 50 cocktails.	10
Reference / Text Books: 1. Food and beverage service- Singara belavan 2. Food and beverage service- Lily crap		
If the course is available as Generic Elective then the students of following departments may opt it. 1. NIL 2. NIL 3. NIL		

Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course: NIL	
Course Learning Outcomes: By the end of this course student would be able to:- CO1- Invent and coordinate staff effectively, both within and outside the department, while learning various silver polishing methods CO2- Develop knowledge of different spirits and their applications in the hospitality industry. CO3- Understand the function and importance of the Pantry, Still Room, and KST departments CO4- Discuss about liqueurs and various cocktail preparations. CO5- Develop skills in managing pantry, still room, and kitchen stewarding tasks. CO6- Apply knowledge and skills to deliver exceptional food and beverage experiences.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 2		Subject: Front Office Operations
Theory: 2		
Practical: 0		
Course Code: RHM 124C		Title: Front Office Operations
Course Objectives: The Student will get knowledge about: 1. Reservation, its types, importance and other aspects. 2. Various Room selling Techniques. 3. Room Tariff Fixation. 4. Message and Mail Handling.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	COMMUNICATION SKILLS Verbal and non-verbal communication Handling guest complaints and feedback Telephone etiquette and email communication	2
II	RESERVATIONS A. Importance of reservation, Modes of reservation B. Channels and sources (FITs, Travel Agents, Airlines, GITs) C. Types of reservations (Tentative, confirmed, guaranteed etc.) D. Systems (non-automatic, semi-automatic fully automatic) E. Cancellation, Amendments, Overbooking	15
III	ROOM SELLING TECHNIQUES Up selling, Discounts FRONT OFFICE AND GUEST HANDLING • Introduction to guest cycle, Pre arrival, Arrival • During guest stay, Departure	3
IV	HOUSEKEEPING COORDINATION Coordination between front office and housekeeping Room status and availability Handling lost and found items Registration and Check-In Procedures Registration process and documents	10

Check-in procedures for different types of guests Handling special requests and VIP guests	
REFERENCE BOOKS: 1. Hotel Front Office Management – James. A .Bardi 2. Front Office Management – S.K Bhatnagar	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: CO1- Understand reservation types, importance, and effective management. CO2- Review room selling techniques to maximize occupancy and revenue. CO3- Analyze knowledge of room tariff fixation strategies CO4- Develop skills in message and mail handling for efficient communication. CO5- Apply reservation systems and software effectively. CO6- Apply knowledge and skills to enhance guest experiences and contribute to the success of a hospitality establishment.	

Format-3

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 2		Subject: Moocs/ NPTEL
Theory: 2		
Practical: 0		
Course Code: VAC-RHM-001		Title: Moocs/ NPTEL
Course Objectives: The course objectives of the program are:		
Nature of Paper: VAC		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L:		
T:		
P: (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4 Credits)		
Unit	Contents	No. of Lectures Allotted
I	To be covered online as per course choosed	10
Reference / Text Books:		
Nil		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: On completion of this course, the students will be able to:- As per online course		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 3		Subject: ENVIRONMENT & ECOLOGY
Theory: 3		
Practical: 0		
Course Code: NHU-NPR-122		Title: ENVIRONMENT & ECOLOGY
Course Objectives:		
1. To know about the greenery of environment.		
2. Understand about Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries		
3. Get Knowledge for Renewable and non-renewable energy sources, use of alternate energy sources.		
4. Give acknowledgement for Biodiversity and Conservation.		
5. Environmental Pollution like water, soil ,air pollution.		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 1.5 Credits		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to environmental studies Multidisciplinary nature of environmental studies; components of environment – atmosphere, hydrosphere, lithosphere and biosphere. Scope and importance; Concept of sustainability and sustainable development	10
II	Ecosystems What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chain, food web and ecological succession. Case studies of the following ecosystems: a) Forest ecosystem b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)	4
III	Natural Resources: Renewable and Non-renewable Resources Land Resources and land use change; Land degradation, soil erosion and desertification. • Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. • Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state). • Heating of earth and circulation of air; air mass formation and precipitation.	10

	Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.	
IV	Biodiversity and Conservation Levels of biological diversity: genetic, species and ecosystem diversity; Biogeography zones of India; Biodiversity patterns and global biodiversity hot spots - India as a mega-biodiversity nation; Endangered and endemic species of India - Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity. - Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.	6
V	Environmental Pollution Environmental pollution: types, causes, effects and controls; Air, water, soil, chemical and noise pollution - Nuclear hazards and human health risks - Solid waste management: Control measures of urban and industrial waste. - Pollution case studies.	

Reference / Text Books:

Hotel Management and Operations –

Michael J. O'Fallon, Denney G. Rutherford

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	15
2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total:	100

Prerequisites for the course:

Course Learning Outcomes:

By end of this semester students able to know about:-

CO1- Understand the importance of environmental greenery and its impact on biodiversity and human well-being

CO2- Classify various aquatic ecosystems and their conservation challenges.

CO3- Discuss renewable and non-renewable energy sources and the use of alternate energy.

CO4- Develop an awareness of biodiversity and conservation practices.

CO5- To express the causes and effects of environmental pollution and preventive measures.

CO6- Apply critical thinking skills to analyze environmental issues and propose sustainable solutions

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: NC		Subject: Industrial Visit/Seminar/Presentation On The Report
Theory: NC		
Practical: NC		
Course Code: NECC-121		Title: Industrial Visit/Seminar/Presentation On The Report
Course Objectives:		
➤ Industrial Exposure		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS HAVE TO GIVE A PRESENTATION ON THEIR OBSERVATIONS DURING THEIR INDUSTRIAL VISITS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
➤ Understand Work flow in hotel		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: NC		Subject: University Social Responsibilities– Community Outreach
Theory: NC		
Practical: NC		
Course Code: NECC-122		Title: University Social Responsibilities– Community Outreach
Course Objectives:		
To develop human values in students		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	THIS ACTIVITY IS AN ESSENTIAL PART OF THE CURRICULAM WHICH BELIEVES THAT WHAN WE ARE TAKING FROM THE SOCIETY THEN IT IS OUR MORAL DUTY TO GIVE SOMETHING BACK TO THE SOCIETY. IT ALSO DEVELOPS HABIT OF HELPING OTHERS IN THE STUDENTS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
1. How we can give back to society		

Format-3

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: NC		Subject: SANSKRIT / SPIRITUAL
Theory: NC		
Practical: NC		
Course Code: MV-122		Title: SANSKRIT / SPIRITUAL
Course Objectives:		
1. Teach Sanskrit to students		
Nature of Paper: MV		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE TAUGHT THE BASICS OF SANSKRIT / SPIRITUAL TEACHING FROM BHAGWAT GEETA. THE MAIN MOTIVE OF THIS COURSE IS TO DEVELOP MORAL VALUES IN STUDENTS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
1. Knowledge of ancient language or moral values		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: NC		Subject: Sports
Theory: NC		
Practical: NC		
Course Code: SPT-121		Title: Sports
Course Objectives: To engage students in sports		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE ENCOURAGED TO PLAY VARIOUS GAMES OF THEIR CHOICE WHETHER INDOOR OR OUTDOOR. LIKE; CARROM, CHESS, TABLE TENNIS, FOOTBALL, BASKETBALL ETC.	
Reference/Text Books: NA		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: Students are engage in various sports.		

IMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 2		Subject: Food Production-LAB
Theory: 0		
Practical: 2		
Course Code: RHM-121P		Title: Food Production-LAB
Course Objectives: 1. Various types of Soup Preparation. 2. Various types of Salad Preparation. 3. Preparation of various pastries. 4. Preparation of various sweet. 5. Various types of Chicken Preparation.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Salads & soups- Waldorf salad, Fruit salad, Russian salad, Cream (Spinach, Vegetable, Tomato), Puree (Lentil, Peas Carrot), International soups	40
II	Chicken and Fish Preparations- Roast chicken, grilled chicken, Fish Preparations Simple potato preparations- Basic potato dishes Vegetable preparations- Basic vegetable dishes Indian cookery- Rice dishes, Breads, Main course, Basic Vegetables, Paneer Preparations	
III	PASTRY: Demonstration and Preparation of dishes using varieties of Pastry, Short Crust – Jam tarts, Turnovers Laminated –Danish Pastry, Puff paste. Choux Paste – Éclairs, Profiteroles INDIAN SWEETS Simple ones such as gajjar halwa, kheer	
REFERENCE BOOKS: 1. K. Arora & K.N. Gupta – Theory of cookery		

2. Philip Thangam- Modern cookery for teaching & The trade.	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: By the end of this course student should be able to: CO1- Students will learn to prepare a variety of soups, including clear soups, creamy soups, and vegetable-based soups. CO2- Students will understand various salad dressings and their appropriate pairings with different salad types. CO3- Students will understand the art of making flaky pastry dough, including puff pastry and short crust pastry. CO4- Students will develop an understanding of flavor pairing and experimentation in dessert recipes CO5- Students will develop the skills to cook chicken using methods such as roasting, grilling, sautéing, and braising. CO6- Students will integrate to substitute ingredients in recipes while maintaining the integrity of the dish.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 1 Theory: 0 Practical: 1		Subject: Food And Beverage Service LAB
Course Code: RHM-122P		
Title: Food And Beverage Service LAB		
Course Objectives: The student will get knowledge about 1. Table layout for various types of breakfasts. 2. Opening and Closing procedures of a restaurant. 3. Handling guest complaints. 4. Service of various Meals		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	TABLE LAY-UP & SERVICE Task-1: A La Carte Cover Task-2: Table d' Hote Cover Task-3: English Breakfast Cover Task-4: American Breakfast Cover Task-5: Continental Breakfast Cover Task-6: Indian Breakfast Cover Task-7: Afternoon Tea Cover Task-8: High Tea Cover TRAY/TROLLEY SET-UP & SERVICE Task-1: Room Service Tray Setup Task-2: Room Service Trolley Setup	2
II	PREPARATION FOR SERVICE (RESTAURANT) A. Organizing Mise-en-scene, Organizing Mise-en-Place B. Opening, Operating & Closing duties	3
III	PROCEDURE FOR SERVICE OF A MEAL Task-1: Taking Guest Reservations Task-2: Receiving & Seating of Guests Task-3: Order taking & Recording Task-4: Order processing (passing orders to the kitchen) Task-5: Sequence of service	2

	Task-6: Presentation & Enchasing the Bill Task-7: Presenting & collecting Guest comment cards Task-8: Seeing off the Guests	
IV	Social Skills Task-1: Handling Guest Complaints Task-2: Telephone manners Task-3: Dining & Service etiquettes Task-4: Cheese Task-5: Dessert (Fresh Fruit & Nuts)	2
V	Service of Tobacco : Cigarettes & Cigars	3
REFERENCE BOOKS: 1. Mastering restaurant service-H.L. craschnell and Nobis 2. Food and beverage training manual-Sudhir Andrews 3. The waiter-fuller and curie		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: Students will Learn:- CO1- Students will apply knowledge of proper placement of tableware, including plates, cutlery, glassware, and napkins. CO2- Students will develop organizational skills and attention to detail required for smooth restaurant operations. CO3- Students will choose active listening techniques and empathy to understand guest complaints. CO4- Students will understand the nuances of service etiquette and proper tableside manners. CO5- Students will understand the flavor profiles and characteristics of different foods and beverages. CO6- Students will use the importance of clear and concise communication with fellow staff members.		

IIMTU NEP IMPLEMENTATION
Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I	
Class: Hotel Management		Semester: II	
Credits: 1 Theory: 0 Practical: 1		Subject: Accommodation Operation LAB-III	
Course Code: RHM-123P			
Title: Accommodation Operation LAB-III			
Course Objectives: The students will get knowledge about:- 1. Cleaning Procedure of guest rooms. 2. Bed making Procedure. 3. Various records maintained in housekeeping. 4. Handling room linen/ guest supplies.			
Nature of Paper: Core			
Minimum Passing Marks/Credits: 50% Marks / 1 Credits			
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 4 Credits)			
Unit	Contents	No. of Lectures Allotted	
Servicing guest room(checkout/ occupied and vacant) <u>ROOM</u> Task 1- open curtain and adjust lighting Task 2- clean ash and remove trays if any Task 3- strip and make bed Task 4- dust and clean drawers and replenish supplies Task 5-dust and clean furniture, clockwise or anticlockwise Task 6- clean mirror Task 7- replenish all supplies Task 8-clean and replenish minibar Task 9-vaccum clean carpet Task 10- check for stains and spot cleaning <u>BATHROOM</u> Task 1-disposed soiled linen Task 2-clean ashtray Task 3-clean WC Task 4-clean bath and bath area Task 5-wipe and clean shower curtain	Bed making supplies (day bed/ night bed) Step 1-spread the first sheet(from one side) Step 2-make miter corner (on both corner of your side) Step 3- spread second sheet (upside down) Step 4-spread blanket Step 5- Spread crinkle sheet Step 6- make two folds on head side with all three (second sheet, blanket and crinkle sheet) Step 7- tuck the folds on your side Step 8- make miter corner with all three on your side Step 9- change side and finish the bed in the same way Step 10- spread the bed spread and place pillow Records Room occupancy report Checklist, Floor register Work/ maintenance order] Lost and found, Maid's report		

Task 6- clean mirror Task 7-clean tooth glass Task 8-clean sanitary unit Task 9- replenish bath supplies Task 10- mop the floor Guest handling Guest request Guest complaints	Housekeeper's report Log book Guest special request register Record of special cleaning Call register VIP list Floor linen book/ register
Guest room inspection Mini bar management Issue, stock taking checking expiry date	Handling room linen/guest supplies maintaining register/record replenishing floor pantry stock taking
REFERENCE BOOKS:	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	15
Total:	25
Prerequisites for the course:	
Course Learning Outcomes: By the end of this course student would be able to know: CO1- Demonstrate knowledge of cleaning techniques, tools, and products used in guest room cleaning. CO2- Apply techniques for achieving a neat and visually appealing bed presentation. CO3- Understand the importance of record-keeping for effective communication and efficient management of housekeeping operations. CO4- Understand inventory management principles and procedures for guest supplies. CO5- Demonstrate effective communication skills when interacting with guests and colleagues. CO6- Develop problem-solving abilities to address guest requests and resolve issues promptly and courteously.	

Format-3

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 1 Theory: 0 Practical: 1		Subject: Bakery & Confectionary LAB-II
Course Code: RHM-124AP		Title: Bakery & Confectionary LAB-II
Course Objectives: The students will get knowledge about:- 1. Different types of Breads and tarts 2. Different types of cakes and pastries		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Varieties of Bread Rolls, Varieties of Pastries	5
II	Varieties of Cookies, Varieties of Tarts	5
Reference / Text Books: 1. Cold Kitchen –DD Sharma 2. Theory of catering- Ronald Kinton		
If the course is available as Generic Elective then the students of following departments may opt it. 1. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: CO1- To prepare various tarts CO2- Demonstate various types of pastries CO3- Prepare different types of Bread Rolls CO4- Prepare different types of Cookies		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 1		Subject: F&B Service LAB-II
Theory: 0		
Practical: 1		
Course Code: RHM-124BP		Title: F&B Service LAB-II
Course Objectives: The students will get knowledge about:- 1. Various silver polishing methods 2. Service of different spirits 3. Service of different Liqueures 4. Preparation of different cocktails.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Practical's of the previous semester and silver polishing methods.	5
II	Service of Spirits	5
III	Service of liqueures	10
IV	Preparation of cocktails	10
Reference / Text Books: 1. Mastering restaurant service-H.L.craschnell and GNobis 2. Food and beverage training manual-Sudhir Andrews		
If the course is available as Generic Elective then the students of following departments may opt it. 1. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		5
5) ESE		15
Total:		25
Prerequisites for the course: Basic knowledge of Cuts of meat, poultry, fish		
Course Learning Outcomes: CO1- Demonstrate basic service techniques CO2- Recall service of various spirits		

CO3- Demonstrate service of various liqueurs
CO4- Create various cocktails.
CO5- Students will apply appropriate method for silver polishing
CO6- Demonstrate various cleaning methods

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: Certificate/Diploma/Degree		Year: I
Class: Hotel Management		Semester: II
Credits: 1		Subject: Front Office Operations LAB
Theory: 0		
Practical: 1		
Course Code: RHM 124CP		Title: Front Office Operations LAB
Course Objectives: The students will get knowledge about: 1. Basic idea about the function of front office. 2. Check-in process of various Guest. 3. Check in a reserved guest, Check in day use. 4. Issue an electronic key, Extend a key.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
S. No.	Contents	No. of Lectures Allotted
I	INTRODUCTION TO FRONT OFFICE EQUIPMENT AND SYSTEMS Familiarization with front office layout and equipment Introduction to Property Management Systems (PMS) A. Basic computer skills and software applications	5
II	RESERVATION PROCEDURES • Simulated reservation scenarios (individual, group, corporate) • Using PMS for reservation entries and modifications • Handling cancellations and amendments	10
III	Programme keys continuously, Re-programme keys, Programme one key for two rooms, Use of recent technologies in Guest Reservation process, use of Internet & software in Hospitality sector Key Management Programming and re-programming key cards • Programming one key for two rooms • Use of recent technologies in key management • Security measures related to key management	5

REFERENCE BOOKS:

1. Hotel Front Office Management – James. A .Bardi
2. Front Office Management – S.K Bhatnagar

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50

Prerequisites for the course:

Course Learning Outcomes:

- CO1- Understanding of the functions and responsibilities of the front office department in the hospitality industry
- CO2- Develop proficiency in the reservation process for various types of guests.
- CO3- Understand how to check in a reserved guest and handle day use reservations
- CO4- Develop skills in issuing electronic keys and extending guest key privileges.
- CO5- Develop customer service skills to ensure guest satisfaction during the check-in process.
- CO6- Students will develop organizational skills to handle multiple tasks simultaneously and prioritize them effectively.

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: IV

Programme: Diploma/Degree		Year: II
Class: B.Sc. (Hotel Management)		Semester: IV
Credits: 4		Subject: FOOD PRODUCTION-I
Theory: 4		
Practical: 0		
Course Code: RHM-241		Title: FOOD PRODUCTION-I
Course Objectives: The students will get knowledge about:- 1. Various equipment and menu planning used in Quantity Food production 2. Various type of catering establishments dealing with bulk cooking 3. Indian regional cuisines 4. Specialties and staples of various states		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	QUANTITY FOOD PRODUCTION EQUIPMENT Equipment required for mass/volume feeding, Heat and cold generating equipment, Care and maintenance of this equipment, Modern developments in equipment manufacture MENU PLANNING Basic principles of menu planning – recapitulation, Points to consider in menu planning for various volume feeding outlets such as Industrial, Institutional, Mobile Catering Units, Planning menus for Welfare & Commercial catering, Nutritional factors for the above	10
II	VOLUME FEEDING Institutional and Industrial Catering, Types of Institutional & Industrial Catering, Problems associated with this type of catering, Scope for development and growth, Hospital Catering, Highlights of Hospital Catering for patients, staff, visitors, Diet menus and nutritional requirements, Off Premises Catering, Reasons for growth and development, Menu Planning and Theme Parties, Concept of a Central Production Unit, Problems associated with off-premises catering	10

III	REGIONAL INDIAN CUISINE Introduction to Regional Indian Cuisine, Heritage of Indian Cuisine Factors that affect eating habits in different parts of the country, Cuisine and its highlights of different states/regions/communities to be discussed under: Geographic location, Historical background, Seasonal availability Special equipment: Staple diets, Specialty cuisine for festivals and special occasions STATES (Regional Cuisines) Andhra Pradesh, Bengal, Goa, Gujarat, Karnataka, Kashmir, Kerala, Madhya Pradesh, Maharashtra, North East States, Punjab, Rajasthan, Tamil Nadu and Uttar Pradesh/Uttaranchal	10
IV	COMMUNITIES Parsee, Chettinad, Hyderabad, Lucknowi, Awadhi, Malbari/Syrian Christian and Bohri. Indian Spices Introduction to Indian Spices, All Dry Masala (Garam Masala, Chaat Masala, Goda Masala, Sambar Masala, Rasam Masala, Panch Phoran Masala & Malvani Masala & Wet Masala (Goan Masala, Xacutti Masala, Chettinad Masala, Malabar Masala, Rechado Masala, Balchao Masala, Soola Masala & Tandoori Masala DISCUSSIONS Indian Breads, Indian Sweets, Indian Snacks	15
REFERENCE BOOKS: 1. Gisslen Wayne – Professional Cookery (John Wiley and Sons) 2. Montage – Larousse gastronomique (Himalaya publishing group)		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcome At the end of course the student will be able to:- CO1: Understand operating procedures of various types of equipment and plan menu for quantity food production CO2: Understand and deals with problems arise in the operations of various catering establishments. CO3: Understand eating habits and seasonal availability of different regions of INDIA. CO4: Demonstrate various specialties of different states of INDIA. CO5: To promote Indian cuisine globally to international students.		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: IV

Programme: Diploma/Degree		Year: II
Class: B.Sc. (Hotel Management)		Semester: IV
Credits: 4		Subject: FOOD & BEVERAGE SERVICE–I
Theory: 4		
Practical: 0		
Course Code: RHM-242		Title: FOOD & BEVERAGE SERVICE–I
Course Objectives: The students will get knowledge about:- 1. Alcoholic Beverages their types and dispense bar 2. Understand different types of Wines, Their classification storage & services. 3. Know about the different wine producing countries, their specialty wine 4. To know about wine quality laws governing the major wine producing countries.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	ALCOHOLIC BEVERAGE Introduction and definition, Production of Alcohol, Fermentation process, Distillation process, Classification with examples DISPENSE BAR Introduction and definition, Bar layout – physical layout of bar, Bar stock – alcohol & non-alcoholic beverages, Bar equipment BEER Introduction & Definition, Types of Beer, Production of Beer, Storage	10
II	WINES Definition & History, Classification with examples, Table/Still/Natural, Sparkling, Fortified, Aromatized, Production of each classification, Old World wines (Principal wine regions, wine laws, grape varieties, production and brand names) France, Germany, Italy, Spain, Portugal, New World Wines (Principal wine regions, wine laws, grape varieties, production and brand names) USA, Australia, India, Chile, South Africa, Algeria, New Zealand, Storage of wines, Wine terminology (English & French)	10
II	SPIRITS Introduction & Definition, Production of Spirit, Pot-still method, Patent still method, Production of Whisky, Rum, Gin, Brandy, Vodka, Tequilla Different Proof Spirits - American Proof, British Proof (Sikes scale) Gay	10

	Lussac (OIML Scale)	
IV	APERITIFS Introduction and Definition, Types of Aperitifs, Vermouth (Definition, Types & Brand names), Bitters (Definition, Types & Brand names) LIQUEURS Definition & History, Production of Liqueurs Broad Categories of Liqueurs (Herb, Citrus, Fruit/Egg, Bean & Kernel) Popular Liqueurs (Name, color, predominant flavor& country of origin)	10
REFERENCE BOOKS: 1. Modern restaurants service –John fuller 2. Food and beverage service-Dennis R. Lillicrap and John cousins. If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcomes: At the end of course the student will have the knowledge about:- CO1: Understand the making process of Beer. CO2: Understand the making and service process of National & International Wines. CO3: Understand the Wine law of Wine producing Countries. CO4: Understand the Food and matching wine service harmony. CO5: Understand the history, origin & production process of Aperitifs and Liquors.		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: IV

Programme: Diploma/Degree		Year: II
Class: B.Sc. (Hotel Management)		Semester: IV
Credits: 2		Subject: FRONT OFFICE -I
Theory: 2		
Practical: 0		
Course Code: RHM-243		Title: FRONT OFFICE -I
Course Objectives: The students will get knowledge about:- 1. Students will learn the property management system in front office operation 2. Get the knowledge with reference to guest accounting and night audit 3. Learn the accomplished activities of check-out and bell desk. 4. Become skilled at guest safety and security system.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	COMPUTER APPLICATION IN FRONT OFFICE OPERATION Role of information technology in the hospitality industry Factors for need of a PMS in the hotel Factors for purchase of PMS by the hotel, Introduction to Fidelio & Amadeus	8
II	CONCIERGE & BELL DESK Basic etiquette's and grooming, Introduction • to guest Mail & key handling, key control, Policies for blacklisted persons, Wake-up call, Left Luggage, Scanty Baggage, Daily reports. Guest History Card, Safe deposit boxes and • its operation, Preparation of itinerary, VVIP Guest arrival Role of Guest Relation Executive • Luggage Handling Procedure • Functions of hospitality desk/concierge desk BELL DESK/CONCIERGE A. Duties and responsibilities of Bell Captain B. Duties and responsibilities of Bell Boy	10
III	CHECK OUT PROCEDURES Guest accounts settlement - Cash and credit - Indian currency and foreign currency - Transfer of guest accounts - Express check out.	6

IV	FRONT OFFICE & GUEST SAFETY AND SECURITY Role of Front Office in Hotel Security • Check in: use of metal detectors, validators, scanty baggage handling • Keys control: ELS (Electronic Cards), Handling Grand Master / Master key, lost & found & • damaged keys, use of key cards • Guest & staff movement & access control • Protection of funds, safe deposit boxes. Dealing with emergencies: medical, death, theft, robbery, fire, bomb threats etc. DISASTER MANAGEMENT Prevention and Mitigation of Disasters, Early Warning System; Preparedness, Capacity Development; Awareness During Disaster – Evacuation – Disaster Communication – Search and Rescue – Emergency Operation Centre – Incident Command System – Relief and Rehabilitation – Post-disaster – Damage and Needs Assessment, Restoration of Critical Infrastructure – Early Recovery – Reconstruction and Redevelopment.	6
REFERENCE BOOKS: 1. Principles of Front Office Operations – Sue Baker 2. Front Office Management – S.K. Bhatnagar 3. Front Office Procedures – Michael. L. Kasavana 4. Hotel Front Office Management – James. A. Bardi.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: CO1: Understand the role of information technology in the hospitality industry. CO2: To understand the procedure of Front Office Accounting. CO3: Handle various jobs performed at Bell Desk. CO4: Understand the Job profile of Door man and Parking Attendant. CO5: To Understand Safety, Security and its types and significance at hotel front office.		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: IV

Programme: Diploma/Degree		Year: II
Class: B.Sc. (Hotel Management)		Semester: IV
Credits: 2		Subject: ACCOMMODATION OPERATION– I
Theory: 2		
Practical: 0		
Course Code: RHM-244		Title: ACCOMMODATION OPERATION– I
Course Objectives: 1. Planning and organizing of the linen room and uniform room. 2. Meant to learn about type of uniforms & designing. 3. Students will learn about basic laundry & sewing room activities. 4. To gain the knowledge about equipment and material required for flower arrangement in a hotel.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	LINEN ROOM Activities of the Linen Room, Layout and equipment in the Linen Room Selection criteria for various Linen Items & fabrics suitable for this purpose Purchase of Linen, Calculation of Linen requirements, Linen control-procedures and records, Stocktaking-procedures and records Recycling of discarded linen, Linen Hire	10
II	UNIFORMS Advantages of providing uniforms to staff, Issuing and exchange of uniforms; type of uniforms, Selection and designing of uniforms Layout of the Uniform room SEWING ROOM Activities and areas to be provided, Layout of sewing room, Equipment provided Job description of tailor.	4
III	LAUNDRY Commercial and On-site Laundry, Flow process of Industrial Laundering-OPL, Stages in the Wash Cycle, Laundry Equipment and Machines Layout of the Laundry, Laundry Agents, Dry Cleaning, Guest Laundry/Valet service, Stain removal	10
IV	FLOWER ARRANGEMENT Flower arrangement in Hotels, Equipment and material required for flower arrangement, Conditioning of plant material, Styles of flower arrangements	6

Principles of design as applied to flower arrangement INDOOR PLANTS Selection and care		
Reference / Text Books: R. Rajagopalan, Environmental Studies, Oxford IBH Pub, 2011. - Kogent Learning Solutions Inc., Energy, Environment, Ecology and Society, Dreamtech, 2012.		
If the course is available as Generic Elective then the students of following departments may opt it.		
1. NA		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcomes: By end of this semester students able to know about:- CO1: To know the different types of linen and their purchasing procedure. CO2: Provide knowledge of Sewing room activities and managing uniform room. CO3: Students get understand the different types of laundry and stain removal procedure. CO4: To understand the flower arrangement in hotels, equipment and material required for flower arrangement.		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: IV

Programme: Diploma/Degree		Year: II
Class: B.Sc. (Hotel Management)		Semester: IV
Credits: 2		Subject: RESORT MANAGEMENT
Theory: 2		
Practical: 0		
Course Code: RHM-245A		Title: RESORT MANAGEMENT
Course Objectives: 1. To know the history of Resort 2. How to plan and develop a resort 3. knowledge about various recreational activities offered in resort 4. Marketing of resort and sales promotion		
Nature of Paper: DSC		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction- The History, Characteristics, concept of Resorts. Current and future Trends in Resort Development, Management and Planning.	10
II	Resort Planning and Development- Investment Consideration, The Role of Planning and Management, Planning, Facilities, Grounds Maintenance, Planning and the Leisure concept, Food and Beverage planning	10
III	Recreational Activities- Golf, Tennis, Snow sports, Water sports, Spa and Health Club Facilities, Recreational Infrastructure and Nature, Theme Resorts, Customer Service- Guest Relations, Guest Activities and Service, Housekeeping, The Reservations Department	10
IV	Marketing the Resort Experience- Comps and credit, resort marketing and sales promotion, market segmentation and potential guest markets, advertising of resorts, promotion and publicity.	10
Reference / Text Books: 1. Hasimoto, K., Kline, S., and G. Fenich. 1998. Casino Management: Past, Present, and Future. (2 nd Edition). Dubuque: Kendall & Hunt. Mill, R.C. 2001. Resorts: Management and Operation. New York: Wiley & Sons.		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10

2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: CO1: Gain the knowledge of history, growth, and development of resorts. CO2: To acquire the skill to key marketing and financial aspects of resorts. CO3: Students have knowledge about process of resort planning and development, and the basic elements of a resort complex. CO4: Students are able to understand about resort planning and development, trends and Factors in development of Resort and basic element of a resort complex, Marketing the Resort Experience.	

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: IV

Programme: Diploma/Degree		Year: II
Class: B.Sc. (Hotel Management)		Semester: IV
Credits: 2		Subject: SPA MANAGEMENT
Theory: 2		
Practical: 0		
Course Code: RHM-245B		Title: SPA MANAGEMENT
Course Objectives: 1. To get the knowledge about Spa industry. 2. To get the knowledge about spa designing process. 3. To get the knowledge about spa facility operations. 4. To get the knowledge about spa operations and management.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Spa industry: Definitions, origin, spa towns, famous natural spas of the world - Spa industry today - Types of spas. Spa offerings: Brief overview of Modern Spa Treatments: by technique, origin, provider, and facility & equipment – Spa menu development.	10
II	Establishing the business:- Vision, Mission, planning process, the business plan, start-up costs – types of spa ownership. Spa facility Design and construction – Spa concept development – layout of a spa (treatment room –dry and wet room setups, lockers and changing room, reception, waiting area etc.) - Spa design process - general spa design considerations – design considerations by spa area - design trends – Interior design and decoration	10
III	SPA OPERATIONS AND MANAGEMENT- Policies and procedures – industry best practices – Developing and implementation of SOPs – SOP training – opportunities for feedback Spa Human Resources: Organisational structure – spa personnel –international certification of personnel (CIBTAC, CIDESCO etc.) - HR practices – Employee policies and procedures. Spa facility operations: Facility management and its elements – maintenance safety and sanitation - sanitation policy and procedure – managing Equipments – inventory management	10
IV	SPA OPERATIONS AND MANAGEMENT- Policies and procedures – industry best practices – Developing and implementation of SOPs – SOP training – opportunities for feedback Spa Human Resources: Organisational structure – spa personnel –international certification of	10

	personnel (CIBTAC, CIDESCO etc.) - Spa facility operations: Facility management and its elements – maintenance safety and sanitation - sanitation policy and procedure – managing Equipments – inventory management.	
Reference / Text Books:		
1. Mary S Wisnom, Lisa L Capozio (2012), Spa Management- An introduction, Pearson.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes:		
CO1: Able to develop a menu for Various Spa		
CO2: Layout various sections in SPA		
CO3: Perform Various SOPs adopted and analyse feedback		
CO4: To establish various policies		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: IV

Programme: Diploma/Degree		Year: II
Class: B.Sc. (Hotel Management))		Semester: IV
Credits: 3		Subject: Human Values & Professional Ethics
Theory: 3		
Practical: 0		
Course Code: UVE-401		Title: Human Values & Professional Ethics
Course Objectives:		
1. To create an awareness on Human Values & Professional Ethics.		
2. To instill Moral and Social Values and Loyalty.		
3. To appreciate the rights of others.		
4. To instill of Harmony on Professional Ethics.		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 3		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Course Introduction – 1. Understanding the need, basic guidelines, content and process for Value Education 2. Self-Exploration–what is it? - its content and process; ‘Natural Acceptance’ and Experiential Validation- as the mechanism for self-exploration 3. Continuous Happiness and Prosperity- A look at basic Human Aspirations 4. Right understanding, Relationship and Physical Facilities- the basic requirements for fulfillment of aspirations of every human being with their correct priority 5. Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario 6. Method to fulfill the above human aspirations: understanding and living in harmony at various levels	2
II	7. Understanding Harmony in the Human Being - Harmony in Myself! 8. Understanding human being as a co-existence of the sentient ‘I’ and the material ‘Body’ 9. Understanding the needs of Self (‘I’) and ‘Body’ - Sukh and Suvidha 10. Understanding the Body as an instrument of ‘I’ (I being the doer, seer and enjoyer) 11. Understanding the characteristics and activities of ‘I’ and harmony in ‘I’.	15

	12. Understanding the harmony of I with the Body: Sanyam and Swasthya; correct appraisal of Physical needs, meaning of Prosperity in detail 13. Programs to ensure Sanyam and Swasthya	
III	14. Understanding Harmony in the Family and Society- Harmony in Human Human Relationship 15. Understanding Harmony in the family – the basic unit of human interaction 16. Understanding values in human-human relationship; meaning of Nyaya and program for its fulfillment to ensure Ubhay-tripti; Trust (Vishwas) and Respect (Samman) as the foundational values of relationship 17. Understanding the meaning of Vishwas; Difference between intention and competence 18. Understanding the meaning of Samman, Difference between respect and differentiation; the other salient values in relationship 19. Understanding the harmony in the society (society being an extension of family): Samadhan, Samridhi, Abhay, Sah-astitva as comprehensive Human Goals 20. Visualizing a universal harmonious order in society- Undivided Society (Akhand Samaj), Universal Order (Sarvabhaum Vyawastha)- from family to world family!	3
IV	21. Understanding Harmony in the Nature and Existence - Whole existence as Co-existence 22. Understanding the harmony in the Nature 23. Interconnectedness and mutual fulfillment among the four orders of nature recyclability and self-regulation in nature 24. Understanding Existence as Co-existence (Sah-astitva) of mutually interacting units in all-pervasive space 25. Holistic perception of harmony at all levels of existence	10
V	26. Implications of the above Holistic Understanding of Harmony on Professional Ethics 27. Natural acceptance of human values 28. Definitiveness of Ethical Human Conduct 29. Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order 30. Competence in professional ethics: a) Ability to utilize the professional competence for augmenting universal human order b) Ability to identify the scope and characteristics of people-friendly and eco-friendly production systems, c) Ability to identify and develop appropriate technologies and management patterns for above production systems. 31. Case studies of typical holistic technologies, management models and production systems 32. Strategy for transition from the present state to Universal Human Order: a) At the level of individual: as socially and ecologically responsible engineers, technologists and managers b) At the level of society: as mutually enriching institutions and organizations	

REFERENCE BOOKS:

R R Gaur, R Sangal, G P Bagaria, 2009, A Foundation Course in Human Values and Professional

Ethics	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: Upon completion of this course, students should have CO1: Understood the core values that shape the ethical behaviour of an engineer CO2: Exposed awareness on professional ethics and human values. CO3: To understand the Basis for Humanistic Education, Humanistic and Humanistic Universal Order. CO4: To Understanding Harmony in the Nature and Existence. CO5: To understand the Strategy for transition from the present state to Universal Human Order.	

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: IV

Programme: Diploma/Degree		Year: II
Class: B.Sc. (Hotel Management)		Semester: IV
Credits: 3		Subject: HOTEL ENGINEERING
Theory: 3		
Practical: 0		
Course Code: NHU-241H		Title: HOTEL ENGINEERING
Course Objectives: The students will get knowledge about:- 1. Overview of hotel Maintenance Department 2. Basic knowledge of working of air conditioner and refrigeration. 3. Basic knowledge of conservation of electrical system. 4. Taught about hotel engineering keeps up the safety and quality that guest feels comfortable in Hotel. 5. Provide basic information about stairs, elevator and escalator.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 1.5 Credits		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	TO ENGEERING AND MAINTANENCE a) Definition of maintenance, types of maintenance – daily- schedule, Preventive, breakdown, contract maintenance. b) Department – function, duties and responsibilities, organization structure of hotel Maintenance Department. WATER AND WASTE WATER MANAGEMENT Treatment of water for hotel use, hot and cold drinking water requirement waste water disposal system adopted and different types of traps, plumbing work,	7
II	HEAT, VENTILATION, AIR CONDITIONING AND REFRIGERATION Air conditioning systems-central ac, split, their need and periodic maintenance and cycle of air conditioning systems Ventilation – its need and different types of ventilation	10
II	ELECTRICAL SYSTEM AND ENERGY MANAGEMENT A. Electrical terms: volt, ampere, watt, kilo watt/hr, ac, dc systems, single phase and phase, voltage drop and control, fuse and circuit breakers, B. Basic Fuels: Types, Calorific value, C. Energy Conservation tips for hotel: Front Office, Housekeeping, Kitchens, Food &Beverage outlets and other areas	03

	D. Pollution and Pollution Control E. Definition of pollution, pollutant, classification of pollution, pollution control measures.	
IV	BUILDING TRANSPORTATION Stairs, Elevators – types of elevators (Passenger elevator, Freight elevator, Cable elevator, hydraulic elevator) and basic working, Escalators – safety requirements, use and basic working, Moving Walks, Conveyors, Fire: Types of fire & classification, Fire Fighting Equipments	10
REFERENCE BOOKS: Tarun Bansal: Hotel Engineering Aman Publishers		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: By the end of this course student would be able to. CO1: To under gone with Hierarchy of hotel maintenance department. CO2: To insight the working of various equipments. CO3: To understand the concept of heat removal. CO4: Student may know the water and waste water techniques and management. CO5: To be aware of the concept of building transportation.		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: IV

Programme: Diploma/Degree Class: B.Sc. (Hotel Management))		Year: II Semester: IV	
Credits: NC Theory: NC Practical: NC		Subject: INDUSTRIAL VISIT/SEMINAR/ PRESENTATION ON THE REPORT	
Course Code: NECC-241		Title: INDUSTRIAL VISIT/SEMINAR/ PRESENTATION ON THE REPORT	
Course Objectives: To give industrial exposure to students			
Nature of Paper: NECC			
Minimum Passing Marks/Credits: NC			
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)			
Unit	Contents	No. of Lectures Allotted	
I	STUDENTS HAVE TO GIVE A PRESENTATION ON THEIR OBSERVATIONS DURING THEIR INDUSTRIAL VISITS.		
Reference / Text Books: NIL			
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL			
Evaluation/Assessment Methodology			
		Max. Marks	
1) Class tasks/Sessional Examination		-	
2) Presentations/Seminar		25	
3) Assignments		-	
4) Research Project Report Seminar On Research Project Report		-	
5) ESE		-	
Total:		25	
Prerequisites for the course:			
Course Learning Outcomes: 1. To understand the work flow in industry.			

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: IV

Programme: Diploma/Degree		Year: II
Class: B.Sc. (Hotel Management))		Semester: IV
Credits: NC		Subject: UNIVERSITY SOCIAL RESPONSIBILITIES–COMMUNITY OUTREACH
Theory: NC		
Practical: NC		
Course Code: NECC-242		Title: UNIVERSITY SOCIAL RESPONSIBILITIES–COMMUNITY OUTREACH
Course Objectives:		
To develop intention of giving back to society		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	THIS ACTIVITY IS AN ESSENTIAL PART OF THE CURRICULAM WHICH BELIEVES THAT WHAN WE ARE TAKING FROM THE SOCIETY THEN IT IS OUR MORAL DUTY TO GIVE SOMETHING BACK TO THE SOCIETY. IT ALSO DEVELOPS HABIT OF HELPING OTHERS IN THE STUDENTS.	
Reference / Text Books:		
NA		
If the course is available as Generic Elective then the students of following departments may opt it.		
NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		

Format-3

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: IV

Programme: Diploma/Degree Class: B.Sc. (Hotel Management))		Year: II Semester: IV
Credits: NC Theory: NC Practical: NC		Subject: SANSKRIT / SPIRITUAL
Course Code: MV-241		Title: SANSKRIT / SPIRITUAL
Course Objectives: To teach Sanskrit to students		
Nature of Paper: MV		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE TAUGHT THE BASICS OF SANSKRIT / SPIRITUAL TEACHING FROM BHAGWAT GEETA. THE MAIN MOTIVE OF THIS COURSE IS TO DEVELOP MORAL VALUES IN STUDENTS.	
Reference / Text Books: NA		
If the course is available as Generic Elective then the students of following departments may opt it. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: TO DEVELOP MORAL VALUES IN STUDENTS		

Format-3

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: IV

Programme: Diploma/Degree		Year: II
Class: B.Sc. (Hotel Management)		Semester: IV
Credits: NC		Subject: SPORTS
Theory: NC		
Practical: NC		
Course Code:SPT-241		Title: SPORTS
Course Objectives: To engage students in sports		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE ENCOURAGED TO PLAY VARIOUS GAMES OF THEIR CHOICE WHETHER INDOOR OR OUTDOOR. LIKE; CARROM, CHESS, TABLE TENNIS, FOOTBALL, BASKETBALL ETC.	
Reference / Text Books: NIL		
If the course is available as Generic Elective then the students of following departments may opt it:- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: Students can play various games		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: IV

Programme: Diploma/Degree		Year: II
Class: B.Sc. (Hotel Management)		Semester: IV
Credits: 2		Subject: FOOD PRODUCTION-LAB I
Theory: 0		
Practical: 2		
Course Code: RHM-241P		Title: FOOD PRODUCTION-LAB I
Course Objectives: The Student will get knowledge about:		
1. Regional cuisine of various states of India.		
2. Core ingredients of various cuisines of Indian States.		
3. Food presentation & Garnishing.		
4. Menu presentation of various cuisines of Indian States various cuisines of Indian States		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits		
L: 0		
T: 0		
P: 2 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Preparations of Menus from following cuisines. Bengal Goa Gujarat Hyderabad Kashmiri Maharashtrian Punjabi Rajasthan South Indian	40
REFERENCE BOOKS:		
1. Gisslen Wayne – Professional Cookery (John Wiley and Sons)		
2. Montage – Larousse gastrtronomique (Himalaya publishing group)		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50

Prerequisites for the course:

Course Learning Outcomes: By the end of this course student would be able to

CO1: Preparation of various regional cuisines of Indian States.

CO2: Garnish and plating and food presentation.

CO3: Presentation of food of various Indian States.

CO4: To Evaluate the profitability of a menu.

CO5: Explain how staff, equipment, and facility can impact a menu.

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: IV

Programme: Diploma/Degree		Year: II
Class: B.Sc. (Hotel Management)		Semester: IV
Credits: 1 Theory: 0 Practical: 1		Subject: FOOD AND BEVERAGE SERVICE LAB-I
Course Code: RHM-242P		Title: FOOD AND BEVERAGE SERVICE LAB-I
Course Objectives: 1. Students will get knowledge about Dispense Bar – Organizing Mise-en-place. 2. The students will get knowledge about Service of Wine and its temperature of service. 3. Will gain knowledge about Tequila service of aperitifs like vermouths. 4. Will come to know about service of Spirits and Liqueurs. 5. To understand about service of Liqueurs from Liquor Trolley and from bar.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Dispense Bar – Organizing Mise-en-place Task-1 Wine service equipment Task-2 Beer service equipment Task-3 Cocktail bar equipment Task-4 Liqueur / Wine Trolley Task-5 Bar stock - alcoholic & non-alcoholic beverages Task-6 Bar accompaniments & garnishes Task-7 Bar accessories & disposables	2
II	Service of Wines Task-1 Service of Red Wine Task-2 Service of White/Rose Wine Task-3 Service of Sparkling Wines Task-4 Service of Fortified Wines Task-5 Service of Aromatized Wines Task-6 Service of Cider, Perry & Sake	3
III	Service of Aperitifs Task-1 Service of Bitters Task-2 Service of Vermouths	2
	Service of Beer Task-1 Service of Bottled & canned Beers	2

IV	Task-2 Service of Draught Beers	
V	Service of Spirits Task-1 Service styles – neat/on-the-rocks/with appropriate mixers Task-2 Service of Whisky Task-3 Service of Vodka Task-4 Service of Rum Task-5 Service of Gin Task-6 Service of Brandy Task-7 Service of Tequila	3
VI	Service of Liqueurs Task-1 Service styles – neat/on-the-rocks/with cream/enfrappe Task-2 Service from the Bar Task-3 Service from Liqueur Trolley	3
REFERENCE BOOKS: 1. Modern restaurants service –John fuller 2. Food and beverage service-Dennis R. Lillicrap and John cousins		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: By the end of this course student would be able to:- CO1: To understand about Dispense Bar – Organizing Mise-en-place. CO2: To understand that how to serve red wine, white wine and champagne. CO3: To understand that how to Serve beer. CO4: Serve Whiskey, Rum, Vodka, brandy etc. CO5: Match Wine with food.		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: IV

Programme: Diploma/Degree		Year: II
Class: B.Sc. (Hotel Management)		Semester: IV
Credits: 1		Subject: FRONT OFFICE LAB-I
Theory: 0		
Practical: 1		
Course Code: RHM-243P		Title: FRONT OFFICE LAB-I
Course Objectives: The Student will get knowledge about: 1. To understand the practice of computer applications related to Front Office like reservation and registration. 2. In depth knowledge about how Hotel functions like accounting and yield management. 3. To understand different Front Office Operation like amend a reservation, all pre & post registration. 4. Depth knowledge about the hotel’s reservation to travel agent, corporate & individuals.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Hands on practice of computer applications related to Front Office- Procedures such as Reservation, Registration, Guest History, Telephones, Housekeeping, Daily transactions Front office accounting procedures-Manual accounting, Machine accounting, Payable, Accounts Receivable, Guest History, Yield Management, Role Play & Situation Handling, Create and update guest profiles, Hot function keys, Send confirmation letters, Print registration card, Make FIT reservation & group reservation, Make an ADD-on reservation.	5
II	Amend a reservation, Cancel a reservation-with deposit and without deposit, Log onto cashier code, Process a reservation deposit, Pre-register a guest, Put message and locator for a guest, Put trace for guest, Check in a reserved guest, Check-in a walk-in guest, Make sharer reservation, Make A/R account, Take reservation through Travel Agent/Company/ Individual or Source, Make room change	10
REFERENCE BOOKS: 1. Modern restaurants service –John fuller. 2. Food and beverage service-Dennis R. Lillicrap and John cousins.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		

		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course:		
Course Learning Outcomes: By the end of this course student would be able to:- CO1: How to take check-in and maintain the guest records. CO2: Processing with amending guest reservation. CO3: Updating the guest profile with all the tracks with records for further reference. CO4: To get knowledge how to Take reservation through Travel Agent/Company/Individual.		

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Format-3

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: IV

Programme: Diploma/Degree		Year: II
Class: B.Sc. (Hotel Management)		Semester: IV
Credits: 1		Subject: ACCOMMODATION OPERATION LAB-I
Practical: 0		
Practical: 1		
Course Code: RHM-244P		Title: ACCOMMODATION OPERATION LAB-I
Course Objectives: The Student will get knowledge about: 1. Learn about Laundry Operations. 2. Be taught to remove stains. 3. Knowledge about different types of flowers arrangement. 4. Will find out the Selection & Designing of uniforms.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Layout Of Linen And Uniform Room/Laundry Laundry Machinery And Equipment Cleaning of Offices, Public Areas & Guest Rooms Stain Removal Flower Arrangement Selection And Designing Of Uniforms	15
REFERENCE BOOKS: Hotel Management and Operations - Michael J. O'Fallon, Denney G. Rutherford		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50

Prerequisites for the course:

Course Learning Outcomes: By the end of this course student would be able to:-

CO1: To understand the laundry layout of different hotels.

CO2: To be aware types of stain & how to remove the stains.

CO3: Get knowledge about types of flower arrangements.

CO4: Comprehend their knowledge in Selection and Designing of Uniform.

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree	Year: III	
Class: B.Sc. (Hotel Management)	Semester: V	
Credits: 4	Subject: FOOD PRODUCTION-II	
Theory: 4		
Practical: 0		
Course Code: NBHM-351	Title: FOOD PRODUCTION-II	
Course Objectives: The Student will get knowledge about: 1. Larder layout & equipment. 2. Functions of the larder, hierarchy of larder staff procedures and requirements of buffet. 3. Introduction to characteristics of Sausage, types & varieties. 4. To show the processing parameters used to manufacture bacon and ham. 5. To get the knowledge about Sandwiches.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L:4 T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	LARDER LAYOUT & EQUIPMENT Introduction of Larder Work, Definition, Equipment found in the larder, Layout of a typical larder with various sections DUTIES AND RESPONSIBILITIES OF THE LARDER CHEF Functions of the Larder, Hierarchy of Larder Staff, Sections of the Larder, Duties & Responsibilities of larder Chef	12
II	CHARCUTIERIE I. SAUSAGE A. Introduction to characteristics - Sausage – Types & Varieties, Casings – Types & Varieties ,Fillings – Types & Varieties II. FORCEMEATS Types of forcemeats, Preparation of forcemeats, Uses of forcemeats	12
III	HAM, BACON & GAMMON Cuts of Ham, Bacon & Gammon, Differences between Ham, Bacon & Gammon, Processing of Ham & Bacon, Uses of different cuts PATES, Types of Pate, Pate de foie gras CHAUD FROID Meaning of Chaudfroid, Making of chaudfroid & Precautions, Types of chaudfroid, ses of chaudfroid ASPIC & GELEE	12

	Definition of Aspic and Gelee, Uses of Aspic and Gelee	
IV	SANDWICHES Parts of Sandwiches, Types of Bread, Types of filling – classification Spreads and Garnishes, Types of Sandwiches, Making of Sandwiches	12
Reference / Text Books: Gisslenwayne – professional cookery (john wiley and sons) Montage – Larousse gastronomique (Himalaya publishing group)		
If the course is available as Generic Elective then the students of following departments may opt it.		
1. NO		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		10
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcomes: By the end of this course student would be able to: CO1: Student able to get the knowledge of Larder layout, equipment & duties of staff members. CO2: Demonstrate advanced sausage production techniques. CO3: To understand the processing parameters used to manufacture bacon and ham CO4: To understand the meaning of Chaudfroid, making & Precautions CO5: To get the complete knowledge of Sandwich & different parts of sandwich.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management))		Semester: V
Credits: 4		Subject: FOOD AND BEVERAGE SERVICE–II
Theory: 4		
Practical: 0		
Course Code: NBHM-352		Title: FOOD AND BEVERAGE SERVICE–II
Course Objectives: The Student will get knowledge about: 1. Planning and Operating various F&B outlets 2. Procedures and requirements of Banquets 3. Procedures and requirements of Buffet 4. KST and Gueridon Service 5. To get knowledge the knowledge about Kitchen Stewarding.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	PLANNING & OPERATING VARIOUS F&B OUTLET Physical layout of functional and ancillary areas, Objective of a good layout, Steps in planning, Factors to be considered while planning, Calculating space requirement, Various set ups for seating, Planning staff requirement, Menu planning Constraints of menu planning, Selecting and planning of heavy duty and light equipment, Requirement of quantities of equipment required like crockery, Glassware, Cutlery-steel or silver etc. Suppliers & manufacturers, Approximate cost Planning Décor, furnishing fixture etc.	12
II	FUNCTION CATERING BANQUETS History, Types, Organisation of Banquet department. Duties & responsibilities, Sales, Booking procedure, Banquet menus BANQUET PROTOCOL Space Area requirement, Table plans/arrangement, Misc-en-place, Service, Toast & Toast procedures INFORMAL BANQUET Reception, Cocktail parties, Convention, Seminar Exhibition, Fashion shows, Trade Fair, Wedding, Outdoor catering	12
III	FUNCTION CATERING BUFFETS Introduction, Factors to plan buffets, Area requirement, Planning and organisation, Sequence of food Menu planning, Types of Buffet, Display,	12

	Sit down, Fork, Finger, Cold Buffet, Breakfast Buffets, Equipment Supplies, Check list	
IV	GUERIDON SERVICE History of gueridon, Definition, General consideration of operations, Advantages & Dis-advantages, Types of trolleys Factor to create impulse, Buying – Trolley, open kitchen Gueridon equipment, Gueridon ingredients KITCHEN STEWARDING Importance, Opportunities in kitchen stewarding Record maintaining, Machine used for cleaning and polishing E. Inventory.	9
Reference / Text Books: 1. Modern restaurants service –John fuller 2. Food and beverage service-Dennis R. Lillicrap and John cousins.		
If the course is available as Generic Elective then the students of following departments may opt it. 1. NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcomes: By the end of this course student would be able to: CO1: Understand and Operate various aspects of F&B Outlets CO2: Evaluate and execute banquet functions as per procedures CO3: Evaluate and execute Buffet function as per SOP CO4: Understand Gueridon Service and manage the KST department. CO5: Understand about the kitchen stewarding & its duties and responsibilities		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree	Year: III	
Class: B.Sc. (Hotel Management))	Semester: V	
Credits: 2	Subject: FRONT OFFICE –II	
Theory: 2		
Practical: 0		
Course Code: NBHM-353	Title: FRONT OFFICE –II	
Course Objectives: The Student will get knowledge about: 1. Check out procedure followed in the hotel 2. Illustrate Foreign Exchange Encashment procedure 3. Different methods of settlement – Cash & Credit. 4. Different types of accounts, folios, and vouchers prepared at front desk. 5. The student will get knowledge about foreign exchange.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
I	CHECK-OUT PROCEDURE The Guest Departure Procedure and Post Departure Activities at Front Desk – Guest History Card. Information to concerned Departments - Interdepartmental Coordination. Problems during Guest Check out and their solutions	10
II	MODES OF SETTLEMENT Receiving Payments/Settling Bills Through a. Cash b. Credit Card c. Bill to Company d. Travel Agent Voucher e. Travelers Cheques	10
III	FOREIGN EXCHANGE Foreign Exchange Encashment Procedure Authorized agencies, Licenses and documents used, Category of guest entitled. Different currencies and their-Forex rates	10
IV	FRONT OFFICE ACCOUNTING Different types of Accounts, Ledgers, Folios & Vouchers prepared at Front Desk. Guest Accounting Cycle	10

Reference / Text Books:

Principles of Front Office Operations – Sue Baker

If the course is available as Generic Elective then the students of following departments may opt it.

1. Dennis L. Foster: Back Office Operation & Admn.
2. Sudhir Andrews: Hotel Front Office
3. Kasavana & Brooks: Managing Front office Operations

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50

Prerequisites for the course:

Course Learning Outcomes: By the end of this course student would be able to:

CO1: Understand and handle check-out procedure.

CO2: Understand the procedure of settling guest bills and apply the same in bill settlement process.

CO3: Understand Forex exchange encashment procedure.

CO4: Understand front office accounting procedure and the formats which are prepared at front office.

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management))		Semester: V
Credits: 2		Subject: ACCOMMODATION OPERATION-II
Theory: 2		
Practical: 0		
Course Code: NBHM-354		Title: ACCOMMODATION OPERATION-II
Course Objectives: The Student will get knowledge about: 1. Managing housekeeping personnel in the department 2. Budget and budgetary controls & its process. 3. Safety awareness, accident and first aid box. 4. Explain the significance of contracts and outsourcing 5. Explain the significance of energy conservation.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
I	PLANNING AND ORGANISING THE HOUSEKEEPING DEPARTMENT Area inventory list, Frequency schedules, Performance and Productivity standards, Time and Motion study in House Keeping operations, Standard Operating manuals – Job procedures, Job allocation and work schedules, Calculating staff strengths & Planning duty rosters, team work and leadership in House Keeping, Training in HKD, devising training programmes for HK staff , Inventory level for non-recycled items,	15
II	Budget and budgetary controls, The budget process Planning capital budget, Planning operation budget, Operating budget – controlling expenses – income statement, Purchasing systems – methods of buying ,Stock records – issuing and control	10
III	HOUSEKEEPING IN INSTITUTIONS & FACILITIES OTHER THAN HOTELS CONTRACT SERVICES A. Types of contract services B. Guidelines for hiring contract services C. Advantages & disadvantages of contract services	10
IV	ENERGY AND WATER CONSERVATION IN HOUSEKEEPING OPERATIONS, FIRST AID	5

Reference / Text Books:

1. Sudhir Andrews: Hotel Housekeeping
2. Joan C. Branson: Hotel, Hostel & Hospital Housekeeping
3. Georgira Tucker: The Professional Housekeeper
4. Rose Mary & Heinemann: Housekeeping Management for Hotels
5. G. Raghubalan – Hotel Housekeeping

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50

Prerequisites for the course:

Course Learning Outcomes: By the end of this course student would be able to:

CO1: To understand that how to managing housekeeping personnel in the department

CO2: To understand Budget and budgetary controls & its process.

CO3: To understand Safety awareness, accident and first aid box.

CO4: To understand the significance of contracts and outsourcing.

CO5: To understand the significance of energy conservation.

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: 4		Subject: FAST FOOD CHAIN MANAGEMENT
Theory: 4		
Practical: 0		
Course Code: SEC-NBHM-355A		Title: FAST FOOD CHAIN MANAGEMENT
Course Objective:- The Student will get knowledge about: 1. Inventory Management 2. Quality Control 3. Service Excellence 4. Production Efficiency 5. Financial Management		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to fast food chain: • History • Globalization • Concept & formulation • Cost factor • F&B merchandising	10
II	World of Fast food chain: • Cuisine Variants • Street vendors • Jobs & labour issues • Health issues	10
III	Service Process: • Food & Beverage service operation • Human resource strategy • Menu concept, pricing strategy & recipe standardisation • Service & production equipment • Convenience food usages • Hygiene & sanitisation standards • Central purchasing process	10

IV	Outlet management: • Outlet design & décor • Children play area • Event management	15
REFERENCE BOOKS:		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcome CO1- Modern tool usage. CO2- Individual and Team work. CO3- Communication. CO4- Design/ Development of solution. CO5- Hospitality and Society		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: 4		Subject: FOOD SAFETY AND HACCP
Theory: 4		
Practical: 0		
Course Code: SEC-NBHM-355B		Title: FOOD SAFETY AND HACCP
Course Objective:- The Student will get knowledge about: 1. Understanding Food Safety Principles: 2. Hazard Identification and Analysis: 3. Implementing Control Measures: 4. Developing HACCP Plans: 5. Promoting a Culture of Food Safety:		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	• Explain the <i>Basic Introduction to Food Safety, Food Hazards & Risks, Contaminants and Food Hygiene.</i> • List the Canned food, Frozen food, Snacks food, Instant food, Dairy food & amp; their science behind it. • List the food adulteration.	10
II	• Explain the General characteristics of Micro-Organisms based on their occurrence and structure. • Explain the Types & Causes of spoilage. • List Factors affecting their growth in food (intrinsic and extrinsic). • List the Sources of cross-contamination. • List the Sources of contamination. • Describe the Basic principles of food preservation. • Describe the Common food borne microorganisms: Bacteria (spores/capsules), Fungi, Viruses, Parasites .	10
III	• Explain the BENEFICIAL ROLE OF MICROORGANISM. • List the FOOD BORNE DISEASES. • Discuss the FOOD ADDITIVES. • Explain the FOOD LAWS AND REGULATIONS.	10
IV	• Explain HACCP (Basic Principle and implementation). • Explain the concept of cleaning and sanitisation and sanitizers used in	15

	Hotel industry. • Use of probiotics and genetically modified organisms (GMOs) in food preservation. • Discuss the Employee training practices, engagement, and awareness, contribute to food safety.	
REFERENCE BOOKS:		
1. The HACCP Food Safety Manual" by Barach and Hayman:		
2. An Introduction to HACCP" by Carol Wallace:		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total:		100
Prerequisites for the course:		
Course Learning Outcome		
CO1- Understand the importance of food safety in the hospitality industry.		
CO2- Demonstrate knowledge of foodborne illnesses, their causes, and prevention methods		
CO3- Comprehend the principles and benefits of the HACCP system.		
CO4- Identify and analyze potential hazards in food production and service processes.		
CO5- Comply with food safety regulations and standards.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: 4		Subject: Indian Regional cuisine
Theory: 4		
Practical: 0		
Course Code: NBHM-356A		Title: Indian Regional Cuisine
Course Objectives: To impart knowledge about Cuisines of India with respect to 1. Himachal and Uttarakhand 2. Punjab, Haryana and Delhi 3. Andhra Tamil Nadu and Kerala 4. Awadh, Bengal and Odisha.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4 T: 0 P: 4 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Cuisines of Himachal & Uttarakhand: Introduction, Geographical Perspectives, Brief Historical Background, Characteristics & Salient Features of Cuisine, Key Ingredients, Popular Foods, Seasonal Foods, Special Equipments, Staple Diets, Specialties during Festivals and Other Occasions, Community Foods	10
II	Cuisines of Punjab, Haryana & Delhi: Introduction, Geographical Perspectives, Brief Historical Background, Characteristics & Salient Features of Cuisine, Key Ingredients, Popular Foods, Seasonal Foods, Special Equipments, Staple Diets, Specialties during Festivals and Other Occasions, Community Foods.	10
III	Cuisines of Andhra Pradesh, Tamil Nadu & Kerala: Introduction, Geographical Perspectives, Brief Historical Background, Characteristics & Salient Features of Cuisine, Key Ingredients, Popular Foods, Seasonal Foods, Special Equipments, Staple Diets, Specialties during Festivals and Other Occasions, Community Foods.	10
IV	Cuisines of Awadh, Bengal & Odisha: Introduction, Geographical Perspectives, Brief Historical Background, Characteristics & Salient Features of Cuisine, Key Ingredients,	10

Popular Foods, Seasonal Foods, Special Equipments, Staple Diets, Specialties during Festivals and Other Occasions, Community Foods.	
Reference / Text Books: 1. Quantity Food Production Op. and Indian Cuisine – Parvinder S Bali, Oxford University Press 2. A Taste of India By Madhur Jafferey - John Wiley & Sons 3. Food of Haryana: The Great Chutneys – Dr Ashish Dahiya, University Press, MDU 4. Indian Gastronomy – Manjit Gill, DK Publishers	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: Student come to know about the Cuisines of CO1: Understand the cuisines of Himachal Pradesh and Uttarakhand CO2: Analyze the culinary traditions of Punjab, Haryana, and Delhi. CO3: Develop knowledge of the cuisines of Andhra Pradesh, Tamil Nadu, and Kerala. CO4: Choose insights into the culinary heritage of Awadh, Bengal, and Odisha, CO5: Compare and analyze regional cuisines for similarities and differences. CO6: Apply knowledge to create authentic and fusion dishes from these regions.	

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: 4		Subject: Bakery Science
Theory: 4		
Practical: 0		
Course Code: NBHM-356B		Title: Bakery Science
Course Objectives: To get knowledge about		
1. Ingredients used in Bakery.		
2. Bread and Cake.		
3. Chocolate.		
4. Cookies and Biscuits.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: 4		
T: 0		
P: 4 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Bakery and Basic Ingredients used in Bakery: Sugars; Shortenings; Eggs; Wheat and Flours; Milk and Milk Products; Yeast; Chemical Leavening Agents; Salt, Spices, and Flavorings; Cocoa and Chocolate; Fruits; Professional Bakery Equipment & Tools.	15
II	Breads and Rolls Overview of Production; Common Problems; White Pan Bread; French and Italian Breads and Rolls; Egg Bread and Rolls; Hard Roll Varieties; Soft Roll Varieties, Cakes and Pastries Introduction; Classical Cakes and Pastries; Modern Trends in Cake and Pastry Making; Types of Cakes and their Classification	15
III	Chocolate Introduction: History of Chocolate: Chocolate Production; Types of Chocolate; Melting Chocolate; Tempering of Chocolate and its Application, Uses of Chocolate; Tools and Equipment used in chocolate carving.	15
IV	Cookies and Biscuits Introduction; Preparation of Simple Cookies; Types of Cookies; Uses of Cookies; Common Faults in Cookie Preparation	15
Reference / Text Books:		
1. Bali, Parvinder (2014). Food Production Operations, New Delhi: Oxford University Press.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10

2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: The students get knowledge about CO1: Identify and describe basic bakery ingredients. CO2: Generate bread and cake baking techniques. CO3: Express the knowledge about chocolate processing and usage. CO4: Develop skills in creating cookies and biscuits. CO5: Discuss creativity in bakery product development. CO6: Apply food safety and quality assurance principles.	

Format-3

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: UG(R)		Year: III
Class: BHMCT		Semester: V
Credits: 3		Subject: TOURISM ENTREPRENEURSHIP
Theory: 3		
Practical: 0		
Course Code: NHU-351N		Title: TOURISM ENTREPRENEURSHIP
Course Objectives: The course objectives of the program are: 1. Orient students and participants in identifying the new opportunities in this situation. 2. To motivate and Encourage participants and students to deal with current situation. 3. Guide participants how to deal with financial crises in the tourism business. 4. To lead participates to develop new pricing policies. 5. To taught and linkage with Government policies and Government scheme.		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Understanding the Competition Tourism industry and business ideas; business strategy- understanding customers and analyzing competition	10
II	Marketing Tourism marketing mix; tourism marketing planning; financial planning; planning for people and operations	10
III	Introduction to Communication Form of organisation and legal considerations; networking and collaboration; good business practices;	5
IV	Reading and Writing Skills Feasibility; Writing a business plan-marketing, financial, operations, people, etc. Financial requirements and sources of finance Documentation and Legal Procedures Setting up a tourism enterprise-steps, procedures, licenses, registration etc	10
Reference / Text Books: 1. Thomson. A. A., Stick land. A.J. &Cambel. J. E. (2005). 2. Crafting and Executing Strategy- the Quest for Competitive Advantage. New Delhi: Tata McGraw Hill. Peter F. Drucker (1985). Innovation & Entrepreneurship. New York: Harper & Row.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10

4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total:	100
Prerequisites for the course:	
Course Learning Outcomes: On completion of this course, the students will be able to: CO1: To analyze and critically evaluate the special conditions for entrepreneurship in the tourism industry from a sustainability perspective. CO2: Student will understand different ways of dealing with value and value creation from a particular ethical perspective and sustainability perspective. CO3: To clarify the concept of Marketing Tourism marketing mix & tourism marketing planning. CO4: To enlighten the concept of Documentation and Legal Procedures & Setting up a tourism enterprise.	

Format-3

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: NC		Subject: INDUSTRIAL VISIT/SEMINAR/ PRESENTATION ON THE REPORT
Theory: NC		
Practical: NC		
Course Code: NECC-351		Title: INDUSTRIAL VISIT/SEMINAR/ PRESENTATION ON THE REPORT
Course Objectives: To get the industry exposure		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS HAVE TO GIVE A PRESENTATION ON THEIR OBSERVATIONS DURING THEIR INDUSTRIAL VISITS.	
Reference / Text Books: NA		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: Able to perform in industry.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: NC		Subject: UNIVERSITY SOCIAL RESPONSIBILITIES –COMMUNITY OUTREACH
Theory: NC		
Practical: NC		
Course Code: NECC-352		Title: UNIVERSITY SOCIAL RESPONSIBILITIES –COMMUNITY OUTREACH
Course Objectives: To develop social responsibility in students		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	THIS ACTIVITY IS AN ESSENTIAL PART OF THE CURRICULAM WHICH BELIEVES THAT WHAN WE ARE TAKING FROM THE SOCIETY THEN IT IS OUR MORAL DUTY TO GIVE SOMETHING BACK TO THE SOCIETY. IT ALSO DEVELOPS HABIT OF HELPING OTHERS IN THE STUDENTS.	
Reference / Text Books: NA		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: Give something back to society like food , clothes , services etc.		

Format-3

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree Class: B.Sc. (Hotel Management)		Year: III Semester: V
Credits: NC Theory: NC Practical: NC		Subject: SANSKRIT / SPIRITUAL
Course Code: MV-351		Title: SANSKRIT / SPIRITUAL
Course Objectives: To teach Sanskrit to students		
Nature of Paper: MV		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE TAUGHT THE BASICS OF SANSKRIT / SPIRITUAL TEACHING FROM BHAGWAT GEETA. THE MAIN MOTIVE OF THIS COURSE IS TO DEVELOP MORAL VALUES IN STUDENTS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: Develop moral values in student.		

Format-3

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management))		Semester: V
Credits: NC		SPORTS
Theory: NC		
Practical: NC		
Course Code: SPT-351		SPORTS
Course Objectives:		
Let students engage in sports		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4 Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE ENCOURAGED TO PLAY VARIOUS GAMES OF THEIR CHOICE WHETHER INDOOR OR OUTDOOR. LIKE; CARROM, CHESS, TABLE TENNIS, FOOTBALL, BASKETBALL ETC.	
Reference / Text Books:		
NA		
If the course is available as Generic Elective then the students of following departments may opt it.		
NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
Play various sports		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: 2		Subject: FOOD PRODUCTION LAB-II
Theory: 0		
Practical: 2		
Course Code: NBHM-351P		Title: FOOD PRODUCTION LAB-II
Course Objectives: The Student will be aware and get knowledge about:		
1. Appetizers & Garnishes.		
2. Sandwiches, parts of Sandwiches process making of Sandwiches.		
3. Use of Spices, herbs & classification of herbs.		
4. Chocolate Parfait &		
5. Baba au rhum recipe		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits		
L:		
T:		
P: (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	APPETIZERS & GARNISHES HORSDEOUVRES SANDWICHES A. Parts of Sandwiches B. Types of Bread C. Types of filling – classification D. Spreads and Garnishes E. Types of Sandwiches F. Making of Sandwiches USE OF SPICES AND HERBS IN COOKING A. Ideal uses of wine in cooking B. Classification of herbs C. Ideal uses of herbs in cooking	20
II	1 Brioche Baba au Rhum 2 Soft Rolls Chocolate Parfait 3 French Bread Tarte Tartin 4 Garlic Rolls 5 Crêpe Suzette	20

Reference / Text Books:

1. Gisslenwayne – professional cookery (john wiley and sons)
2. Montage – Larousse gasrtronomique (Himalaya publishing group)

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/ Sessional Examination	-
2) Presentations /Seminar	-
3) Assignments	25
4) Research Project Report Seminar On Research Project Report	-
5) ESE	25
Total:	50

Prerequisites for the course:

Course Learning Outcomes:

By the end of this course student would be able to:

CO1: Complete knowledge of Appetizers & Garnishes.

CO2: To understand about Sandwiches, parts of Sandwiches process making of Sandwiches.

CO3: To understand the use of Spices, herbs & classification of herbs.

CO4: To understand about Chocolate Parfait.

CO5: How to prepared Baba au rhum recipe.

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: 1		Subject: FOOD AND BEVERAGE SERVICE
Theory: 0		LAB– II
Practical: 1		
Course Code: NBHM-352P		Title: FOOD AND BEVERAGE SERVICE
		LAB – II
Course Objectives: The Student will be aware and get knowledge about: 1. Developing Hypothetical Business Model of Food & Beverage Outlets. 2. Planning & organizing Formal & Informal Banquets. 3. Planning & organizing various types of Buffet. 4. Organizing Mise-en-place for Gueridon Service. 5. Dishes involving work on the Gueridon.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Planning & Operating Food & Beverage Outlets Class room Exercise ,Developing Hypothetical Business Model of Food & Beverage Outlets, Case study of Food & Beverage outlets-Hotels & Restaurants Function Catering – Banquets Planning & organizing Formal & Informal Banquets, Planning & organizing Outdoor caterings	10
II	Function Catering – Buffets Planning & organizing various types of Buffet Gueridon Service Organizing Mise-en-place for Gueridon Service, Dishes involving work on the Gueridon	05
Reference / Text Books: 1. Modern restaurants service –John fuller 2. Food and beverage service-Dennis R.Lillicrap and John cousins		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
Max. Marks		

1) Class tasks/ Sessional Examination	-
2) Presentations /Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	15
Total:	25
Prerequisites for the course:	
Course Learning Outcomes: By the end of this course student would be able to: CO1: To understand Developing Hypothetical Business Model of Food & Beverage Outlets. CO2: Planning & organizing Formal & Informal Banquets. CO3: Planning & organizing various types of Buffet. CO4: Organizing Mise-en-place for Gueridon Service. CO5: Dishes involving work on the Gueridon.	

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: 1		Subject: Front Office Lab-II
Theory: 0		
Practical: 1		
Course Code: NBHM-353P		Title: Front Office Lab-II
Course Objectives: The Student will be aware and get knowledge about : 1. Hands on practice of computer applications on PMS front office procedures. 2. How to put message, How to put a locator, How to check in a first-time guest 3. How to make a reservation, How to create and update guest profiles. 4. How to feed remarks in guest history, How to add a sharer, How to make add on reservation. 5. Handling part settlements for long staying guest.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Hands on practice of computer applications on PMS front office procedures such as: Night audit, Income audit, Accounts Situation handling – handling guests & internal situations requiring management tactics/strategies	5
II	HMS Training – Hot Function keys How to put message, How to put a locator, How to check in a first-time guest, How to check in an existing reservation, How to check in a day use, How to issue a new key, How to verify key, How to cancel a key, How to issue a duplicate key, How to extend a key How to print and prepare registration cards for arrivals, How to programmed keys continuously, How to programme one key for two rooms, How to re-programme a key, How to make a reservation, How to create and update guest profiles, How to update guest folio, How to print guest folio, How to make sharer reservation	5
III	How to feed remarks in guest history, How to add a sharer, How to make add on reservation, How to amend a reservation, How to cancel a reservation, How to make group reservation, How to make a room change on the system, How to log on cashier code, How to close a bank at the end of each shift, How to put a routing instruction, How to process charges, How to process a guest check out, How to check out a folio, How to process deposit for arriving guest, How to process	5

	deposit for in house guest, How to check room rate variance report, How to process part settlements, How to tally allowance for the day at night, How to tally paid outs for the day at night, How to tally forex for the day at night, How to pre-register a guest, How to handle extension of guest stay, Handle deposit and check ins with voucher, How to post payment, How to print checked out guest folio, Check out using foreign currency, Handle settlement of city ledger balance, Handle payment for room only to Travel Agents, Handle of banquet event deposits, How to prepare for sudden system shutdown, How to checkout standing batch totals, How to do a credit check report, How to process late charges on third party, How to process late charges to credit card, How to check out during system shut down, Handling part settlements for long staying guest, How to handle paymaster folios, How to handle bills on hold	
Reference / Text Books: 1. Principles of Front Office Operations – Sue Baker 2. Front Office Management – S.K. Bhatnagar 3. Front Office Procedures – Michael. L. Kasavana		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
	Max. Marks	
1) Class tasks/Sessional Examination	-	
2) Presentations/Seminar	-	
3) Assignments	10	
4) Research Project Report Seminar On Research Project Report	-	
5) ESE	15	
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: By the end of this course student would be able to: CO1: Hands on practice of computer applications on PMS front office procedures. CO2: How to put message, How to put a locator, How to check in a first-time guest. CO3: How to make a reservation, How to create and update guest profiles. CO4: How to feed remarks in guest history, How to add a sharer, How to make add on reservation. CO5: Handling part settlements for long staying guest.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: 1 Theory: 0 Practical: 1		Subject: ACCOMMODATION MANAGEMENT LAB II
Course Code: NBHM-354P		Title: ACCOMMODATION MANAGEMENT LAB II
Course Objectives: The Student will be aware and get knowledge about: 1. Team cleaning Planning, Organizing, Executing & Evaluating the process. 2. How to prepared Inspection checklist 3. Time and motion study & its applications. 4. Steps in servicing a guest room. 5. Devising/ designing training module for staff members.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Team cleaning Planning, Organizing, Executing, Evaluating	5
II	Inspection checklist Time and motion study , Steps of bed making Steps in servicing a guest room etc.	5
III	Devising/designing training module Refresher training (5 days), Induction training (2 days) Remedial training (5 days)	5
Reference / Text Books: Hotel Management and Operations - Michael J. O'Fallon, Denney G. Rutherford		
If the course is available as Generic Elective then the students of following departments may opt it. 1. NA		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		15
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75

Total:	100
Prerequisites for the course:	
Course Learning Outcomes: By the end of this course student would be able to: CO1: To understand Team cleaning Planning, Organizing, Executing & Evaluating the process. CO2: How to prepared Inspection checklist. CO3: To understand the Time and motion study & its applications. CO4: To understand the Procedure of Steps in servicing a guest room. CO5: Devising/ designing training module for staff members.	

Format-3

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree Class: B.Sc. (Hotel Management)		Year: III Semester: V
Credits: 1 Theory: 0 Practical: 1		Subject: Indian Regional Cuisine Lab
Course Code: NBHM-355AP		Title: Indian Regional Cuisine Lab
Course Objectives: To get knowledge about 1. Cuisine of Punjab, Himachal and Uttarakhand. 2. Cuisine of Andhra Pradesh, Tamil Nadu and Kerala. 3. Cuisine of Awadh, Bengal and Orissa.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: 4 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Punjabi Cuisine Dishes Various Dishes of Himachal & Uttarakhand	10
II	Various Dishes of Andhra Pradesh, Tamil Nadu & Kerala	10
III	Dishes of Awadh, Bengal and Odissa	20
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: Gain knowledge about various aspects of CO1- Dishes from Punjab, Himachal and Uttarakhand. CO2- Dishes from Andhra Pradesh, Tamil Nadu and Kerala. CO3- Dishes from Awadh, Bengal and Orissa.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: V
Credits: 1		Subject: Bakery Science Lab
Theory: 0		
Practical: 1		
Course Code:NBHM-355BP		Title: Bakery Science Lab
Course Objectives: The student will get knowledge about: 1. Bakery tools and implement. 2. Bread and Cake making 3. Chocolate fabrication 4. Cookies and Biscuits.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: 4 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Identification of bakery ingredients	10
II	Bread Making : Breakfast Rolls, Sponge and Cake Making	10
III	Uses of chocolate in bakery	10
IV	Cookies and biscuits	10
Reference / Text Books: Bali, Parvinder (2014). Food Production Operations .New Delhi: Oxford University Press.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25
Prerequisites for the course:		
Course Learning Outcomes: The Student will be aware and get knowledge about: CO1: Knowledge and uses of tools and implements. CO2: Knowledge about preparation of Bread and Cake CO3: Know to prepare chocolate work CO4: Knowledge about preparation of cookies and biscuits.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: VI

Programme: Degree	Year: III	
Class: B.Sc. (Hotel Management)	Semester: VI	
Credits: 4	Subject: FOOD PRODUCTION-III	
Theory: 4		
Practical: 0		
Course Code: NBHM-361	Title: FOOD PRODUCTION-III	
Course Objectives: The Student will be aware and get knowledge about: 1. Gain knowledge of International cuisines, its geographic location & historical background. 2. Discover the introduction to Chinese foods, its historical background & Regional cooking styles, Methods of cooking, 3. Become skilled at Bakery & Confectionery, difference between icings & topping. 4. Find out making of Meringues, Factors affecting the stability. 5. Learn about Product research and management.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	INTERNATIONAL CUISINE Geographic location, Historical background, Staple food with regional Influences, Specialties, Recipes, Equipment in relation to: Great Britain, France, Italy, Spain & Portugal, Germany, Mexican CHINESE Introduction to Chinese foods, Historical background, Regional cooking styles, Methods of cooking, Equipment & utensils FRENCH Culinary French & cooking methods & Preparations.	10
II	QUALITY CONTROL PROCEDURE Cost Control, Quality Control, Portion Control, Waste Control, Budgetary Control & Yield Management KITCHEN RECORDS AND FORMATS Different Records, Registers, Vouchers, Formats, Tags and Color-Coding.	20
III	PRODUCTION MANAGEMENT Kitchen Organization, Allocation of Work – Job Description, Duty Rosters Production Planning, Production Scheduling, Production Quality & Quantity Control , Forecasting & Budgeting G. Yield Management PRODUCT & RESEARCH DEVELOPMENT	20

	Testing new equipment, Developing new recipes, Food Trails Organoleptic & Sensory Evaluation	
IV	BREAD MAKING Role of ingredients in bread Making, Bread Faults, Bread Improvers CAKE MAKING Role of ingredients in bread Making, Types of cake & methods of cake making	10

Reference / Text Books:

1. K. Arora & K. N. Gupta – Theory of cookery
2. Philip Thangam – Modern cookery for teaching & The Trade (Orient Longmans ltd)
3. Gisslenwayne – professional cookery (john wiley and sons)

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	15
2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total:	100

Prerequisites for the course:

Course Learning Outcomes: The Student will be aware and get knowledge about:

- CO1- To understand about international cuisines, its geographic location & historical background.
CO2- To understand the Chinese foods, its historical background & Regional cooking styles, Methods of cooking,
CO3- To build the knowledge about Bakery & Confectionery, difference between icings & topping.
CO4- To understand the process making of Meringues, Factors affecting the stability.
CO5- To generate the knowledge about product research and management.
CO6- To understand about international cuisines, its geographic location & historical background.

Format-3

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: VI
Credits: 4		Subject: FOOD AND BEVERAGE SERVICE-III
Theory: 4		
Practical: 0		
Course Code: NBHM-362		Title: FOOD AND BEVERAGE SERVICE-III
Course Objectives:- The student will get knowledge about: 1. To know about Staff organization of F&B service department 2. Get knowledge Different types of bar and bar operations. 3. The students will come to know about various modes of sales promotion. 4. Various types of cocktails		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	FOOD & BEVERAGE STAFF ORGANISATION Categories of staff, Hierarchy, Job description and specification Duty roaster MANAGING FOOD & BEVERAGE OUTLET Supervisory skills B, Developing efficiency, Standard Operating Procedure	10
II	BAR OPERATIONS Types of Bar, Cocktail, Dispense, Area of Bar, Front Bar, Back Bar Under Bar (Speed Rack, Garnish Container, Ice well, etc.), Bar Stock Bar Control, Bar Staffing, Opening, and closing duties	10
III	SALES PROMOTION Food festivals-loyalty programs-Wine dinners or whisky dinners-Happy hours (ladies night, DJ night)-Corporate discounts -Partnership with Social media & home delivery services Applications	10
IV	COCKTAILS & MIXED DRINKS Definition and history–classification–Recipe, Preparation and service of Popular Cocktails	15
Reference / Text Books: 1. Dennis R Lilicrap Food and Beverage Service 2. Matt A Casdo Food and Beverage Service 3. Michael M Coltman Beverage Management		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks

1) Class tasks/Sessional Examination	15
2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total:	100
Prerequisites for the course:	
Course Learning Outcomes: The Student will be aware and get knowledge about: CO1- Understand staff organization of F&B service department and manage Food & beverage outlet CO2- Review Bar operations and their layout CO3- Analyze various modes of sales promotion and apply as and when needed. CO4- To explain and prepare various types of cocktails & mixed drinks. CO5- Analyze the cultural and social impact of cocktails throughout history. CO6- Classify cocktails based on their ingredients, base spirits, and preparation methods.	

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: VI

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: VI
Credits: 2		Subject: Front Office-III
Theory: 2		
Practical: 0		
Course Code: NBHM-363		Title: Front Office-III
Course Objectives: The Student will be aware and get knowledge about: 1. To associate the Yield Management concept 2. To understand the Timeshare and Vacation Ownership concept 3. To be aware of the essentials of Spa & Salon Management 4. To understand the fundamentals of Human Resource Management.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Yield Management: Concept of yield management–benefits of yield management–Strategies used for increasing revenue of a hotel (Overbooking and capacity management, duration control, market segment pricing and discount allocation) - Measuring Yield (Formulas)	5
II	Elements of Yield Management: Potential High and Low Demand Tactics-Yield Management Software-Yield Management Team–Yield Management Meeting	5
III	Timeshare and Vacation Ownership: Definition and Types of Timeshare Options-Advantages and Disadvantages of Timeshare business - Exchange Companies – Resort Condominium International - Intervals International- AIRDA advantages – role of government and industry.	5
IV	Spa & Salon Management: Definition & Types of Salons & Spa - Ownership & Franchised - Hierarchy in Spa - Facilities offered in Spa.	5
V	Human Resource Management: Human Resource Planning (Forecasting, Inventorying, Planning)-Human Resource Development-Job Analysis (Job Description, Job Specification, Purpose)–Recruitment-Selection–Orientation-Challenges in the Hospitality Industry - Employee Motivation - Employee Retention.	10
Reference / Text Books: 1. Dennis L. Foster: Back Office Operation & Admin. 2. Sudhir Andrews: Hotel Front Office. 3. Kasavana & Brooks: Managing Front office Operations.		

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course:	
Course Learning Outcomes: The Student will be aware and get knowledge about CO1- To understand the benefits of Yield Management and strategies. CO2: To discuss the Timeshare and Vacation Ownership concept. CO3- To evaluate of the essentials of Spa & Salon Management. CO4- To understand the fundamentals of Human Resource Management. CO5- To generate the in-depth knowledge of Spa & Salon Management. CO6- Develop effective human resource plans that align with organizational goals and objectives.	

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: VI

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: VI
Credits; 2		Subject: Accommodation Operations-III
Theory: 2		
Practical: 0		
Course Code: NBHM-364		Title: Accommodation Operations-III
Course Objectives: The Student will be aware and get knowledge about:		
1. Apply the elements of art in designing interiors.		
2. Interior decoration and horticulture which includes flower arrangement.		
3. Importance of renovation in housekeeping.		
4. Sizes of rooms, sizes of furniture, furniture arrangement.		
5. Discuss Change/new trends in housekeeping.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L:		
T:		
P: (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	INTERIOR DECORATION Elements of design; Principles of design; Color and its role in décor – types of color schemes; Windows and window treatment; Lighting and lighting fixtures; Carpets; SPECIAL DECORATION Occasion For Special Decoration; Materials Used; Theme Decoration.	5
II	FACILITY PLANNING AND FACILITY MANGEMENT Role of facility manger, factors considered in planning and designing of hospitality facilities, common services provided by facility management, components of facility management.	5
III	NEW PROPERTY COUNTDOWN Starting up Housekeeping; Responsibility of Housekeeper LAYOUT OF GUEST ROOMS A. Sizes of rooms, sizes of furniture, furniture arrangement B. Principles of design C. Refurbishing and redecoration	5
IV	NEW PROPERTY COUNTDOWN REFURBISHING AND REDECORATION Reasons to Renovate; Types Of Renovation; Subsidiary Process in Renovation, snag list CHANGING TRENDS IN HOUSEKEEPING Eco-friendly Amenities, Products & Process; Training and Motivation	5

Reference / Text Books:

1. John C. Branson – Hotel. Hostel & Hospital House Keeping
2. Georgira Tucker – The Professional Housekeeper
3. Anne Effelsberg – Flower Arranging
4. John Ambulan/Andrews – First Aid Manual
5. Sudhir Andrews: Hotel Housekeeping
6. G. Raghubalan – Hotel Housekeeping Joan C. Branson: Hotel, Hostel & Hospital Housekeeping

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50

Prerequisites for the course:

Course Learning Outcomes: The Student will be aware and get knowledge about

CO1: Analyse Principle of design while coordinating interiors.

CO2: Assess significant role played by color, light, floor finishes, wall covering, various kind of window treatments.

CO3: Differentiate between refurbishing and redecoration.

CO4: To understand the Importance of renovation in housekeeping.

CO5: Evaluate new trends in housekeeping.

CO6: Identify eco-friendly alternatives and innovations suitable for different industries.

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: VI
Credits: 2		Subject: TOURISM & HOTEL ECONOMICS
Theory: 2		
Practical: 0		
Course Code: NBHM-365A		Title: TOURISM & HOTEL ECONOMICS
Course Objectives: The objective of the course is to:		
1. Will assist to obtain Hospitality Economics focuses on applying economic principles to analyze the hospitality industry.		
2. Student will learn how to use rigorous economic theories and models to analyze the functioning of the hospitality industry and its current trends.		
3. Study will focus on micro-foundations and analyze the impact of the hospitality industry on the aggregate economy.		
4. To know about the concept of Tourism and Balance of Payment.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 1 Credits		
L:		
T:		
P: (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	FUNDAMENTS CONCEPT OF ECONOMICS Meaning of Economics, macroeconomics & Micro economics, nature & scope, Meaning of Wants: Necessaries, Comforts & Luxuries Value, price and wealth, Factors of production, Kinds of capital & capital formation, Economic System-Capitalism, Socialism & Mixed economy DEMAND ANALYSIS Meaning of Demand and demand distinctions, autonomous and derived demand short run and long run, demand. Demand for perishable goods and durable goods. Law of demand-demand schedule and demand curves, assumptions and reason behind law, exception to the law Elasticity of demand-Types of elasticity, Factor’s determining price, the elasticity of demand SUPPLY • Meaning of supply, the law of supply, determinants of supply, exceptions, elasticity of supply	10
II	COST OUTPUT ANALYSIS • Cost concepts-fixed and variable cost, average and Marginal cost, opportunity cost, past and future costs, Economics in large scale production.	10

	REVENUE CONCEPTS Total Revenue, Average Revenue, Marginal revenue and their relationships PRICE ANALYSIS Basic concepts-Equilibrium of firm, marginal revenue and Marginal cost analysis, Normal Profits, excess, profit loss, Accounting profit and economic profit, Theories of Profit, Kinds of Markets, Perfect & Pure competition, Simple monopoly and Monopolistic Competition, Oligopoly PRICING • Pricing under perfect competition, Equilibrium price, Pricing under monopoly and perfect competition-Short run and Long run	
III	TOURISM AND BALANCE OF PAYMENT INDIAN ECONOMY AND HOTEL INDUSTRY • Characteristics of Indian Economy, Major issues of development, Relevance of hotel industry in national economy, income generation, employment generation, foreign exchange earning, New Industrial Policy-Features & Importance's. TYPES OF TOURISM ECONOMICS Abstraction, Economic Theory & Tourism, Demand & Supply Analysis, Cost/Benefit Analysis, Economic Impact Analysis	05
IV	IMPACT OF TOURISM ON HOTEL INDUSTRY Economic impact, travel and Hotel effect on tourism on hotel, threats & obstacles to tourism TOURISM PLANNING AND HOTEL INDUSTRY Tourism infrastructure development, Local Bodies, tourism department and ministry, different tourism policies NATIONAL INCOME CONCEPTS AND IMPORTANCE Definition & Concepts, Gross National Product (GNP) & Net National Product (NNP), Measurement of National Income	10
Reference / Text Books: 1. H L Ahuja Principle of Economics 2. Kote Syanis Micro Economics 3. D M Mithai Managerial Economic		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		25
Total:		35

Prerequisites for the course:

Course Learning Outcomes: On completion of this course, the students will be able to

CO1: To understanding basic knowledge on scope, nature concepts, significance, role and responsibility of managerial economists.

CO2: To analyze demand and its related concepts

CO3: To attain research work and analyze price and output determination under different market forms.

CO4: To assess the relationship between input and output in short and long period under production functions.

CO5: To conclude and analyze the different phases of business cycle and methods of demand forecasting in economic analysis.

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: VI
Credits: 3		Subject: FUNDAMENTALS OF HOSPITALITY ACCOUNTING
Theory: 3		
Practical: 0		
Course Code: NBHM-365B		Title: FUNDAMENTALS OF HOSPITALITY ACCOUNTING
Course Objectives: The Student will be aware and get knowledge about: 1. Various accounting systems 2. Journal entry and ledger entry 3. How to maintain cash book 4. How to make trial balance		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Accounting Meaning & Definition, Types and Classification, Principles of Accounting Systems of Accounting, Generally Accepted Accounting, Principles	15
II	Primary Books (Journal) Meaning and Definition, Format of Journal, Rules of Debit and Credit Opening entry, simple and compound entries, Practical Subsidiary Books (Ledger) Meaning and Uses, Formats, Posting, Practical	10
III	Cash Book Meaning, Advantages, Simple, Double and Three Column Petty Cash book with imprest system (simple and tabular forms), Practical	10
IV	Trial Balance Meaning, Methods, Advantages, Limitations, Practical Final Accounts Meaning, Procedure for preparation of final accounts Difference between Trading Accounts, Profit & Loss Accounts & Balance Sheet	15

Reference / Text Books:

- Element of Hotel Accounting by Dr. JM Negi & G.S. Rawat, HKS International (now Aman Publication, New Delhi)
- Hotel Management Accounting & Control by Dr. J M Negi, Himalaya Publication, New Delhi.
- Management Accounting by Dr. Hingorani & Prof. Ramanathan, Sultan Chand & Sons.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	15
2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total:	100

Prerequisites for the course:

Course Learning Outcomes:

- CO1- Understand basic concept of hospitality accounting system
 CO2- Understand The meaning and need for accounting
 CO3- Distinguish between book keeping and accounting
 CO4- Record the transactions using rules of debit and credit
 CO5- To check the accuracy of accounting records.

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: Degree	Year: III	
Class: B.Sc. (Hotel Management)	Semester: VI	
Credits: 3 Theory: 3 Practical: 0	APPLICATION OF COMPUTERS AND CYBER LAW	
Course Code: SEC-NBHM-361	Title: APPLICATION OF COMPUTERS AND CYBER LAW	
Course Objectives: The Student will be aware and get knowledge about: 1. Various hardware and I/O devices 2. Various components of word processing 3. Various components of presentation package 4. Cyber law and cyber security		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Elements of a computer system- Definitions, Characteristics of Computers, Classification of Computers, Limitations. Hardware features and uses-Components of a Computer, Generations of Computers, Primary and Secondary Storage Concepts-auxiliary memory, RAM, ROM, cache memory, hard disks, optical disks, DVD, Mass Storage Devices and USB thumb drive. Data Entry Devices-Keyboards, Mouse, joystick, Scanner and web cam. Data Output Devices Monitors, Printers – Dot matrix, inkjet and laser. Computer Software-Relationship between Hardware and Software; System Software, Application Software, Language Classification, names of some high level languages, Compilers and Interpreters, free domain software	15
II	Office Package - Word Processing: Word processing concepts - saving, closing, Opening an existing document, Selecting text, Editing text, Finding and replacing text, printing documents, Creating and Printing Merged Documents, Character and Paragraph Formatting, Page Design and Layout. Editing 4 and Profiling Tools: Checking and correcting spellings. Handling Graphics, Creating Tables and Charts, Document Templates and Wizards. Spreadsheet Package: Spreadsheet Concepts - Creating, Saving and Editing a Workbook, Inserting, Deleting Work Sheets, entering data in a cell / formula Copying and Moving from selected cells, handling operators in Formulae, Functions: Mathematical, Logical, statistical, text, financial, Date and Time functions, Using Function Wizard. Formatting a Worksheet: Formatting	10

	Cells – changing data alignment, changing date, number, character or currency format, changing font, adding borders and colours, Printing worksheets, Charts and Graphs – Creating, Previewing, Modifying Charts. Integrating word processor, spread sheets, web pages	
III	Presentation Package: Creating, Opening and Saving Presentations, Creating the Look of Your Presentation, Working in Different Views, Working with Slides, Adding and Formatting Text, Formatting Paragraphs, Checking Spelling and Correcting Typing Mistakes, Making Notes Pages and Handouts, Drawing and Working with Objects, Adding Clip Art and other pictures, Designing Slide Shows, Running and Controlling a Slide Show, Printing Presentations	10
IV	Cyber Law and security: Introduction to cyber law. Freedom of Speech and Expression in Cyberspace, Right to Access Cyberspace – Access to Internet, Right to Privacy, Right to Data Protection. Public policy issues in e - commerce. Protecting Privacy-Intellectual property rights. Data encryption/decryption, virus, Fire wall, Antivirus software. Cyber Crimes against Individuals, Institution and State- Hacking, Digital Forgery, Cyber Stalking/Harassment, Cyber Pornography, Identity Theft & Fraud, Cyber terrorism, Cyber Defamation. Different offences under IT Act, 2000 and 2008.	15

Reference / Text Books:

1. Chris Reed, John Angel – Computer Law – Oxford University Press
2. Justice Yatindra Singh – Cyber Laws – Universal Law Publishing

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks
1) Class tasks/Sessional Examination	15
2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total:	100

Prerequisites for the course:

Course Learning Outcomes:

- CO1- Get the knowledge of various components of computer systems
CO2- Get the knowledge of word processing and editing
CO3- Get the knowledge of power point presentation
CO4- Has basis knowledge on cyber security and cyber law

Format-3

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: VI
Credits: NC		Subject: INDUSTRIAL VISIT/SEMINAR
Theory: NC		/PRESENTATION ON THE REPORT
Practical: NC		
Course Code: NECC-361		Title: INDUSTRIAL VISIT/SEMINAR/
		PRESENTATION ON THE REPORT
Course Objectives:		
1. To get the industrial exposure		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS HAVE TO GIVE A PRESENTATION ON THEIR OBSERVATIONS DURING THEIR INDUSTRIAL VISITS.	
Reference / Text Books:		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
1) STUDENTS HAVE TO GIVE A PRESENTATION ON THEIR OBSERVATIONS DURING THEIR INDUSTRIAL VISITS		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: VI

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: VI
Credits: NC		Subject: UNIVERSITY SOCIAL RESPONSIBILITIES –COMMUNITY OUTREACH
Theory: NC		
Practical: NC		
Course Code: NECC-362		Title: UNIVERSITY SOCIAL RESPONSIBILITIES –COMMUNITY OUTREACH
Course Objectives:		
1. To develop humanity in students		
Nature of Paper: NECC		
Minimum Passing Marks/Credits: NC		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit 4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	THIS ACTIVITY IS AN ESSENTIAL PART OF THE CURRICULAM WHICH BELIEVES THAT WHAN WE ARE TAKING FROM THE SOCIETY THEN IT IS OUR MORAL DUTY TO GIVE SOMETHING BACK TO THE SOCIETY. IT ALSO DEVELOPS HABIT OF HELPING OTHERS IN THE STUDENTS.	
Reference / Text Books:		
Nil		
If the course is available as Generic Elective then the students of following departments may opt it.		
NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
CO1- this activity is an essential part of the curriculam which believes that whan we are taking from the society then it is our moral duty to give something back to the society. It also develops habit of helping others in the students.		

Format-3

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: VI
Credits: NC		SANSKRIT / SPIRITUAL
Theory: NC		
Practical: NC		
Course Code: MV-361		SANSKRIT / SPIRITUAL
Course Objectives:		
1. To teach Sanskrit to students		
Nature of Paper: MV		
Minimum Passing Marks/Credits: NC		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	STUDENTS ARE TAUGHT THE BASICS OF SANSKRIT / SPIRITUAL TEACHING FROM BHAGWAT GEETA. THE MAIN MOTIVE OF THIS COURSE IS TO DEVELOP MORAL VALUES IN STUDENTS.	
Reference / Text Books:		
NA		
If the course is available as Generic Elective then the students of following departments may opt it. :- NIL		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ESE		-
Total:		25
Prerequisites for the course:		
Course Learning Outcomes:		
CO1- STUDENTS ARE TAUGHT THE BASICS OF SANSKRIT / SPIRITUAL TEACHING FROM BHAGWAT GEETA. THE MAIN MOTIVE OF THIS COURSE IS TO DEVELOP MORAL VALUES IN STUDENTS		

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: Degree Class: B.Sc. (Hotel Management)		Year: III Semester: VI	
Credits: NC Theory: NC Practical: NC		Subject: SPORTS	
Course Code: SPT-361		Title: SPORTS	
Course Objectives: 1. To get engage in sports			
Nature of Paper: NECC			
Minimum Passing Marks/Credits: NC			
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)			
Unit	Contents		No. of Lectures Allotted
I	STUDENTS ARE ENCOURAGED TO PLAY VARIOUS GAMES OF THEIR CHOICE WHETHER INDOOR OR OUTDOOR. LIKE; CARROM, CHESS, TABLE TENNIS, FOOTBALL, BASKETBALL ETC.		
Reference / Text Books:			
If the course is available as Generic Elective then the students of following departments may opt it. NIL			
Evaluation/Assessment Methodology			
			Max. Marks
1) Class tasks/Sessional Examination			-
2) Presentations/Seminar			25
3) Assignments			-
4) Research Project Report Seminar On Research Project Report			-
5) ESE			-
Total:			25
Prerequisites for the course:			
Course Learning Outcomes: CO1- STUDENTS ARE ENCOURAGED TO PLAY VARIOUS GAMES OF THEIR CHOICE WHETHER INDOOR OR OUTDOOR. LIKE ; CARROM, CHESS, TABLE TENNIS, FOOTBALL, BASKETBALL ETC			

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: VI
Credits: 2		Subject: FOOD PRODUCTION LAB-III
Theory: 0		
Practical: 2		
Course Code: NBHM-361P		Title: FOOD PRODUCTION LAB-III
Course Objectives: The Student will be aware and get knowledge about: 1. Various international cuisines 2. Preparation of various breads. 3. Preparation of various sponges and cakes.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	INTERNATIONAL CUISINES MENUS	40
Reference / Text Books: 1. K. Arora & K.N. Gupta – Theory of cookery 2. Philip Thangam – Modern cookery for teaching &The Trade (Orient Longmans ltd) 3. Gisslenwayne – professional cookery (john wiley and sons) 4. Montage – Larousse gasrtronomique (Himalaya publishing group)		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		30
Total:		50
Prerequisites for the course:		

Course Learning Outcomes:

CO1: Understand how to prepare various international cuisines.

CO2: Demonstrate how to prepare various kinds of breads.

CO3: Demonstrate how to prepare various sponges and cakes.

CO4: To discuss various types of bakery desserts

CO5: Identify and describe the key characteristics, ingredients, flavors, and cooking techniques associated with a variety of international cuisines.

CO6: To explain the significance of traditional dishes, ingredients, and dining customs within the context of international cuisines.

Format-3

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: VI

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: VI
Credits: 1		Subject: FOOD AND BEVERAGE SERVICE
Theory: 0		LAB-III
Practical: 1		
Course Code: NBHM-362P		Title: FOOD AND BEVERAGE SERVICE
		LAB-III
Course Objectives: The students will get knowledge about: 2. F & B staff organization and making duty roster and job description and specification. 3. To develop Supervisory Skills. 4. To learn about Bar Operations. 5. Preparation & Service of cocktail & mixed drinks		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	F&B Staff Organization Class room Exercise (Case Study method) Developing Organization Structure of various Food & Beverage Outlets. Determination of Staff requirements in all categories Making Duty Roster, Preparing Job Description & Specification	5
II	Supervisory Skills Conducting Briefing & Debriefing – Restaurant, Bar, Banquets & Special events, Drafting Standard Operating Systems (SOPs) for various F & B Outlets, Supervising Food & Beverage operations Preparing Restaurant Log	5
III	Bar Operations Designing & Setting the bar Preparation & Service of Cocktail & Mixed Drinks	5
Reference / Text Books: 1. Dennis R Lilicrap Food and Beverage Service 2. Matt A Casdo Food and Beverage Service 3. Michael M Coltman Beverage Management		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-

2) Presentations/Seminar	-
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	15
Total:	25
Prerequisites for the course:	
Course Learning Outcomes: CO1: To understand about the F&B staff organization and making duty roaster and job description and specification. CO2: Design and develop effective organization structures for Food & Beverage outlets. CO3: Create organizational charts that clearly illustrate the roles and responsibilities of various positions within the Food & Beverage outlets. CO4: To get the knowledge about the Preparation & Service of cocktail & mixed drinks. CO5: Understand the different categories of cocktails, their ingredients, and the appropriate glassware and garnishes for each. CO6: Demonstrate knowledge of the flavor profiles and balance of ingredients to create well-crafted and visually appealing cocktails.	

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: VI
Credits: 1		Subject: FRONT OFFICE LAB-III
Theory: 0		
Practical: 1		
Course Code: NBHM-363P		Title: FRONT OFFICE LAB-III
Course Objectives: The Student will be aware and get knowledge about		
1. To practice the mathematical equations and calculations as regard to the ARR/ARPP/% of foreigners/Indian /Other nationalities		
2. To practice Occupancy forecast reports for establishing yield management.		
3. Night receptionist’s night reports, Guest arrival report and Night audit reports.		
4. Amenity vouchers, allowance voucher , miscellaneous charge		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L:		
T:		
P: (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	To practice the mathematical equations and calculations as regard to the ARR/ARPP/% of foreigners/Indian /Other nationalities.	
II	To practice Occupancy forecast reports for establishing yield management, Room discrepancy report, OOO report, % of occupancy report, Night receptionist’s night reports, Guest arrival report and Night audit reports.	
III	Amenity vouchers, allowance voucher, miscellaneous charge voucher, Petty cash voucher their usage in the operations.	
Reference / Text Books:		
1. Dennis L. Foster: Back Office Operation & Admin.		
2. Sudhir Andrews: Hotel Front Office.		
3. Kasavana & Brooks: Managing Front office Operations.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ESE		15
Total:		25

Prerequisites for the course:

Course Learning Outcomes:

CO1: To understand the mathematical equations and calculations as regard to the ARR/ARPP/% of foreigners/Indian /Other nationalities

CO2: To get the discuss Occupancy forecast reports for establishing yield management.

CO3: To identify about Night receptionist's night reports, Guest arrival report and Night audit reports.

CO4: To understand about the Amenity vouchers, allowance voucher, miscellaneous charge.

CO5: Identify situations and transactions where each type of voucher is applicable and appropriate.

CO6: Apply operational vouchers as tools for tracking and controlling expenses, ensuring transparency.

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: VI

Programme: Degree		Year: III
Class: B.Sc. (Hotel Management)		Semester: VI
Credits: 1		Subject: ACCOMMODATION OPERATION
Theory: 1		LAB-III
Practical: 0		
Course Code: NBHM-364P		Title: ACCOMMODATION OPERATION LAB-III
Course Objectives: The Student will be aware and get knowledge about. 1. Standard operating procedure (SOPs) of cleaning and polishing glass, brass etc. 2. Uses of First aid kit, dealing with emergency situation. 3. How to overcome to Fire safety firefighting Safety measures, fire drill. 4. Special decoration (theme related to hospitality industry).		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 1 Credits		
L: T: P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Standard operating procedure skill oriented task (e.g. cleaning and polishing glass, brass etc.)	5
II	First aid First aid kit, dealing with emergency situation , maintaining records Fire safety fire fighting Safety measures ,fire drill (demo)	5
III	Special decoration (theme related to hospitality industry) indenting, costing, planning with time split, executing Layout of guest room To the scale, To earmark pillars specification of colors, furniture, fixture, fitting, soft furnishing and accessories etc. used.	5
Reference / Text Books: 1. John C. Branson – Hotel .Hostel& Hospital House Keeping 2. Georgira Tucker – The Professional Housekeeper 3. Anne Effelsberg – Flower Arranging 4. John Ambulan/Andrews – First Aid Manual		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-

3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ESE	15
Total:	25
Prerequisites for the course:	
Course Learning Outcomes: CO1: To understand the procedure of Standard operating procedure (SOPs) of cleaning and polishing glass, brass etc. CO2: To get the knowledge about the Uses of First aid kit, dealing with emergency situation. CO3: To understand that, How to overcome to Fire safety firefighting Safety measures, fire drill. CO4: To describe the knowledge about the Special decoration (theme related to hospitality industry) CO5: Understand the concept of scale in interior design and effectively utilize it to create balanced and proportionate spaces. CO6: Apply principles of furniture selection, arrangement, and placement to create functional and aesthetically pleasing interior layouts.	

SCHOOL OF HOTEL MANAGEMENT, CATERING & TOURISM

ACADEMIC HAND BOOK



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O-Pocket, Ganga Nagar, Mawana Road, Meerut-250001

SCHOOL OF HOTEL MANAGEMENT CATERING AND TOURISM
DEPARTMENT OF COMMUNITY SCIENCE
ORDINANCE (CBCS) for B.Sc. and M.Sc. (HOME SCIENCE-FOOD
SCIENCE, NUTRITION AND DIETETICS) 2025 Onwards
(Revised in light of NEP 2020 Guidelines)
(Established by Govt. of U.P. vide U.P. Act No. 32 of 2016)
(Academic Session 2025-26)

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AIMS AND OBJECTIVES OF UG and PG PROGRAM IN FOOD SCIENCE, NUTRITION AND DIETETICS:

The Undergraduate Program and Post-Graduate Program in Food Science, Nutrition, and Dietetics aims to provide students with a comprehensive foundation in the interdisciplinary fields of food production, nutritional science, and dietary management, fostering a deep understanding of how food impacts human health and well-being. By integrating scientific principles with practical applications, the program equips graduates to address contemporary challenges such as food security, malnutrition, and lifestyle-related diseases, while promoting ethical practices in food systems and public health. It emphasizes hands-on training in laboratory techniques, nutritional assessment, and diet planning, preparing students for diverse careers in food industry, healthcare, research, and community nutrition, ultimately contributing to sustainable and evidence-based advancements in global nutrition and dietetics.

The key objectives of the program are:

1. To impart fundamental knowledge of food chemistry, microbiology, and processing technologies, enabling students to evaluate and innovate in food production and safety.
2. To develop expertise in human nutrition, including macronutrients, micronutrients, and their roles in physiological processes, disease prevention, and therapeutic interventions.
3. To train students in clinical and community dietetics, focusing on designing personalized nutrition plans for diverse populations across life stages and health conditions.
4. To foster research skills and critical thinking through projects and case studies, encouraging evidence-based approaches to address nutritional challenges and food-related policies.
5. To promote awareness of ethical, cultural, and environmental aspects of food systems, preparing students to advocate for sustainable practices and equitable access to nutritious food.

DEFINITIONS AND NOMENCLATURE

In these Regulations, unless the context otherwise requires:

DEFINITIONS AND NOMENCLATURE

1. “Programme” means Degree Program like Food Science, Nutrition and Dietetics / Computer Science / AIML / Civil / Electrical / Mechanical / Aerospace / Electronics & Communications / Electrical.
2. Food Science, Nutrition and Dietetics is a branch of B.Sc. Degree Program
3. “Course” means a theory or practical subject that is normally studied in a semester.
4. “Vice – Chancellor of IIMT-University” means the Head of the University.
5. “Registrar” is the Head of all academic and General Administration of the University.
6. Dean” means the authority of the school who is responsible for all academic activities of various programmes and implementation of relevant rules of these Regulations pertaining to the Academic Programmes.

7. “Controller of Examinations” means the authority of the University who is responsible for all activities related to the University Examinations, publication of results, award of grade sheets and degrees.
8. “Dean – Student Welfare” is responsible for all student related activities including student discipline, extra and co – curricular activities, attendance and meetings with class representatives, Student Council, and parent – teacher meet.
9. “HoD” means the Head of the Department concerned.
10. “University” means IIMT-University, Meerut.
11. “TCH” means Total Contact Hours – refers to the teaching – learning periods.
12. “DEC” means Department Exam Committee.
13. “BOS” means board of Studies.
14. “ACM” means Academic Council meeting the highest authoritative body for approval for all Academic Policies.
15. “Class Coordinator” is a faculty of the class who takes care of the attendance, academic performance, and the general conduct of the students of that class.
16. “IA” is Internal Assessment, which is assessed for every student for every course during the semester.
17. “ESE” is End Semester Examination conducted by the University at the End of the Semester for all the courses of that semester.

INTRODUCTION

The Bachelor of Science in Food Science, Nutrition and Dietetics is an undergraduate degree program structured to align with the University Grants Commission (UGC) specifications for degree nomenclature under Section 22(3) of the UGC Act, 1956, ensuring national uniformity and recognition of qualifications in allied health sciences. In accordance with the National Education Policy (NEP) 2020, the program adopts a multidisciplinary framework, offering a three-year basic degree with an optional fourth-year Honors component incorporating research, multiple entry-exit options, and emphasis on skill enhancement, experiential learning, and holistic development to enhance employability and adaptability in a global context. It adheres to the 2025 competency-based curriculum for Nutrition and Dietetics developed by the National Commission for Allied and Healthcare Professions (NCAHP) under the NCAHP Act, 2021, and the Ministry of Health and Family Welfare (MoHFW), which focuses on producing skilled professionals through integrated training in nutritional science, diet therapy, food processing, and public health interventions, including a mandatory internship in the Honors pathway to build practical expertise in clinical, community, and industrial settings. Furthermore, incorporating references from the Indian Council of Agricultural Research (ICAR) guidelines, the program emphasizes the linkage between agricultural food systems and human health, covering areas such as food quality control, sustainable nutrition practices, and addressing malnutrition challenges to contribute to national goals like POSHAN Abhiyaan and global

nutrition targets by 2030. This program aims to cultivate ethical, evidence-based practitioners equipped to promote health, prevent diseases, and innovate in food and nutrition domains for diverse populations.

Not with standing anything in these regulations, the IIMT University Meerut shall have the right to modify any of the regulations from time to time in accordance of BOS approval.

Vision:

To be a leading center for excellence in Food Science, Nutrition, and Dietetics, fostering innovation and sustainability for improved health, food security, and community well-being.

Mission:

To educate and train competent, ethical, and research-oriented professionals in food science and nutrition through a multidisciplinary curriculum, practical learning, and industry collaboration for addressing nutritional and public health challenges.

The Program:

The Bachelor's in Science in Food Science, Nutrition and Dietetics and Master's in Science in Food Science, Nutrition and Dietetics are flexible, multidisciplinary undergraduate program offered in alignment with NEP 2020, UGC guidelines, and the NCAHP (2025) competency-based curriculum. It is structured as a 3-year B.Sc. degree with an optional 4th year leading to an Honours degree with Research, and 2 years of Master's in Science (M.Sc.), providing students the choice to exit after three years or continue for advanced specialization and research exposure.

Structure of the Program

Duration	Award	Description
3 Years	B.Sc. in Food Science, Nutrition and Dietetics	Core foundational program focusing on food chemistry, human nutrition, clinical dietetics, food safety, and community nutrition. Students gain theoretical knowledge and practical skills through labs, internships, and projects.
+1 Year (Optional)	B.Sc. (Honors with Research) in Food Science, Nutrition and Dietetics	An advanced year for students to continue after the 3-year degree. Includes specialised electives, a mandatory research dissertation, and a clinical/industry internship. Designed to develop research aptitude and professional leadership.
2 years	M.Sc. in Food Science, Nutrition and Dietetics	A postgraduate program aimed at developing advanced competencies in food science, human nutrition, and therapeutic dietetics. The course integrates research, innovation, and evidence-based practice with an emphasis on food safety, nutrigenomics, functional foods, and public health nutrition. Students undertake dissertation work, laboratory training, and professional internships to prepare for roles in research, healthcare, academia, and the food industry.

Program Outcomes

Program Outcomes (PO): By the end of the degree program of Bachelors of Science the students will be able to –

List	Program Outcomes (PO)- B.Sc.

PO1:	Apply integrated knowledge of food chemistry, microbiology, and processing technologies to ensure food safety, quality, and innovation in product development.
PO2:	Assess nutritional status, design evidence-based diet plans, and implement therapeutic nutrition interventions for individuals across life stages and clinical conditions.
PO3:	Evaluate community nutrition challenges and develop culturally appropriate, sustainable public health nutrition programs aligned with national initiatives.
PO4:	Demonstrate proficiency in laboratory techniques, sensory evaluation, and food analysis to support research and quality assurance in the food industry.
PO5:	Exhibit ethical judgment, professional communication, and teamwork in multidisciplinary settings involving healthcare, agriculture, and food systems.
PO6:	Utilize digital tools, diet planning software, and data analytics for personalized nutrition counseling and population-level dietary assessments.
PO7:	Critically analyze scientific literature, formulate research hypotheses, and contribute to evidence-based solutions in nutrition and dietetics.
PO8:	Promote environmental sustainability and food security through knowledge of agri-nutrition linkages, waste reduction, and climate-resilient food practices.
PO9:	Adhere to regulatory standards and advocate for policy frameworks that enhance nutritional equity and public health.
PO10:	Engage in lifelong learning, adapt to emerging trends in functional foods and nutraceuticals, and pursue advanced studies or professional certifications.

Program Outcomes (PO): By the end of the degree program of Master's of Science the students will be able to –

List	Program Outcomes (POs)- M.Sc.
PO1:	Apply advanced knowledge of food chemistry, microbiology, and processing to ensure food safety, quality, and innovation in product development.
PO2:	Assess and interpret nutritional status, design evidence-based diet plans, and implement therapeutic interventions across diverse populations.
PO3:	Evaluate community nutrition challenges and develop culturally appropriate, sustainable nutrition programs in line with public health policies.
PO4:	Demonstrate expertise in laboratory analysis, sensory evaluation, and food quality assurance for research and industrial applications.
PO5:	Exhibit ethical values, leadership, and teamwork in multidisciplinary environments involving health, agriculture, and food industries.
PO6:	Employ digital tools, software, and data analytics for personalized diet planning, nutrition counseling, and population-level dietary assessment.
PO7:	Critically analyze and synthesize scientific evidence to formulate research hypotheses and develop innovative nutrition solutions.
PO8:	Promote sustainable and climate-resilient food systems through knowledge of agri-nutrition linkages, waste management, and green practices.
PO9:	Adhere to food regulations, safety standards, and advocate for policy frameworks promoting public health and nutrition equity.
PO10:	Engage in lifelong learning, professional development, and innovation in emerging areas such as functional foods and nutraceuticals.

Intake, eligibility, admission procedure, fees and medium

Intake: The intake capacity is 30 for B.Sc. (Home Science- Clinical Nutrition and Dietetics) as approved by IIMT University, Meerut.

ELIGIBILITY FOR ADMISSION

B.Sc. (Food Science, Nutrition and Dietetics)	3+1 years	a) Candidates must have completed 10+2 or equivalent examination from CBSE / ICSE/ any recognized State Board with at least 45% in aggregate for B.Sc. (Food Science, Nutrition and Dietetics). b) The qualifying examination should include Science subjects , preferably Biology, Home Science, or Humanities and Commerce with Home Science . c) A minimum aggregate of 45–50% marks is required (subject to variation based on institutional policies or reservation criteria). d) A relaxation of 5% may be given to candidates belonging to reserved categories (SC/ST/OBC-NCL/PwD) as per government norms.
M.Sc. (Food Science, Nutrition and Dietetics)	2	a) Candidates must possess a Bachelor's degree in Home Science, Food Science/ Technology, Food/Clinical Nutrition, Dietetics, Community Nutrition, Public Health Nutrition or any related Life Science discipline from a recognized university. b) A relaxation of 5% may be given to candidates belonging to reserved categories (SC/ST/OBC-NCL/PwD) as per government norms.

Program Educational Objectives (PEOs) *(Within 3–4 years after graduation, graduates will:)*

OBJECTIVES	Program	PEO/PSO
Program Educational Objectives (PEO)	B.Sc. (Food Science, Nutrition and Dietetics) <i>(Within 3–4 years after graduation, graduates will:)</i>	PO1: Establish themselves as competent professionals in clinical dietetics, food industry, public health, or research institutions with leadership and innovation capabilities. PO2: Contribute to improving community health outcomes through evidence-based nutrition interventions, policy advocacy, and sustainable food practices. PO3: Pursue higher education (M.Sc., Ph.D., or RD certification) or entrepreneurial ventures in nutrition, food technology, or wellness sectors. PO4: Collaborate with interdisciplinary teams in healthcare, agriculture, and industry to address malnutrition, lifestyle diseases, and food safety challenges. PO5: Uphold ethical standards, cultural sensitivity, and social responsibility while driving national and global nutrition goals
	M.Sc. (Food Science, Nutrition and Dietetics)	PO1: To prepare competent professionals with a strong foundation in food science, human nutrition, and dietetics.

	<i>(Within 3–4 years after graduation, graduates will:)</i>	PO2: To foster analytical, research, and problem-solving skills for evidence-based nutritional practices. PO3: To encourage ethical responsibility and leadership in promoting community health and sustainable food systems. PO4: To enable graduates to pursue higher education, research, or careers in academia, healthcare, and food industries. PO5: To cultivate adaptability and lifelong learning in response to emerging trends in nutrition science and public health.
Program Specific Outcomes (PSOs)	B.Sc. (Food Science, Nutrition and Dietetics) <i>(By the end of the program, including the optional 4th-year Honors with Research, students will be able to:)</i>	PO1: Formulate and validate functional food products using principles of food science, sensory science, and nutritional enhancement techniques. PO2: Conduct clinical nutrition assessments, interpret biochemical markers, and prescribe medical nutrition therapy for chronic and critical care conditions. PO3: Design, implement, and evaluate community-based nutrition programs targeting vulnerable populations (children, pregnant women, elderly) using participatory and data-driven approaches. PO4: Apply research methodology to investigate nutrition-related problems, culminating in a dissertation (Honours year) with potential for publication or patent filing. PO5: Integrate agri-food systems knowledge with dietetics to promote farm-to-fork nutrition security and reduce post-harvest nutritional losses.
Program Specific Outcomes (PSOs)	M.Sc. (Food Science, Nutrition and Dietetics) <i>(By the end of the 2 year program, students will be able to:)</i>	PO1: Develop, analyze, and standardize food products to enhance nutritional quality and consumer acceptability. PO2: Design and evaluate clinical and therapeutic diet plans for the prevention and management of diseases. PO3: Conduct independent research using advanced statistical and instrumental techniques relevant to food and nutrition sciences. PO4: Apply community-based approaches to improve nutrition awareness and implement government nutrition initiatives effectively. PO5: Integrate knowledge of biotechnology, nutrigenomics, and functional foods in developing health-promoting food innovations. PO6: Utilize entrepreneurship and managerial skills to establish diet consultancy services or food-based enterprises.

Respective State Government/Affiliating University/Board may decide the eligibility criteria for entry level Qualification for different Programmes/Courses.

S. No.	Academic Level	Entry Qualifications at different levels.	Exiting Qualifications at different levels	Exit points
1	1 st year UG Degree	12 th Completed	Certificate in Food Science Nutrition & Dietetics	50
2	2 nd year UG Degree	A candidate with Diploma in appropriate Food Science Nutrition & Dietetics	Diploma in Food Science Nutrition & Dietetics	104
3	3 rd year UG Degree	A candidate with 10+4/ 12+2 in appropriate domain with NSQF level 6/UCF level 5 completed	Undergraduate Degree (B.Sc. Food Science Nutrition & Dietetics)	142
4	4 th year UG Degree (Optional)	A candidate with 3 years bachelor's degree in vocational/B.Sc. in appropriate domain	Undergraduate Degree Honors (B.Sc-Food Science Nutrition & Dietetics)	184
5.	5 years of degree program & 2 years of a Master's Degree	A candidate with 3 years bachelor's degree in vocational/B.Sc. in appropriate domain	Post Graduate Degree M.Sc. in Food Science, Nutrition and Dietetics	80 Post-Graduate

ADMISSION

- The admission policy and procedure shall be decided from time to time by the board of Studies (BOS) of the University based on the guidelines issued by the UGC/NEP/AICTE and Ministry of Education (MoE), Government of India. Seats are also made for Non-Resident Indians and foreign nationals, who satisfy the admission eligibility norms of the University. The number of seats in each of the B.Sc. and M.Sc. degree program will be decided by the University as per the directives of AICTE/ UGC / MOE, Government of India, considering the market demands.
- The University can take 10% additional admission, in view of the short fall expected in 2nd year due to failure of students or students leaving the University.

Fees:

The fee shall be charged in every session as per fee structure policy decided by the fee fixation committee of the IIMT University Meerut.

Medium of instruction and examination:

The medium of instruction and examination shall be Hindi/ English or both.

Program implementation

Attendance requirement:

The minimum attendance requirement of students shall be 75% for theory courses and 90% for internship courses.

Transaction: The transaction of the curriculum framework shall be carried out as follows **Courses offered as -**

- Core courses
- Discipline Specific Elective courses (DSE)
- Ability Enhancement compulsory courses (AECC)
- Skill enhancement and Internship Courses (SEC)
- Internship/Research project

Core Courses:

The core courses are divided into five years as shown in the evaluation scheme. Transaction of theory courses shall be carried out through theory and practicum, which may include discussion-groups, workshops, presentation, seminars, assignments, reports, specified activities etc. to enhance professional skills and understanding of student(s). These shall be part of the teaching modality.

Discipline Specific Elective Courses:

Discipline Specific Elective Courses are prescribed to enhance and develop the professional and professional skills of students in their particular discipline. The students have to choose from the given list based on their subject stream.

Ability Enhancement Compulsory Courses: To fulfill the guidelines of NEP 2020, in the syllabi there are six Courses for Enhancing Professional ability Competencies have been incorporated as essential components with respect to developing professional competencies among students. Transaction of these courses will be carried out through theory, which may include discussion groups, workshops, presentations, seminars, assignments, specified activities, etc.

Practicum/skill enhancement cum School Observation and Internship:

Specific skill enhancement courses have been incorporated to provide students the opportunities to enhance the skills of the students. The hospital or industrial internship is provided to the students for better understanding of clinical nutrition and dietetics. Total duration of internship shall be 45 days in VI semester of B.Sc. (Food Science, Nutrition and Dietetics)

Implementation:

The commencement of the session will be according to academic calendar as approved by the academic council of the IIMT University Meerut declared for every year. The Department of Community Science (Recently renamed Home Science) shall prepare a calendar for all activities including internship, industrial visits which shall be displayed for the benefit of both students and teachers.

INTRODUCTION-CREDITSYSTEMANDGRADING

IIMT University implemented the UGC guidelines in 2019 for the adoption of the choice-based credit system across all universities. This system aimed to offer students the flexibility to select courses within a program and complete the program at a pace they determined by earning credits. It allowed students to choose interdisciplinary and interdisciplinary courses according to their learning needs, interests, and aptitudes. This was considered a cafeteria approach and was expected to provide mobility to students.

The current credit system practiced in institutions requires comprehensive reforms as it offers very little flexibility, limited choices, and is less learner-centric. The degrees offered today are largely self-contained, focusing on a single area of specialization and relying heavily on the knowledge available within the department's faculty. Although a more flexible credit system does exist in some institutions, where students are given a wide range of choices, these examples are isolated and rare amidst the thousands of educational institutions in India. In such institutions, learner-centric curricula are frequently designed, offering students a wide range of specializations to choose from.

Institutions should strive to ensure that the design of the credit system, as well as teaching and evaluation methods, becomes the responsibility of individual course instructors. Students should have the freedom to opt for courses outside their core specialization. For this, stronger collaborations between departments within the university and external entities are essential.

Examination and assessment:

Examination for Theory and Practical Courses

For each theory course, 30% weightage shall be assigned for continuous internal assessment by course-teacher(s), and 70% for external, written examination on theoretical components covered in particular semester. A candidate should attain 30% marks of total in external theory examination separately to promote for the next semester. Also the candidate should attain 40% marks of total in internal and external theory examination. This will be conducted by Examination authority of IIMT University Meerut at the end of each semester.

- A candidate should attain 50% of total practical marks.
- A candidate shall separately pass the theory and practical examination.
- A candidate should get enrolled/ registered for the semester-end examination. If enrollment/ registration is not possible owing to shortage of attendance or on medical grounds or any other reason(s), the candidate shall submit an affidavit for his/her reason thereof and intent. Such a student shall not be permitted to move to the next year and shall re-do the year in subsequent turn of that year as a regular student (i.e. for first year in first and for second year in second after paying the required fee of that year). Same rule shall be applicable for the candidate(s) who remain(s) absent in all the external written examination(s).
- Semester examinations shall be designated as End semester examination.
- The examination for all semesters shall normally be held on such dates as fixed by the Controller of Examination, IIMT University Meerut.
- The examination for re-appearing in any subject(s) in the first, second and third year shall be held in the respective years along with the regular students.
- Such students whose first year result declaration is delayed for no fault of his/her may attend classes of the next year provisionally at his/her own risk and responsibility, subject to his/her passing the concerned first year examination. In case, the candidate fails to pass the concerned

first year examination as per rules mentioned in this ordinance, his/her, attendance and studies in the next second year in which he/she was allowed to attend classes provisionally, shall stand cancelled. Such candidate(s) shall have to repeat the relevant academic year in the next academic session along with regular students by paying dues/fees as to be paid by the fresh candidate.

- Internal assessment marks of debarred students will be awarded as and when he/she attends regular classes in courses in the next applicable year.
- Examinations for courses shall be conducted only in the respective odd and even semesters as per the scheme of examination issued by the Controller of Examination, IIMT University Meerut.
- If any student fails to complete the course, there shall be a provision of improvement in the form of carry over examination in next semester.
- The format of the assessment/marking scheme will be applicable as per provisions made in these regulations as following:

Credit:

Credit is a unit of academic input measured in terms of the study hours. It reflects the number of study hours in a particular period of time devoted to various aspects of the teaching learning process such as attending classes, engaging in assignment, projects, seminar, community activities & practical courses required for the courses etc.

B.Sc. (FOOD SCIENCE, NUTRITION AND DIETETICS) and M.Sc. (FOOD SCIENCE, NUTRITION AND DIETETICS) syllabus is developed as per the CBCS/NEP pattern; hence, the syllabus is to be studied according to the credits to each course. The students will have to earn 40-48 credits in a year whereas one credit is of 1 hour teaching, the course of 100 marks will have 04 credits and the course of 50 marks will have 02 credits.

Credit Points– It is the product of grade point and number of credits for a course.

Assessment:

Evaluation will contain internal as well as external evaluation. Under CBCS pattern Annual grade point average (AGPA) and cumulative grade point average (CGPA) will be calculated for each student.

- The AGPA is the ratio of sum of the product of the number of credits with the grade points score by the students in all the papers / courses taken by a student and the sum of the number of credits of all the courses undergone by a student.
- The CGPA IS also calculated in similar manner taking into consideration all the course undergone by a student over the year of a programme.
- Letter grade will be assigned to students as per their performances in courses. Letter grade is an index of performance of students and then denoted by letters such as:

S.N.	Letter	Percentage	Grade Point	Remarks
1	O	Above 90%	9-10	Ordinary
2	E	80-90%	8-<9	Excellent
3	A+	70-79.99%	7-<8	Very Good
4	A	60-69.99%	6-<7	First
5	B	55-59.99%	5.5-<6	Good
6	C	50-54.99%	5-<5.5	Pass
7	D	Below 50%	<5	Not Success

To pass and to complete the course the student is supposed to secure 40% marks in each paper and 50 % marks in aggregate.

Mark sheet and Degree will be awarded as Certificate, Diploma, Bachelor of Science, Bachelors with research and Masters of science on promote basis after the successfully completion of the programme according to rules mentioned above.

DURATION

After one year of course a Certificate in Food Science, Nutrition and Dietetics will be awarded. Diploma in Food Science, Nutrition and Dietetics will be awarded after completion of two years. The B.Sc. (Food Science, Nutrition and Dietetics) will be awarded after successful completion of three academic years. Bachelor's of Science (Food Science, Nutrition and Dietetics) with research will be awarded after four years of completion. M.Sc. (Food Science, Nutrition and Dietetics) will be awarded after successful completion of full five (3+2) academic years.

Working days:

There shall be at least two hundred working days each year, exclusive of the period of examination and admission.

The Board of Studies of Department of Home Science (SOHMCT) IIMT University Meerut frames the syllabi keeping in view the curriculum as developed.

CHOICE BASED CREDIT SYSTEM (CBCS)/ LOCF/OBE:-

The university follows a flexible Choice based Credit System and Slot based table. Accordingly, the students shall be given the option for selecting their courses (GE & DSE).

REGISTRATION FOR COURSES IN A SEMESTER

A student will be eligible for registration of courses only if he/she satisfies the regulation clause 7.0 (progression), and clause 10.0 (maximum duration) and has cleared all dues to the University, Hostel and Library up to the end of the previous semester if student is not debarred from enrolment on disciplinary grounds.

CHOICE BASED CREDIT SYSTEM

The university follows a flexible Choice based Credit System and Slot based table. Accordingly, the students shall be given the option for selecting their courses, credits, teachers, slots and create their timetable. The student is given the option of selecting the number of credits to undergo in a semester, subject to the curriculum requirements of minimum and maximum.

Except for the first-year courses, registration for a semester will be done during a specified week before the start of the semester as per the Academic Calendar.

Late registration /enrolment will be permitted by the Dean of the School for genuine cases, on recommendation by the Head of the respective department, with a late fee as decided from time to time.

CHOICE OF COURSE

The student shall make the choice of course in consultation with the Class Coordinator and as stipulated from time to time.

FEE FOR GENERIC ELECTIVE

Students shall have to pay additional fee as prescribed, for registering in certain elective courses under Generic Electives courses offered by certain specific Departments and for higher level Foreign Languages, as decided from time to time.

ATTENDANCE

The faculty handling a course must finalize the attendance, 3 calendar days before the last instructional day of the course and submit to the HOD through the class teacher.

- a. A student with less than 75% attendance (Total Contact Hours -“TCH”) in any course will not be permitted to appear for the end-semester examination in that course, irrespective of the reason for the shortfall of the attendance. The student is however permitted to avail Academic Leave up to 10% for attending academic related activities like, Industrial Visits, Seminars, Conferences, Competitions etc., with the prior approval of the HOD. After the event, the student should submit the relevant documents for proof to the HOD for approval of the Academic Leave.
- b. The remaining 25% allowance in attendance is given to account for activities under NCC / NSS / Cultural / Sports/ Minor Medical exigencies etc.
- c. A student with an attendance (“TCH” – Total Contact Hours) between 40% and 75% in any course will fall under the category “CO (Carry Over)”, which means repeat the Course during the Summer / Winter break. Students under “CO (Carry Over)” category will not be permitted to attend the Regular End Semester Examinations for that course. During the INTERNSHIP break, the regular courses of the respective semester will be offered as Summer/Winter Courses, to enable the students to get required attendance and internal assessment marks to appear in the Repeat examination.
- d. Students under “CO (Carry Over)” category in any course shall attend, the immediately following course as detailed in clause 9.1. The detailed schedule of the courses offered in every semester will be announced during the end of that semester. The student who have obtained “CO (Carry Over)” has to select their appropriate slots and courses, optimally to attend the courses. The student, whose attendance falls below 40% for a course in any semester, will be categorized as “RA”, meaning detained in the course for want of attendance and they will not be permitted to write the End semester exam for that course. The procedure for repeating the course categorized as “RA” is mentioned in Clause 9.2.

ADDITIONAL CONDONATION

Additional condonation may be considered in rare and genuine cases, which includes, approved leave for attending select NCC / Sports Camps, cases requiring prolonged medical treatment and critical illness involving hospitalization. For such select NCC / Sports Camps prior permission for leave shall be obtained by the respective faculty coordinator / Director of sports from the designated authority, before deputing the students.

CONDONATION FOR MEDICAL CASES

For medical cases, submission of complete medical history and records with prior information from the parent / guardian to Dean (Students Welfare) is mandatory. The assessment of such cases will be done by the attendance sub – committee on the merit of the case and put-up recommendations to the Vice – Chancellor. Such condonation is permitted only twice for a student in the entire duration of the program.

The Vice-Chancellor, based on the recommendation of the attendance sub - committee may then give condonation of attendance, only if the Vice-Chancellor deems it fit and deserving. but in any case, the condonation cannot exceed 10%.

ASSESSMENT PROCEDURE

B.Sc. (HOME SCIENCE-CLINICAL NUTRITION AND DIETETICS) course shall have two components of assessment namely,

- Internal Assessment Marks “IA”: This assessment will be carried out throughout the semester as per the Academic Schedule.
- End Semester Examination Marks “ES”: This assessment will be carried out at the end of the Semester as per the Academic Schedule.

S.No.	Category of Courses	NO. OF PAPER	CREDITS	TOTAL
1	Core Theory	18	4/3	72/54
2	Discipline Specific Elective course	9	4/3	32/27
3	Ability Enhancement compulsory	9	3	27
4	Skill enhancement	9	2	18
5	General Elective	6	4	24
6	Research Project /Internship	1+1	16+4+2	22

Weightage of the IA and ES for various categories of courses.

PRACTICAL COURSE ASSESSMENT WEIGHTAGES

Practical course - Internal Assessment.

For practical courses, the assessment will be done by the course teachers as below:

Assignment/Observation / lab records and viva as approved by the Department Exam Committee

“DEC”

- Internal Assessment -- 70%
- End Semester Examination -- 30%

S.No.	Category of Courses	NO. OF PAPER	CREDITS	TOTAL

1	Core Lab	18	2	36
2	Discipline Specific Elective Lab	9	2	18

Weightage for Practical course Assessment.

RESEARCH PROJECT/ SEMESTER PROJECT – ASSESSMENT

The general guidelines for assessment of Project are given in

Assessment pattern for Research Project / Semester Project

No. Review / Examination scheme Broad Guidelines Weightage

S. No.	Review / Examination scheme	Broad Guidelines	Weightage
1.	First Review	Concept	10%
2.	Second Review	Design	10%
3.	Third Review	Experiment/Analysis	20%
4.	Final Review/ESM	Project report and Viva–Voce, Results and Conclusion	60%

* Note – Novel Ideas shall be protected by IP Filling (Patent / Design / Copyright).

INTERNSHIP/RESEARCH PROJECT

A student has to compulsorily attend internship during 3rd year for a minimum period of 45 days. In lieu of internship, the student is permitted to register for undertaking case study / project work under a faculty of the University and carry out the project for minimum period of 15 days. In both the cases, the internship report in the prescribed format duly certified by the faculty in-charge shall be submitted to the HoD. The evaluation will be done through presentation and viva. The course will have a weightage as defined in the respective curriculum.

S.No.	Category	Weightage
1	Performance Appraisal	20%
2	Internship details/job description	20%
3	Internship Report	20%
4	Assessment & presentation	20%
5	Viva Voce	20%

Assessment Pattern for Internship

FINAL YEAR PROJECT ASSESSMENT

For Final year project the assessment will be done on a continuous basis as given in Table Assessment Pattern for Internship

S.No.	Review/Examination scheme	Weightage
1.	First Review	10%
2.	Second Review	10%
3.	Third Review	10%
4.	Final Review	70%

For the final year project and Viva – Voce end semester examination, the student shall submit a Project Report in the prescribed format issued by the University. The first three reviews will be

conducted by a committee constituted by the Head of the Department. The end – semester assessment will be based on the project report and a viva on the project conducted by a committee constituted by the Registrar/Controller of examination. This may include an external expert.

FORNON–CGPA COURSES/AUDIT COURSES

The assessment will be graded “Satisfactory/Not Satisfactory” and grades as Pass/Fail will be awarded. The Assessment will be done based on the respective assessment rubrics issued by the Head of the Department.

FLEXIBILITYIN ASSESSMENT

The respective departments, with the approval of the Department Exam Committee (DEC), may decide the mode of assessment based on the course requirements.

SECURINGLESSMARKS

A student securing less than the minimum specified internal assessment marks in any course (clause 8.0, Table 3), will not be permitted to appear for the end-semester examination in that course and will be graded under “CO (Carry Over)” category for that course. This will be denoted in the grade sheet as “CO (Carry Over)”, till the course is successfully completed in the sub sequent semester(s).

PROCEDURES FOR COURSE REPETITION / REPEAT EXAMINATIONS

SUMMER / WINTERCOURSE

“CO (Carry Over)” Category

- a. Students under CO (Carry Over) category i.e.
 - i. Attendance between 40% and 75% in any course(s) OR
 - ii. IA marks less than the prescribed minimum as specified in 8.0 in any course(s) OR
 - iii. Falls under both 1 and 2 above are eligible for registering for the Summer/Winter Course which will be conducted during the Summer / Winter break, to improve their Attendance and/or IA marks in the courses, by paying the prescribed registration fee fixed from time to time as per University Norms.
- b. The Odd semester regular courses will be offered only in the winter and the even semester regular courses will be offered only in the summer.
- c. CO (Carry Over) students shall register by payment of prescribed Examination fee and attend the classes during the summer/winter break and take assessments to earn minimum internal marks and/or required attendance, to become eligible for writing the Repeat Examinations.
- d. The revised IA marks shall not exceed 60% of the total internal weight age for any repeat course.
- e. Re-Registration for ‘CO (Carry Over)’ category.

Students under the "CO (Carry Over)" category who fail to improve their attendance and/or IA marks and are not eligible to write the Repeat Examination through the immediate summer/winter course are

permitted to re-register for the summer/winter course again under the "CO (Carry Over)" category whenever it is offered in subsequent semesters during their period of study by paying 35% of the prescribed semester fees. It is the responsibility of the student to fix appropriate slots in the summer/winter course timetable. If the student is unable to fix the slots in the timetable, they will not be able to register. The course will remain in the "CO (Carry Over)" category until the student successfully completes it.

COURSE-REPETITION-“RA”CATEGORY

- a. Students who secure less than 40% attendance in any course(s) in a semester will be categorized under the "RA" category, meaning they must repeat the course(s) due to insufficient attendance. The IA marks obtained by students in the "RA" category will become null and void.
- b. Students in the "RA" category must re-register for the same course(s) whenever it is offered in subsequent regular semesters. They must secure the required minimum attendance and internal assessment marks to become eligible to appear for the end-semester examination in that course, by paying the requisite fee.
- c. It is the student's responsibility to schedule their timetable to include the "RA" courses without affecting their attendance in the regular courses of the current semester.
- d. Normally, a student is permitted to register for up to 3 "RA" courses in a semester. However, students wishing to register for more than 3 "RA" courses may do so only if they find suitable slots for the courses within the framework of the regular semester timetable. Requests for registering more than 3 "RA" courses in a semester must be approved by the respective Heads of Departments (HODs).
- e. Students have the option to drop regular courses proportionally during the course registration process, provided it does not affect the minimum credit requirement specified. Such dropped courses will be categorized as "RA." However, the student must complete these dropped courses in subsequent semesters.
- f. It is the student's responsibility to allocate slots for "RA" courses within the timetable framework and slot availability without affecting their regular courses.
- g. Detention.

A student who secures "RC" or "RA" or both in all the theory courses prescribed in a semester shall repeat the semester by registering for it in the next academic year. However, he/she is permitted to appear for arrear examinations as per eligibility.

REPEAT EXAMINATIONS

- a. Normally, the results of the End Semester Examinations for regular theory courses are announced within a period of 15-20 days after the last regular examination.
- b. During the even semester, the Repeat Examinations will be conducted for even semester courses, and during the odd semester, the Repeat Examinations will be conducted for odd semester courses.

- c. The schedule for the Repeat Examinations will be notified through the Academic Calendar, which will be published at the beginning of every academic year.
- d. Students under the “CO (Carry Over)” category, who have secured the requisite attendance and internal assessment marks by successfully completing the Summer/Winter course, are eligible to register for the Repeat Examinations.
- e. Students who fail to secure a pass or are absent for genuine reasons in their End Semester Examination for regular courses are permitted to appear for the Repeat Examinations by paying the prescribed fee.
- f. For Supplementary Examinations, students with an “F” grade in any course shall register by paying the requisite fee and appear in the Repeat Examinations.
- h. Students who wish to apply for the revaluation of their answer scripts (Regular/Supplementary/Repeat Examinations) should apply immediately after the announcement of results.

MAXIMUM DURATION OF THE PROGRAM

A student may complete the program at a slower pace than the regular pace, but in any case, in not more than N+2 years. A student completing the degree programs in the extended period will not be eligible for university ranking.

TEMPORARY WITHDRAWAL FROM THE PROGRAMME

MAXIMUM DURATION TO CLEAR BACKLOG

A student is permitted to take a break, up to a maximum of 2 semesters, during the entire programme to clear the backlog of arrears.

MAXIMUM GAPS OF TWO SEMESTERS

A student may be permitted by the Vice-Chancellor to withdraw from the entire programme for a maximum of two semesters for reasons of ill health, start-up venture or other valid reasons as recommended by a committee consisting of Head of Department, Dean of School, and Dean (Student Welfare).

DECLARATION OF RESULTS

Declaration of results is a crucial element of the educational system of an institute on which rest its credibility and reputation. In order to strengthen the process of result declaration, it is important to incorporate the following features:

1. Timeliness of declaration of result
2. Clarity of interpretation of the Result Card
3. Comprehensive Format
4. Accessibility

5. Verifiability

TIME LINNESS OF THE RESULT DECLARATION

Time lines will made essential in case of both internal and external components of evaluation. The following table shows a time line for formative, internal, assessments and summative assessments.

Table: Timeline for Formative

Formative Assessment (Internal)	
Daily Tasks	Before the next task
Weekly Tasks	Before the next task
Unit End Tests	One week
Summative Assessment (External/Internal)	
External Components	45days
Internal Components	7-10days

CLARITYOFINTERPRETATION

In the result, having both internal and external components, it is desirable that both will be mentioned separately, followed by the overall grade. The result will be easy to comprehend. The essential will be included at the back of the result, information about the grading and credit system, interpretation of grades and conversion of grades to percentage.

COMPREHENSIVEFORMATOF THEREPORT

Results reflect the achievement and competency of learners across all dimensions. A single grade, percentage, or score cannot depict the entire range of achievements of a learner. The result will be comprehensive and include all aspects of learning outcomes, i.e., Academic, Social, Moral, and Spiritual. The university will evolve a format and granularity to suit their assessment profiles and display the achievement of learners in respective areas.

ACCESSIBILITY

Semester end results will be declared online for both internal as well as external components. This could be in the form of awarded letter grades only. A provision will be made in the website through an automated system whereby students can view their mark sheet through individual logins. To make the system secure, the details such as PRN, seat number will be necessary fields to view results. This will enhance the accessibility and transparency of the evaluation process and will also give the flexibility to present details of evaluation on different learning outcomes. There will be a provision to access results of preceding semesters also. The results on completion of the program will be accessible to external agencies, e.g., potential employers, other higher educational institutions, for verification of student credentials. Transcripts will be made available as and when requested.

VERIFIABILITY

Results and Academic Awards will be valid, comprehensive, and verifiable by external agencies as they have significant link with the entire career path of the students. The verifiability of results by prospective employers, HEIs and other agencies will be managed through the National Academic Depository (NAD) (<http://nad.gov.in/>). (As per the NAD Website, NAD is a 24X7 online store house of all academic awards i.e., certificates, diplomas, degrees, mark sheets etc. duly digitized and lodged

by academic institutions/boards/eligibility assessment bodies. NAD not only ensures easy access to and retrieval of an academic award but also validates and guarantees its authenticity and safe storage. This will enable educational institutions, students and employers' online access/retrieval/verification of digitized academic awards and shall eliminate fraudulent practices such as forging of certificates and mark-sheets).

A student shall secure the minimum marks as prescribed in Clause 8.0 Table 3 in all categories of courses in all the semesters to secure a pass in that course.

Supplementary Examinations: If a candidate fails to secure a pass in Practical/Theory with Practical component / Design Project / Internship / Comprehension courses, due to not satisfying the minimum passing requirement ("U" grade) – as per clause 13.1 he/she shall register for the course by paying the prescribed fee in the subsequent semesters whenever offered by the departments. During the even semester, the supplementary exams will be conducted for even semester courses and during the odd semester the supplementary exams will be conducted for odd semester courses. He/she need not attend the contact course. However, the Internal Assessment marks secured by the candidate will be retained for all such attempts.

A candidate can apply for the revaluation of his/her end semester examination answer script in a theory course, after the declaration of the results, on payment of a prescribed fee.

After 3 years, the internal assessment marks obtained by the candidate will not be considered in calculating the passing requirement. A candidate who secures 40% in the end semester examination will be declared to have passed the course and earned the specified credits irrespective of the score in internal assessment marks.

Revaluation is not permitted for Practical/Theory with Practical component/Design Project /Internship/Comprehension courses. However, only for genuine grievances as decided by the Exam Grievance Committee a student may be permitted to apply for revaluation.

Candidate who earns required credits for award of degree after N+2 years (on expiry of extended period of 2 semesters over and above normal duration of course) he/she will be awarded only second class irrespective of his/her CGPA. However, the period approved under temporary withdrawal, if any, from the program (11.0) will be excluded from the maximum duration as mentioned above.

Semester Abroad Program: Students who are allowed to undergo internship or Training in Industries in India or abroad during their course work or attend any National / International Institute under semester abroad program (SAP) up to a maximum of 2 semesters will be granted credit equivalence for the Course Work/project work done by them in the Industry/Foreign Institute as per the recommendations of the credit transfer committee.

STUDENT DISCIPLINE

Every student is required to observe utmost discipline and decorum both inside and outside the campus and not to indulge in any activity which may affect adversely the prestige reputation of the University.

STUDENT WELFARE

Any act of indiscipline by a student reported to the Dean (Students Welfare) and the Head of the

Department will be referred to a Discipline Committee constituted for the purpose. The committee will inquire into the charges and decide on a suitable punishment if the charges are substantiated. The committee will also authorize the Dean (Students Welfare) to recommend the implementation of the decision to the Vice-Chancellor. The student concerned may appeal to the Vice-Chancellor, whose decision will be final.

RAGGING

Ragging in any form is a criminal and non-billable offence in our country. The current State and Central legislations provide stringent punishments including imprisonment. Once the involvement of a student(s) is established in ragging, offending fellow students/staff, harassment of any nature to the fellow students/staff etc. the student(s) will be liable to be dismissed from the University, as per the laid down procedures of the UGC / Govt. /Institute. Every senior student at the University, along with their parent, shall give an undertaking every year in this regard and the same should be submitted at the time of Registration.

CREDIT SYSTEM AND GRADING

INTRODUCTION- CREDIT SYSTEM AND GRADING

IIMT-University implemented the UGC guidelines to all Universities in 2015 for implementation of the choice-based credit system with a view to offer student's choice of courses within a program with a flexibility to complete the program by earning credits at a pace decided by the students themselves.

The system allowed students to choose inter-disciplinary, intra-disciplinary courses according to their learning needs, interest and aptitude. It was considered as a cafeteria approach and was expected to provide mobility to students.

As per the Current credit system practiced in institutions needs comprehensive reforms as they offer very little flexibility, choice and are less learner centric. Degrees offered today are more self-contained focusing on a specialization area and depend a lot on knowledge available with the faculty from the department only. Though the most requisite credit system does exist, wherein students are given a wide choice and flexibility, these exist as small islands in the vast ocean of thousands of educational institutes in India. In such institutions, the curriculum is frequently designed which is learner centric and offering a wide specialization area for students to pick and choose courses from.

The institutions shall make attempts wherein the design of the credit system and the teaching and evaluation modes shall be the responsibility of individual course teachers. The students should have the freedom to opt for courses from other specializations and not just from their core specialization.

For this there has to be stronger collaborations between departments of the University and outside.

GRADING SYSTEM

Most institutions follow the absolute grading system which is a simple procedure wherein the marks obtained by students correspond to a specific grade and grade point. It reflects the individual performance in a particular subject without any reference to the group/class. The absolute grading system has limitations and may be susceptible to some inconsistencies.

The relative grading system on the other hand provides relative performance of a student to a group/class wherein the student is ranked in a group/class on basis of relative level of achievement. In

the system decisions are made in advance by the faculty members as to what proportion of students would be awarded a particular grade on the basis of their relative performance and which is done by assigning grades on basis of a normal curve. This facilitates comparative performance and eliminates negative effect of pass or fail.

Relative grading system may be used if the number of students registered for the course is at least 30.

For a class of smaller size, an absolute grading scheme may be used. The statistical method may be used with adjustments to calculate the mean (M), median (Md) and standard deviation (SD) of the total marks (TM) obtained by the students registered for the course. If the mean and median coincide, the mean may be used for further computations, otherwise the median may be used. If suppose the mean is used, then the letter grades may be awarded based on the ranges specified in table below:

S.N.	Letter	Percentage	Grade Point	Remarks
1	O	Above 90%	9-10	Ordinary
2	E	80-90%	8-<9	Excellent
3	A+	70-79.99%	7-<8	Very Good
4	A	60-69.99%	6-<7	First
5	B	55-59.99%	5.5-<6	Good
6	C	50-54.99%	5-<5.5	Pass
7	D	Below 50%	<5	Not Success

Letter grades may be improved based on the following scheme: Use the table above to determine grade boundaries. Look for natural gaps in the neighborhood of grade boundaries. Choose the largest gap in the neighborhood and make this as the grade boundary.

An 'E', 'E+' and 'F' grade may not be a purely relative grade. These may be assigned on the following basis:

- A minimum, say 30/100, may be set as pass marks for the course. A fail grade may then be awarded only if the Total Marks for the course are less than 30. Otherwise, the students may be awarded the Just Pass Grade D.
- A fail grade may be awarded to students whose marks are below the prescribed minimum even if the table above leads to a pass grade.

Similarly, a lower limit may be set for the A grade also, for instance greater than or equal to 86. Students not achieving the prescribed minimum may be awarded a lower letter grade even if the table above indicates otherwise. A pass grade may be made mandatory for both internal as well as external examinations in the case of a separate internal and external assessment,

- Internal and External marks may be summed up with appropriate weightages to compute a total out of 100 marks. The letter grade may be assigned on this computed total.
- Internal and external marks may be graded separately and then the assigned grade points may be used, with appropriate weightages, to compute a final grade point and letter grade.

Grading in the case of Re-evaluations, Retests and Remedial Examinations may be based on the following guidelines:

- a. The ranges of marks once computed for awarding letter grades the first time, called the First Distribution (FD), will not be modified.
- b. If a re-evaluation leads to a change in marks, then FD will be used to award an appropriate letter grade.
- c. A retest may be permitted if:
 - ❖ A student gets a letter grade of E. In this case, irrespective of the marks obtained, at most D grade may be awarded.
 - ❖ A student is unable to complete course requirements because of certified illness or tragedy. In this case FD will be used to award an appropriate letter grade.

The use of relative grading system may be recommended in autonomous institutions, institutes of national importance and institutions with high ranking. The results of the relative grading system may be shared by such institutions later with other interested institutions to implement the same.

GPA and CGPA

GPA is the ratio of the sum of the product of the number of credits C_i of course “i” and the grade points P_i earned for that course taken over all courses “i” registered and successfully completed by the student to the sum of C_i for all “i”. That is,

$$\text{GPA / CGPA} = \frac{\sum_{i=1}^n C_i GP_i}{\sum_{i=1}^n C_i}$$

CGPA will be calculated in a similar manner, in any semester, considering all the courses enrolled from the first semester onwards.

- The Grade card will not include the computation of GPA and CGPA for courses with letter grade CO, RC and U until those grades are converted to the regular grades.
- A course successfully completed cannot be repeated.

GRADE SHEET

LETTER GRADE

Based on the performance, each student is awarded a final letter grade at the end of the semester in each course. The letter grades and corresponding grade points are given in Table 8.

A student is considered to have completed a course successfully and earned credits if he/she secures a letter grade other than F, CO, RA in that course.

- After results are declared, grade sheet will be issued to each student which will contain the following details:
 - a. Program and discipline for which the student has enrolled.
 - b. Semester of registration.
 - c. The course code, name of the course, category of course and the credits for each course registered in that semester
 - d. The letter grade obtained in each course
 - e. Semester Grade Point Average (GPA)
 - f. The total number of credits earned by the student up to the end of that semester in each of the course categories.
 - g. The Cumulative Grade Point Average (CGPA) of all the courses taken from the first semester.
 - h. Credits earned under Non CGPA courses.
 - i. Medium of Instruction is English.
 - j. Grade Equivalency.

CLASS/DIVISION

45.1 CLASSIFICATION IS BASED ON CGPA AND IS AS FOLLOWS:

1. $CGPA \geq 8.0$: First Class with distinction
2. $6.5 \leq CGPA < 8.0$: First Class
3. $5.0 \leq CGPA < 6.5$: Second Class.

FIRST CLASS WITH DISTINCTION

- (i) Further, the award of 'First class with distinction' is subject to the candidate becoming eligible for the award of the degree having passed the examination in all the courses in his/her first appearance with effect from II semester, within the minimum duration of the program.
- (ii) The award of 'First Class' is further subject to the candidate becoming eligible for the award of the degree having passed the examination in all the courses within 4 years for undergraduate Engineering.
- (iii) The period of authorized break of the program (vide clause 11.0) will not be counted for the Purpose of the above classification.

TRANSFER OF CREDITS

- Within the broad framework of these regulations, the Academic Council, based on the recommendation of the Credit Transfer Committee so constituted may permit students to transfer part of the credit earned in other approved Universities of repute & status in the India or abroad.
- The Academic Council may also approve admission of students who have completed a portion of course work in another approved Institute of repute under Multiple entry & Exit system, based on the recommendation of the credit transfer committee on a case-to-case basis.
- Students who have completed coursework, at least first year, at some university other than the university to which transfer is sought (may request for transfer of admission to this university. A student may be granted admission only through an admission process that will follow the same policy as for fresh admissions. However, a uniform credit system must be followed by all universities to effect transfer of credits.
- Credit Transfer request can be submitted only after the student has been admitted in the concerned program and the following conditions are met:
 - i. The course work has been completed at a UGC approved and accredited University through fulltime formal learning mode.
 - ii. The university accreditation grade/ ranking is not lower than that of the university to which the transfer is sought.
 - iii. The courses prescribe to the common minimum syllabus under UGC CBCS system.
 - iv. The letter grade obtained in the courses is “B” or better.
 - v. The number of credits to be transferred does not exceed the prescribed limit.
 - vi. The program in question must have a similar credit system, in particular, modular or semester and the same numeric and letter grading system along with common meaning of the term “credit” in numerical terms.

The aspect of shelf life of courses needs to be considered while accepting credits as obsolescence of knowledge of certain field in terms of its current relevance needs to be investigated. The time lapsed between successful completion of certain courses of the program and the admission to which program transfer is sought needs to be considered. The maximum number of credit points that maybe considered under a credit transfer needs to be specified. Contextual variables such as teaching-learning approach adopted, learning facilities offered, use of evaluation modes may also be considered while preparing the credit transfer policy.

CHANGE OF DISCIPLINE

- If the number of students in any discipline of Engineering program as on the last instructional day of the First Semester is less than the sanctioned strength, then the vacancies in the said disciplines can be filled by transferring students from other disciplines subject to eligibility.

- If any Student of Engineering program wants to change from Engineering to any program/ any discipline as per their eligibility they are permitted to change on or before 30 calendar days from the first day of commencement of program as per academic calendar.
- All students who have successfully completed the first semester of the course will be eligible for consideration for change of discipline subject to the availability of vacancies and as per norms.
- All such transfers will be allowed based on merit of the students. The decision of the Vice-Chancellor shall be final while considering such requests.

MODERATION

Moderation of assessment is an organized procedure which ensures use of valid assessment material and consistent application of criteria, to provide fair academic judgment and reliable outcome in the form of marks or grades. It assures appropriate designing and implementation of assessment activities along with generation of valid and reliable results.

Integration of moderation process with assessment system is imperative for the development of academic quality in higher educational institutions as:

- It addresses any difference in individual judgments of different evaluators.
- It ensures that all achievements in the form of marks and grades across courses reflect achievement of same level of standard.
- It is also carried out to develop a common understanding of the standards and criteria and to recognize performance which demonstrates that standard or fulfils those criteria.

Moderation may be conducted in case there are large number of fail grades or high grades, or when large numbers of students who have received the same grade or clustering of students on letter grades, or when there are discrepancies between grades allocated to individual students in different courses, or to find out the difficulty level of the question paper or whether the assessments modes used cover the entire syllabus or not.

Applicability: Moderation will be made applicable to both external and internal modes of assessment. All programs and courses will indicate, as part of their statements on assessment, arrangements for the moderation of assessed work. This can be done through formulation of a moderation policy and implemented across all programs and courses of instruction and delivery. The time frame for the moderation will be linked with the time frame for assessment.

In the event a moderation is triggered, an evaluation will begin with a discussion on the following (though not exhaustive) lines:

- a. What are the rubrics used for each of the different types of assessment in the course? Is a standardized/prescribed rubric used or has the instructor developed his/ her own rubric. If the instructor is using a personally framed rubric, or if there is no identified rubric, then how does the assessment map to learning outcomes?

- b. The difficulty level of the questions included in the assessments, i.e., is the difficulty level on the extremes, very easy or very hard.
- c. The manner of awarding marks, i.e., has the correction been at the extremes, liberal or tough. Each department will establish a committee and designate roles and responsibilities at different levels for smooth working of the moderation process. In order to maintain neutrality, it will be ensured that moderator should not be the assessor. Staff members will be trained professionally in assessment techniques and moderation procedures. All assessment material produced by learner including examination sheets, assignments, project reports, research reports etc. will be examined. Institutions will be encouraged to make the moderation process online. In this system, assessment plans, moderation plans, assessment tools, samples of which may be submitted online. Moderation reports will be generated online so that progress can be tracked and submitted to the COE after the approval of dean by Head of the department. The moderation will not be restricted to just assessment but also include moderation of content and assessment design.

USE OF TECHNOLOGICAL INTERVENTIONS

With the proliferation of different types of access devices, especially mobile access devices, technology has the potential to augment traditional classroom practices and revolutionize learning and evaluation methods. Technology, in fact can be an important driver to enable lifelong learning. Learning and engagement of students is facilitated by use of technology through several modes such as synchronous learning, semi-synchronous learning, blended learning, collaborative learning, flipped classroom etc.

MOOC's, especially provided through SWAYAM, are a window of opportunity for lifelong learning and are offered through technology-based platforms. Learning management systems (LMS) may be used by institutions to integrate the entire teaching, learning and evaluation process. The Learning Management System may be used by institutions to deliver academic content in blended form and to assess learning through thesis, assignments etc. Open-source learning management systems such as Moodle, Edmodo may be used for posting content in the form of videos, audios, e-learning modules, live class sessions etc. Use of plagiarism detection software will be highly recommended to check originality of content.

In the conduct of examinations, universities face tremendous challenges such as need for trained manpower, distribution of question paper without delays and errors, delays in evaluation of answer scripts, lack of infrastructure to conduct examinations at a large scale, non-availability of faculty members for assessment, security issues faced during paper setting and paper distribution, tampering of certificates and answer scripts etc.

For a typical examination department of an institution will be an autonomous body right from registration of student to convocation through an integrated system. In fact, steps must be taken to implement a complete examination management system that considers the complete life cycle of examination process. The use of technology will reduce dependency on human intervention and be error free. The following functions will be automated:

- i. Registration of students and generating unique PRN,

- ii. Filling up of examination form,
- iii. Generation of seat numbers and admit cards/hall tickets,
- iv. Preparation of list of paper setter,
- v. Use of question bank system to draw question sets, question paper generation,
- vi. Online distribution of question papers on the day of examination with system of encryption,
- vii. Barcode system for answer books (this will eliminate issues related to errors, avoid malpractices etc.),
- viii. Digitization of answer scripts and onscreen evaluation of answer sheets,
- ix. Tracking of student's performance,
- x. Marks submission through online software,
- xi. Viewing of result through online system,
- xii. Online verification and revaluation system,
- xiii. Digitization of certificates and mark sheets (to avoid tampering and easy retrieval),
- xiv. Certificate authentication system,
- xv. Submission of various other applications through online system.

The above will lead to conduct of functions of the examination system in an efficient and transparent manner and timely availability of information to students.

POWER TO MODIFY

Notwithstanding all that has been stated above, the Academic Council is vested with powers to modify any or all the above regulations from time to time, if required, subject to the approval by the Board of Studies and Final approval by Vice-Chancellor.

Evaluation Scheme

BACHELOR'S OF SCIENCE (Food Science, Nutrition and Dietetics)

CERTIFICATE IN (Food Science, Nutrition and Dietetics)

Year: I / Semester: I

S.NO.	COURSE CATEGORY	COURSE CODE	COURSE TITLE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
1	CORE THEORY-1	FSND-111	Fundamentals of Nutrition	4	0	0	25	75	100	4
2	CORE THEORY-2	FSND-112	Human Anatomy and Physiology	4	0	0	25	75	100	4
3	DSE-1	FSND-113A	Introduction to Advanced Food Science	4	0	0	25	75	100	4
		FSND-113B	Macronutrients and Human Nutrition							
4	AECC-1	NHU-N-121	English Communication	3	0	0	15	35	50	3
5	CORE LAB-1	FSND-111P	Fundamentals of Nutrition Lab	0	0	2	15	35	50	2
6	CORE LAB-2	FSND-112P	Human Anatomy and Physiology Lab	0	0	2	15	35	50	2
7	DSE LAB-1	FSND-113AP	Introduction to Advanced Food Science Lab	0	0	2	15	35	50	2
		FSND-113BP	Macronutrients and Human Nutrition Lab							
8	SEC-1	FSND-114	Food Safety and Standards	2	0	0	15	35	50	2
9	SEC-2	FSND-115	SPORTS	0	0	0	25	0	25	0
10	GE-1	GE	To be Decided by the University	4	0	0	25	75	100	4
11	NC	FSND-117	Computer Literacy	0	0	0	25	0	25	0
12	NC	FSND-118	Industrial visit	0	0	0	25	0	25	0
13	NC	FSND-119	University Social Responsibilities	0	0	0	25	0	25	0
TOTAL				21	0	6	275	475	750	27

CERTIFICATE IN (Food Science, Nutrition and Dietetics)
Year: I / Semester: II

S. NO.	COURSE CATEGORY	COURSE CODE	COURSE TITLE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
1	CORE THEORY-3	FSND-121	Food Microbiology	3	0	0	25	75	100	3
2	CORE THEORY-4	FSND-122	Fundamentals of Biochemistry	3	0	0	25	75	100	3
3	DSE-2	FSND-123A	Psychology and Sociology Applied to Health Care	3	0	0	25	75	100	3
		FSND-123B	Maternal and Pediatric Nutrition							
4	AECC-2	NHU-NPR-122	Environment and Ecology	3	0	0	15	35	50	3
5	CORE LAB-3	FSND-121P	Food Microbiology Lab	0	0	2	15	35	50	2
6	CORE LAB-4	FSND-122P	Fundamentals of Biochemistry Lab	0	0	2	15	35	50	2
7	DSE LAB-2	FSND-123AP	Psychology and Sociology Applied to Health Care Lab	0	0	2	15	35	50	2
		FSND-123BP	Maternal and Pediatric Nutrition Lab							
8	VAC-1	FSND-VAC-124	MOOCs/NPTEL (E/IPR)	2	0	0	50	0	50	2
9	SEC-3	SPWC-121	Sports	0	0	1	0	25	25	1
10	SEC-4	FSND-124	Elementary Statistics	2	0	0	15	35	50	2
11	NC	FSND-125	Personality Development	0	0	0	25	0	25	0
12	NC	FSND-126	Industrial visit	0	0	0	25	0	25	0
13	NC	FSND-127	University Social Responsibilities	0	0	0	25	0	25	0
			TOTAL	16	0	7	275	425	700	23

DIPLOMA IN (Food Science, Nutrition and Dietetics) Year: II / Semester: III										
S. NO.	COURSE CATEGORY	COURSE CODE	COURSE TITLE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
1	CORE THEORY-5	FSND-231	Techniques of Nutritional Assessment	3	0	0	25	75	100	3
2	CORE THEORY-6	FSND-232	Introduction to Advanced Dietetics	3	0	0	25	75	100	3
3	DSE-3	FSND-233A	Basics of Medical Nutrition Therapy	3	0	0	25	75	100	3
		FSND-233B	Therapeutic Meal Preparation							
4	AECC-3	FSND-234	Indian Knowledge System on Foods	3	0	0	15	35	50	3
5	CORE LAB-5	FSND-231P	Techniques of Nutritional Assessment Lab	0	0	2	15	35	50	2
6	CORE LAB-6	FSND-232P	Introduction to Advanced Dietetics Lab	0	0	2	15	35	50	2
7	DSE LAB-3	FSND-233AP	Basics of Medical Nutrition Therapy Lab	0	0	2	15	35	50	2
		FSND-233BP	Therapeutic Meal Preparation Lab							
9	VAC-2	FSND-VAC-234	MOOCs/NPTEL	2	0	0	50	0	50	2
10	GE-2	-	To be Decided by the University	4	0	0	25	75	100	4
11	SEC-	FSND-235	Food Quality and Quantity Assurance	2	0	0	15	35	50	2
11	NC	FSND-236	Soft Skills	0	0	0	25	0	25	0
12	SEC-6	SPNC-237	Sports	0	0	0	25	0	25	0
13	NC	FSND-238	Industrial Visit	0	0	0	25	0	25	0
14	NC	FSND-239	USR	0	0	0	25	0	25	0
			TOTAL	20	0	6	325	475	800	26

DIPLOMA IN (Food Science, Nutrition and Dietetics) Year: II / Semester: IV										
S. NO.	COURSE CATEGORY	COURSE CODE	COURSE TITLE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
1	CORE THEORY-7	FSND-241	Sports and Fitness Nutrition	3	0	0	25	75	100	3
2	CORE THEORY-8	FSND-242	Public Health Nutrition	3	0	0	25	75	100	3
3	DSE-4	FSND-243A	Functional Foods and Nutraceuticals	3	0	0	25	75	100	3
		FSND-243B	Nutrition and Lifestyle Management							
4	AECC-4	FSND-244	Micronutrients in Human Nutrition	3	0	0	15	35	50	3
5	CORE LAB-7	FSND-241P	Sports and Fitness Nutrition Lab	0	0	2	15	35	50	2
6	CORE LAB-8	FSND-242P	Public Health Nutrition Lab	0	0	2	15	35	50	2
7	DSE LAB-4	FSND-243AP	Functional Foods and Nutraceuticals Lab	0	0	2	15	35	50	2
		FSND-243BP	Nutrition and Lifestyle Management Lab							
8	SEC-7	FSND-245	Nutrition in Emergencies and Disaster	2	0	0	15	35	50	2
9	SEC-8	SPWC-241	SPORTS	0	0	1	0	25	25	1
10	VAC-2	FSND-VAC-246	MOOCs/ NPTEL (E/IPR)	2	0	0	50	0	50	2
11	Industrial Training / Survey/ Research Project	FSND-247	Applied Dietetics Internship Project	4	0	0	40	60	100	4
12	NC	FSND-248	Industrial Visit	0	0	0	25	0	25	0
13	NC	FSND-249	University Social Responsibilities	0	0	0	25	0	25	0
TOTAL				20	0	7	290	485	775	27

B.Sc. (Food Science, Nutrition and Dietetics) Year: III / Semester: V										
S. NO.	COURSE CATEGORY	COURSE CODE	COURSE TITLE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
1	CORE THEORY-9	FSND-351	Entrepreneurship in Nutrition and Dietetics	3	0	0	25	75	100	3
2	CORE THEORY-10	FSND-352	Nutritional Epidemiology and Anthropology	3	0	0	25	75	100	3
3	DSE-5	FSND-353A	National Health and Nutrition Programs and Policies	3	0	0	25	75	100	3
		FSND-353B	Management and Administration in Dietetics							
4	AECC-5	FSND-354	Tools and Techniques for Nutrition Counselling	3	0	0	15	35	50	3
5	CORE LAB-9	FSND-351P	Entrepreneurship in Nutrition and Dietetics Lab	0	0	2	15	35	50	2
6	CORE LAB-10	FSND-352P	Nutritional Epidemiology and Anthropology Lab	0	0	2	15	35	50	2
7	DSE LAB-5	FSND-353AP	National Health and Nutrition Programs and Policies Lab	0	0	2	15	35	50	2
		FSND-353BP	Management and Administration in Dietetics Lab							
8	SEC-9	FSND-355	Food Analysis	2	0	0	15	35	50	2
9	SEC-10	SPNC-351	SPORTS	0	0	0	25	0	25	0
10	GE-3	GE	To be Decided by the University	4	0	0	25	75	100	4
11	NC	FSND-356	Sanskrit	1	0	0	25	0	25	0

12	NC	FSND-357	Industrial visit	0	0	0	25	0	25	0
13	NC	FSND-358	University Social Responsibilities	0	0	0	25	0	25	0
TOTAL				19	0	6	275	475	750	24

B.Sc. (Food Science, Nutrition and Dietetics) Year: III / Semester: VI										
S. NO.	COURSE CATEGORY	COURSE CODE	COURSE TITLE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
1	CORE THEORY-11	FSND-361	Social Behaviour Change Communication/ Nutrition Health Promotion	3	0	0	25	75	100	3
2	CORE THEORY-12	FSND-362	Nutrition through Life Cycles	3	0	0	25	75	100	3
3	DSE-6	FSND-363A	Sustainable Food Management	3	0	0	25	75	100	3
		FSND-363B	Community Nutrition							
4	AECC	FSND-364	Fundamentals of Research Methods	3	0	0	15	35	50	3
5	CORE LAB-11	FSND-361P	Social Behaviour Change Communication/ Nutrition Health Promotion Lab	0	0	2	15	35	50	2
6	CORE LAB-12	FSND-362P	Nutrition through Life Cycles Lab	0	0	2	15	35	50	2
7	DSE LAB-6	FSND-363AP	Sustainable Food Management Lab	0	0	2	15	35	50	2
		FSND-363BP	Community Nutrition Lab							
8	SEC-11	FSND-365	AI Nutrition Intrigation	2	0	0	15	35	50	2
9	SEC-12	SPWC-361	Sports	0	0	1	0	25	25	1
10	VAC-3	FSND-VAC-366	MOOCs/NPTEL (E/IPR)	2	0	0	50	0	50	2
11	Industrial Training /Survey /Research Project	FSND-367	Case Study/Survey/Review Study	0	0	4	25	75	100	4

12	NC	FSND-368	Industrial visit	0	0	0	25	0	25	0
13	NC	FSND-369	University Social Responsibilities	0	0	0	25	0	25	0
			TOTAL	16	0	11	275	500	775	27

B.Sc. (Food Science, Nutrition and Dietetics, Honours with Research)
Year: IV / Semester: VII
(OPTIONAL)

S.NO.	COURSE CATEGORY	COURSE CODE	COURSE TITLE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
1	CORE THEORY-13	FSND-471	Advanced Human Nutrition and Metabolism	3	0	0	25	75	100	3
2	CORE THEORY-14	FSND-472	Advanced Pathophysiology	3	0	0	25	75	100	3
3	DSE-7	FSND-473A	Research Trends in Nutrition and Dietetics	3	0	0	25	75	100	3
		FSND-473B	Innovation in Food Product Development							
4	AECC-7	FSND-474	Research Methodology and Statistics	3	0	0	15	35	50	3
5	CORE LAB-13	FSND-471P	Advanced Human Nutrition and Metabolism Lab	0	0	2	15	35	50	2
6	CORE LAB-14	FSND-472P	Advanced Pathophysiology Lab	0	0	2	15	35	50	2
7	DSE LAB-7	FSND-473AP	Research Trends in Nutrition and Dietetics Lab	0	0	2	15	35	50	2
		FSND-473BP	Innovation in Food Product Development Lab							
8	SEC-13	FSND-475	Advanced Nutritional Counseling Skills	2	0	0	15	35	50	2
9	SEC-14	SPNC-476	Sports	0	0	0	25	0	25	0

10	GE-4	GE	To be Decided by the University	4	0	0	25	75	100	4
11	NC	FSND-477	Professional Skills	0	0	0	25	0	25	0
12	NC	FSND-478	Industrial visit	0	0	0	25	0	25	0
13	NC	FSND-479	University Social Responsibilities	0	0	0	25	0	25	0
TOTAL				18	0	6	275	475	750	24

B.Sc. (Food Science, Nutrition and Dietetics, Honours with Research)
Year: IV / Semester: VIII

S. NO.	COURSE CATEGORY	COURSE CODE	COURSE TITLE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
1	CORE THEORY-15	FSND-481	Food Toxicology and Safety	3	0	0	25	75	100	3
2	CORE THEORY-16	FSND-482	Institutional Food Service Management	3	0	0	25	75	100	3
3	DSE-8	FSND-483A	Advanced Biochemistry	3	0	0	25	75	100	3
		FSND-483B	Nutrition Assessment Methods and Application							
4	AECC-8	FSND-484	Research Publication and Ethics	3	0	0	15	35	50	3
5	CORE LAB-15	FSND-481P	Food Toxicology and Safety Lab	0	0	2	15	35	50	2
6	CORE LAB-16	FSND-482P	Institutional Food Service Management Lab	0	0	2	15	35	50	2
7	DSE LAB-8	FSND-483AP	Advanced Biochemistry Lab	0	0	2	15	35	50	2
		FSND-483BP	Nutrition Assessment Methods and Application Lab							
8	SEC-15	FSND-VAC-485	MOOCs/NPTEL (E/IPR)	2	0	0	50	0	50	2
	VAC-4	FSND- 485	Emerging Trends in Nutrition	2	0	0	15	35	50	2
9	SEC-16	SPWC-481	Sports	0	0	1	0	25	25	1

10	Industrial Training /Survey/ Research Project	FSND-486	Seminar/Industrial Training/Research	0	0	4	25	75	100	4
11	NC	FSND-487	Industrial visit	0	0	0	25	0	25	0
12	NC	FSND-488	University Social Responsibilities	0	0	0	25	0	25	0
			TOTAL	16	0	11	275	500	775	27



Format-1

IIMTU-NEP IMPLEMENTATION

CBCS: Statement of Credit distribution

College/School: School of Hotel Management Catering & Tourism Programme: B.Sc. (Food Science Nutrition & Dietetics) Duration:03+1 Annual/Semester- Total 6 semesters	Credit range: (suggested by CBCS Committee)

Attached guidelines to be followed:

	Cr.	Sem.	Core Course/ Foundation Course Th (6 cr) or	Ability Enhancement Compulsory Course (AECC)	Skill Enhancement Course (SEC)	Discipline Specific Elective (DSE)	Generic Elective (GE) (From other Faculty)	Research Project (RP)
Course Names as per UGC	53	I	C-1 (4 Credit)+ P-1 (2 Credit)/T-1 (1 Cr.) FC-1 (3 Credit) 3/4/5/6 Cr.	AECC-1 (Credit) 3 Cr./Each	SEC-1 (Credit) 2 Cr./Each	DSE-1 (Credit) 3 or 4/5/6 Cr.	GE-1 (Credit) 3 or 4/5/6 Cr. 4 Cr./4 Cr.	Industry Training/ Internship Survey (4Cr.)
Course Names as per Higher Education (HE)			MAJOR-1 4/5/6 Cr.	Vocational 3 Cr.	Co-Curricular 2 Cr.	MAJOR-2 4/5/6 Cr.	MAJOR-3 4/5/6 Cr.	4 Cr.
Decided Credits for implementation			6 Cr.	3 Cr.	2 Cr.	6 Cr.	4/6 Cr.	4 Cr.
Certificate (52)			C1 (Th. 4 Cr. + P 2Cr.) C2 (Th. 4 Cr. + P	AECC-1(Th. 3Cr.)	SEC-1 (Th.2Cr.) SEC-2 (NC)	DSE1(Th. 4 Cr. + P 2Cr.)	GE-1 (AS TO BE DECIDED BY PARENT	

			2Cr.)				DEPT)	
		II	C3(Th. 4 Cr. + P 2Cr.) C4(Th. 4 Cr. + P 2Cr.)	AECC-2(Th. 3Cr.)	SEC-3 (NC) SEC-4 (P 2Cr.)	DSE2(Th. 3 Cr. + P 2Cr.)		
Provision to change the stream								
Diploma (104)	105	III	C5 (Th. 4 Cr. + P 2Cr.) C6 (Th. 4 Cr. + P 2Cr.)	AECC-3 (Th. 3Cr.)	SEC-5 (Th. 2Cr.) SEC-6 (NC)	DSE 3(Th. 3 Cr. + P 2Cr.)	GE-2 to be decided by Parent dept.)	
		IV	C7 (Th. 3 Cr. + P 1Cr.) C8 (Th. 3 Cr. + P 1Cr.)	AECC-4 (Th. 3Cr.)	SEC-7 (NC) SEC-8 (P 2Cr.)	DSE 4(Th. 3 Cr. + P 2Cr.)		
Provision to change the Core Papers (Main Subject)								
UG (142)	156	V	C9 (Th. 4 Cr. + P 2Cr.) C10 (Th. 4 Cr. + P 2Cr.)	AECC-5 (Th. 3Cr.) AECC-6 (Th. 3Cr.)	SEC-9 (NC) SEC-10 (P 2Cr.)	DSE 5(Th. 3 Cr. + P 2Cr.)		RP1 (NC)
		VI	C11 (Th. 4 Cr. + P 2Cr.) C12 (Th. 4 Cr. + P 2Cr.) C13 (4 credits)	AECC-7 (Th.3Cr.) AECC-8 (Th.3Cr.)	SEC-11 (NC) SEC-12 (P 2Cr.)	DSE 6(Th. 3 Cr. + P 2Cr.)		REPORT OF INTERNSHIP (4Cr) as C13
Provision to change the Core Papers (Main Subject)								
UG (160)	52	VI	C9 (Th. 4 Cr. + P 2Cr.) C10 (Th. 4 Cr. + P 2Cr.)	AECC-5 (Th. 3Cr.) AECC-6 (Th. 3Cr.)	SEC-9 (NC) SEC-10 (P 2Cr.)	DSE 7 (Th. 3 Cr. + P 2Cr.)		RP1 (NC)

			2Cr.)	3Cr.)				
	VII	C11 (Th. 4 Cr. + P 2Cr.) C12 (Th. 4 Cr. + P 2Cr.) C13 (4 credits)	AECC-7 (Th.3Cr.) AECC-8 (Th.3Cr.)	SEC-11 (NC) SEC-12 (P 2Cr.)				REPORT OF INTERNSHIP(4Cr) as C13



Format-2

NEP-2020 IMPLEMENTATION 3 STEPS PLAN (FORMAT-1,2& 3)
CBCS: Statement of Credits distribution

Format-2

College/School: Department of Community Sciences (SOHMCT) Programme: - B.Sc. Food Science, Nutrition and Dietetics (3 years) - B.Sc. Food Science, Nutrition and Dietetics honors degree with Research (3 +1years) - M.Sc. Food Science Nutrition and Dietetics (2 years) Duration: UG (6 Sem.), UG (Hons. /Research) 8 Sem., PG (4 Sem.)	Credit range: Minimum 120 for UG 160 for UG (Hons. With Research), 80 for PG (Suggested by CBCS-NEP Committee)

Course	Credit	Semester	CORE (Th 4+P 2) (Major)/ (Th3 + P2)	DSE (Th 4+P 2) (1 out of 2) (Minor)/(Th3 + P2)	AECC (Th 3)	SEC (2 Cr)	GE (Th 4)	Non Credit	Value Added Course (VAC) (2)	Industrial Training / Survey / Research Project (4)	Sports (1)	Total Credits
Certificate Course in B.sc (Nutrition and Dietetics)	50	I	1. Fundamentals of Nutrition 2. Human Anatomy and Physiology	A. Introduction to Advanced Food Science B. Macronutrients in Human Nutrition	English Communication	Food Safety and Standards	As per the University's suggestion	Computer Literacy	–	–	Sports (0)	27
		II	1. Food Microbiology (Th3 + P2) 2. Food Quality and Quantity Assurance(Th 3 + P2)	A. Psychology and Sociology Applied to Health Care(Th3 + P2) B. Maternal and Pediatric Nutrition (Th3 + P2)	Environment and Ecology	MOOCs/NPT EL (E/IPR)	-	Personality Development	Elementary Statistics	–	Sports (1)	23

Course	Credit	Semester	CORE (Th 4+P 2) (Major)/ (Th3 + P2)	DSE (Th 4+P 2) (1 out of 2) (Minor)/(Th3 + P2)	AECC (Th 3)	SEC (2 Cr)	GE (Th 4)	Non Credit	Value Added Course (VAC) (2)	Industrial Training / Survey / Research Project (4)	Sports (1)	Total Credits
ENTRY & EXIT POINT Nutrition and Dietetics (2 Years)												
Diploma Course in B.sc (Nutrition and Dietetic)	51	III	1. Introduction to Advanced Dietetics (Th3 + P2) 2. Introduction of Biochemistry (Th3 + P2)	A. Clinical Nutrition and Diet Therapy (Th3 + P2) B. Therapeutic Meal Preparation (Th3 + P2)	Public Health Nutrition	MOOCs/NPT EL (E/IPR)	As per the University's suggestion	Sanskrit	–	–	Sports (0)	26
		IV	1. Sports and Fitness Nutrition (Th3 + P2) 2. Community Nutrition (Th3 + P2)	A. Functional Foods and Nutraceuticals (Th3 + P2) B. Food Product Development (Th3 + P2)	Sustainable Food Management	Food Processing and Preservation	-	Soft Skills	AI Nutrition Integration	Applied Dietetics / Internship Project	Sports (1)	27
Degree Course in B.Sc (Nutrition and Dietetics)	49	V	1. Entrepreneurship in Nutrition and Dietetics (Th3 + P2) 2. Nutritional Epidemiology and Anthropology (Th3 + P2)	A. National Health and Nutrition Programs and Policies (Th3 + P2) B. Management and Administration in	Tools and Techniques for Nutrition Counseling	Food Analysis	As per University's suggestion	–	–	–	Sports (0)	24

Course	Credit	Semester	CORE (Th 4+P 2) (Major)/ (Th3 + P2)	DSE (Th 4+P 2) (1 out of 2) (Minor)/(Th3 + P2)	AECC (Th 3)	SEC (2 Cr)	GE (Th 4)	Non Credit	Value Added Course (VAC) (2)	Industrial Training / Survey / Research Project (4)	Sports (1)	Total Credits
				Dietetics (Th3 + P2)								
		VI	1. Introduction to Food Service Management (Th3 + P2) 2. Techniques Of Nutritional Assessment(Th 3 + P2)	A. Social Behavior Change Communication & Nutrition Health Promotion (Th3 + P2) B. Nutrition Through Life Cycle (Th3 + P2)	Clinical Nutrition in Lifestyle Management	MOOCs/NPT EL (E/IPR)	–	–	Fundamentals of Research Methods	Case Study/ Review Study (Cr.-2)	Sports (1)	27
Honors degree with Research Course in B.sc (Nutrition and Dietetic) or M.Sc 1st	49	I	1. Advanced Human Nutrition and Metabolism (Th3 + P2) 2. Advanced Pathophysiology and Clinical Biochemistry (Th3 + P2)	A. Research Trends in Nutrition and Dietetics (Th3 + P2) B. Innovation in Food Product Development (Th3 + P2)	Research Methodology and Statistics	Advanced Nutritional Counselling Skills	As per University's suggestion	Professional Skills	–	–	Sports (0)	24

Course	Credit	Semester	CORE (Th 4+P 2) (Major)/ (Th3 + P2)	DSE (Th 4+P 2) (1 out of 2) (Minor)/(Th3 + P2)	AECC (Th 3)	SEC (2 Cr)	GE (Th 4)	Non Credit	Value Added Course (VAC) (2)	Industrial Training / Survey / Research Project (4)	Sports (1)	Total Credits
Year		II	1. Nutrition Education and Counselling Skills (Th3 + P2) 2. Institutional Food Service Management (Th3 + P2)	A. Advanced Biochemistry (Th3 + P2) B. Nutrition Assessment Methods and Applications (Th3 + P2)	Research Publication and Ethics	MOOCs/NPT EL (E/IPR)	—	—	Scientific Writing Skills	Seminar / Industrial Training / Research	Sports (1)	27
Degree Course in M.sc (Nutrition and Dietetic)	39	III	1. Precision Nutrition (Th3 + P2) 2. Preventive and Therapeutic diet (Th3 + P2)	A. Nutrition for Critically Ill (Th3 + P2) B. Nutrition and Immunity (Th3 + P2)	Advanced Communication Skills for Nutrition Practice	MOOCs/NPT EL (E/IPR)	—	—	Intellectual Property Rights (IPR)	-	Sports (0)	22
		IV	—	—	—	—	—	—	—	✓ Internship / Research Project (Cr.16)	Sports (1)	16

Format-3

Format-3

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: B.Sc. (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: I
Credits: 4 Theory: 4 Practical: 0		Subject: FUNDAMENTALS OF NUTRITION
Course Code: FSND-111		Title: FUNDAMENTALS OF NUTRITION
Course Objectives: 1. To introduce different food groups, their nutritional value, and their significance in daily Diet. 2. To recognize the roles of food and the role of different nutrients, their requirements, and their impact on deficiency and excess. 3. To Acquaint students with diverse methods of cooking and their advantages and Disadvantages 4. Understand various food group and RDA		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 4 Credits THEORY+Sessional		
L: 4 T: 0 P: (In Hours/Week)- 02 Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Concept of Food and Nutrition Introduction to Nutrition a) Definition of Food; Nutrition; Nutrients and Health. b) Functions of Food- Energy Provision; Growth and Repair; Regulation of Body Functions and Protection against Diseases. c) Classification of Food Groups- Cereals and Grains; Pulses and Legumes; Milk and Animal Products; Fruits and Vegetables; Fats and Oils. d) Food and Dietary Guidelines- Food Pyramid; My Plate; Healthy Eating Habits; Portion Control; Variety and Balance; Limit Sugar; Salt and Fats. e) Recommended Dietary Allowances (RDAs)- Based on Age, Sex, and Physiological Status (As Per ICMR-NIN) f) Balanced Diet- Definition and Components; Role in Maintaining Health and ICMR-NIN recommendations.	16
II	Macronutrients and Non-Nutrients a) Carbohydrates- Composition and Classification, Functions in the Body, Dietary sources and Deficiency and excess effects. b) Lipids (Fats)-Composition and types (Saturated, Unsaturated, Trans), Functions, Sources, Deficiency and Excess Effects. c) Proteins- Composition and Classification, Functions, Dietary Sources,	16

	Deficiency and Toxicity. d) Fiber (Non- nutrient)- Types: Soluble and Insoluble, Functions in Digestion, Sources, Deficiency and Excess e) Water- Functions, Sources, Deficiency and Excess.	
III	Vitamins a) Fats-Soluble Vitamins-Vitamin A,D,E and K (Functions; Dietary Sources, Deficiency Symptoms and Excess Effects. b) Water- Soluble Vitamins- Vitamin B Complex and C (Functions; Dietary Sources, Deficiency Symptoms and Excess Effects)	16
IV	Minerals a) Macro Minerals-Calcium, Potassium, Phosphorus, Chlorine, Sulfur, Magnesium, Sodium. b) Micro Minerals- Iron, Zinc, Selenium, Copper, Manganese, Iodine.	12
V	Introduction to Culinary Terms a) Moist-Heat Cooking Methods-Boiling, Simmering, Poaching, Steaming and Pressure Cooking b) Dry-Heat Cooking Methods-	10

Reference / Text Books:

- Chadha R and Mathur P (eds) (2015). *Nutrition: A Lifecycle Approach*. Hyderabad: Orient BlackSwan
- Rekhi T and Yadav H (2014). *Fundamentals of Food and Nutrition*. New Delhi: Elite Publishing House Pvt Ltd.
- Srilakshmi B (2014). *Food Science*, 6th Edition. Delhi: New Age International Ltd.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-100
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100

Prerequisites for the course:

- Basic knowledge of general terms of foods and nutrition.
- Knowledge of basic food groups.

Course Learning Outcomes:

By the end of this course, students will be able to:

- CO1: Identify major food groups and explain their contribution to a balanced diet.
CO2: Describe the functions of key nutrients and assess the effects of their deficiency or excess.
CO3: Apply Recommended Dietary Allowance (RDA) standards to plan appropriate diets.
CO4: Evaluate various cooking methods and their influence on food's nutritional quality.
CO5: Analyze the role of food and nutrition in maintaining health and preventing diseases.

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: I
Credits: 4 Theory: 4 Practical: 0		Subject: HUMAN ANATOMY AND PHYSIOLOGY
Course Code: FSND-112		Title: HUMAN ANATOMY AND PHYSIOLOGY
Course Objectives: 1. To explore how the human body is built and works – the foundation every nutrition expert needs. 2. To dive into the tiny world of cells, tissues, and fluids that power our body every day. 3. To unlock the role of major body systems like digestion, breathing, reproduction, circulation in staying healthy and well-nourished. 4. To understand how the body balances itself, fight illness and responds to changes, so students can apply this knowledge in nutrition care.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 4 Credits THEORY+Sessional		
L:04 T:0 P:(In Hours/Week)-2 Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Human Body and Cell Biology a) Definition and Relevance of Human Anatomy and Physiology for Dietitians and Nutritionists b) Basic Concepts–Anatomical Positioning of Various Organs in the Human Body, Homeostasis - Definition and Relevance c) Cell Structure and Functions – Cell organelles: Structure and functions. Movement of particles across cell membrane-active transport and passive transport, body fluids and their compartments and functions d) Cellular growth, Mitosis, and meiosis. e) Tissues – Classification, structure, and functions f) Body fat and water percentage across the life cycle and relevance for health	10
II	Musculoskeletal and Respiratory Systems: Anatomy, Physiology and Health a) Structure and Functions of Bone, Cartilage and Connective Tissue and Muscle Fibres. b) Types of Muscles, Their Structure and Functions. c) Bone Health- Changes in Bone Mass During Aging: Osteoporosis	12

	d) Structure and Functions of Organs of Respiration, Mechanism of Respiration, Pulmonary Ventilation, External & Internal Respiration. e) Role of Hemoglobin. f) Regulation of Respiration: Nervous and Chemical. g) Respiratory function tests, Lung volume & Capacities	
III	Digestive and Excretory Systems: Structure, Functions and Regulatory Mechanisms a) Structure and Function of Organs of Gastrointestinal Tract- Oral cavity, Esophagus, Stomach, Small Intestine, Large Intestine, Colon, Pancreas, Liver and Gall Bladder. b) Role of Liver, Gall Bladder and Pancreas in Digestion. c) Enzymes and Hormones of the GIT, Role of Gut Micro biota. d) Digestion and Absorption Process, Gut Brain Connection e) Anatomy and Physiology of Kidneys, Ureter, Urinary Bladder. f) Structure and Function of Nephron, Glomerular Filtration Rate and Urine formation. g) Normal and Abnormal Constituents of Urine.	12
IV	Circulatory, Endocrine and Reproductive Systems: Structure, Functions and Hormonal Regulation.” a) Circulatory System: Structure and Function of the Heart and Blood Vessels, Capillary Exchange. b) Regulation of Cardiac Output, Cardiac Cycle, Blood-Pressure and Factors Affecting It. Interstitial Fluid and Lymph. c) Blood Constituents – Erythrocytes, Leucocytes, Thrombocytes, Plasma, Blood Coagulation, Blood Groups. d) Endocrine System: Structure, Mode of Action and Physiological Functions of Pituitary, Thyroid, Parathyroid, Adrenal and Reproductive Hormones. e) Male Reproductive System – Anatomy and Physiology, Female Reproductive System – Anatomy and Physiology. f) Organs Including Hormones – Structure and Function g) Menarche, Menstruation and Ovarian Cycles, Pregnancy-conception, three trimesters, Parturition, Lactation, Menopause	16
V	Immunity, Body Temperature Regulation and Homeostasis: Principles and Functions. a) Basic Principles of Immunology – Concept and Types of Immunity. b) Immunoglobulin – Types, General Structure & Function c) T-Cells, B-Cells – Structure & Functions. d) Humoral and Cell-Mediated Immunity. e) Role of Nutrition in Immunity f) Regulation of Body Temperature: Thermogenesis, Thermolysis, Pyrexia, Hypothermia, Role of Skin in Maintaining Body Temperature. g) Homeostasis -definition and relevance	10

Reference / Text Books:

- Tortora, G.J. and Derrickson, B.H. (2017). Principles of Anatomy and Physiology. 15th Edition. John Wiley and Sons. ISBN 1119400066
- Waugh, A and Grant, A. (2022). Ross & Wilson Anatomy and Physiology in Health and Illness.

14th Edition. Elsevier Health Sciences. ISBN 0323834612 • Standring, S. Gray's Anatomy. (2020). The Anatomical Basis of Clinical Practice. 42 nd Edition. Elsevier ISBN 0702077054	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks-100
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100
Prerequisites for the course: • Basic knowledge of general terms of foods and nutrition. • Knowledge of basic food groups.	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Understand the structure and functions of cells, tissues, and organ systems in relation to health and nutrition. CO2: Describe the anatomy, physiology, and regulation of major body systems. CO3: Analyze life cycle changes and the role of nutrition in immunity and homeostasis. CO4: Interpret the functions of hormones, enzymes, and body fluids in key physiological processes. CO5: Perform basic physiological measurements and apply first aid techniques, including CPR.	

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: B.Sc. (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: I
Credits: 4 Theory: 4 Practical: 0		Subject: INTRODUCTION TO ADVANCED FOOD SCIENCE
Course Code: FSND-113A		Title: INTRODUCTION TO ADVANCED FOOD SCIENCE
Course Objectives: 1. To help students learn the basics of food science and how different cooking and food preservation methods work. 2. To understand what cereals, pulses, milk, and drinks are made of, how they are processed, and how healthy they are. 3. To learn about animal-based foods like eggs and meat, and how to make bakery items like bread, biscuits, and cakes. 4. To explore new ways of processing food, how to make ready-to-eat foods, and how to check food quality using taste and smell.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 4 Credits THEORY+Sessional		
L:04 T:0 P:(In Hours/Week)-0 Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Fundamentals of Food Science and Culinary Techniques a) Functions of Food and Classification of Food Groups b) Cooking Methods: • Dry Heat Techniques • Moist Heat Techniques • Combination Techniques • Cooking with Fats (Frying, Sautéing) c) Food Preservation Methods: • Pickling • Sugar Preservation (Jam, Jelly, Candied Fruits) • Dehydration, Concentration (Tomato Sauce) • Canning (Acidic and Non-acidic Foods) • Freezing and Chemical Preservation	12
II	Cereal, Pulse, Milk, and Beverage Technology a) Cereals: • Structure & Composition of Rice, Wheat, Millets	12

	- Starch Behaviour in Cooking: Gelatinization, Dextrinization, Retrogradation - Primary Processing: Milling, Drying, By-products - Value-added Products: Pasta, Noodles, Multigrain Flours, RTE Mixes b) Pulses: - Structure, Composition, Nutritive Value - Cooking Studies with Different Media - Germination & Fermentation (e.g., Soy Products) c) Milk and Milk Products: - Composition, Homogenization, Pasteurization (Types & Effects) - UHT Milk, Flavoured Milk, Ice Cream, Cheese, Milk Powders - Indigenous Dairy Products: Channa, Paneer, Sandesh, Rasogulla, Khoa d) Beverages: - Classification: Tea (Types and Processing), Coffee (Processing, Decaffeination) - Carbonated Beverages and Cocoa-Based Drinks - Fruit-Based Beverages: RTS, Squash, Nectars, Cordials, Syrups, Concentrates - Alcoholic Beverages: Fruit Wines (Grape, Port, Perry, Cider, etc.), Brandy, Beer, Whisky	
III	Animal-Based Foods and Bakery Science a. Eggs and Poultry: - Egg Structure, Composition, Functional Properties - Cooking Reactions (e.g., Green Ring Formation), Egg Powders - Poultry: Nutritive Value, Dressing, Cuts b. Meat Science: - Muscle Structure, Composition, Meat Classes - Slaughtering Steps, Postmortem Changes - Cooking Quality Factors: Juiciness, Marbling, Tenderness - Cooking Techniques, Emulsions, Value-added Meat Products c. Bakery Products: - Bread: Role of Ingredients, Mixing Methods, Faults and Remedies - Biscuits and Cookies: Ingredients, Types, Preparation, Defects - Cakes and Muffins: Ingredients, Types of Cakes, Mixing Techniques - Other Products: Pizza Bases, Doughnuts, Pretzels, Bagels, French Loaf	12
IV	Lipids, Spices, and Sensory Evaluation a) Oils and Fats: - Types, Smoking Point, Fat Emulsification, Emulsifiers - Physicochemical Properties: FFA, Iodine Value, Saponification, RM Value - Processing: Oil Extraction, Refining, Fractionation, Hydrogenation - Specialty Fats: Mayonnaise, Cooking Fats b) Spices and Condiments: - Culinary Role, Health Benefits	12

	• Essential Oils, Fixed Oils, Oleoresins • Processing: Sterilization, Milling, Cryogenic Grinding • Curry Powder Preparation c) Sensory Evaluation: • Sensory Organs and Perception • Basic Tastes and Sensory Response • Sensory Testing Methods and Card Preparation	
V	Novel Food Processing and Convenience Foods a) Modern Processing Techniques: • Supercritical Fluid Extraction • Food Irradiation • High-Pressure Processing • Ohmic Heating & Pulsed Electric Fields • Pulsed Light and Infrared Heating b) Convenience and Extruded Foods: • Processing of RTC & RTE Foods • Weaning Mixes and Infant Foods • Pasta & Noodle Processing • Extrusion: Types of Extruders & Products • Snack Foods: Fried, Popped, and Flaked Snacks c) Sugar and Chocolate Confectionery • Sugar Processing from Sugarcane; Types and Grades • Sugar Cookery Stages & Crystallization • Confectionery Products: Fudge, Fondant, Lollipop, Candy, Marshmallow, Nougat • Chocolate Processing: From Cacao Beans to Chocolate • Types of Chocolate: Dark, White, Milk, Compound d) Chocolate Defects	12
Reference / Text Books: a) Food Science by B. Srilakshmi b) Swaminathan. M.S (1987) Food science, Chemistry and Experimental Foods (2nd edition) Bappco Publishers c) Norman. N. Potter (2007) Food Science (5th edition) CBS d) Food Science by Norman. N. Potter. e) Experimental study of Foods by Griswold R.M. f) Food Science by Helen Charley. g) Beverages: Processing and Technology by Deepak Mudgil and Shwetha Barak h) Bakery Science and Technology by S.A. Matz i) Food Fundamentals by MacWilliams, John Willy and son's, New York. • Extrusion cooking by Robert Guy. • Cocoa, Confectionery, and chocolate products by Minife and Minife • Fruit And Vegetable Preservation by Sanjeev Kumar and Srivastava		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
Max. Marks-100		

1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	75
Total	100
Prerequisites for the course:	
• Basic knowledge of general terms of foods and nutrition. • Knowledge of basic food groups.	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Understand basic food science principles, including food classification, cooking methods, and preservation techniques like canning, dehydration, and freezing. CO2: Analyze the composition and processing of cereals, pulses, milk, and beverages, and evaluate their functional and nutritional roles in product development. CO3: Explain the science of animal-based foods and bakery products, focusing on egg/meat cookery, emulsions, and ingredient functions. CO4: Assess the roles of lipids, spices, and sensory perception in food systems, including health effects and evaluation methods. CO5: Evaluate modern food processing methods and convenience foods, and apply practical skills in preparing RTE mixes, bakery items, and beverages.	

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: B.Sc. (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: I
Credits: 4 Theory: 4 Practical: 0		Subject: MACRONUTRIENTS AND HUMAN NUTRITION
Course Code: FSND-113B		Title: MACRONUTRIENTS AND HUMAN NUTRITION
Course Objectives: 1. Understand The Classification and Functions of Macronutrients. 2. Explain Digestion, Absorption, And Metabolism of Carbohydrates, Proteins, And Fats. 3. Describe The Role of Macronutrients in Energy Production and Balance. 4. Identify Health Impacts Related to Macronutrient Intake and Imbalances. 5. Apply Dietary Guidelines to Assess and Plan Balanced Nutrition.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 4 Credits THEORY+Sessional		
L: 4 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction To Macronutrients and Energy 1. Definition And Classification of Nutrients 2. Introduction To Macronutrients: Carbohydrates, Proteins, And Fats 3. Functions And Importance in Human Nutrition 4. Concept Of Energy and Measurement (Calories, Kilojoules) 5. Energy Values of Macronutrients (Atwater Factors) 6. Energy Balance: Positive And Negative 7. Overview Of Recommended Dietary Allowances (RDA)	12
II	All About Carbohydrates: From Food to Fuel a) Definition and Classification: Monosaccharides, Disaccharides, Polysaccharides, Sugar Alcohols, Dietary Fiber b) Food Sources: Natural and Processed Sources c) Functions: Energy Production, Protein-Sparing Action, Role of Fiber in Gut Health d) Digestion and Absorption: Enzymes, Site of Digestion, Role of Insulin e) Metabolism: Glycolysis, Gluconeogenesis, Glycogenesis f) Glycemic Index and Glycemic Load: Clinical Relevance in Diabetes and Weight Management g) Recommended Intake: RDA, Distribution in the Diet	10

	h) Health Implications: Role in Dental Health, Diabetes, Obesity, Metabolic Syndrome i) Dietary Fiber: Soluble and Insoluble Fiber, Role in Digestion, Cholesterol Management	
III	Proteins: Building Blocks of the Body a) Definition and Structure: Amino Acids, Peptide Bonds, Protein Structures (Primary to Quaternary) b) Classification: Complete and Incomplete Proteins, Essential and Non-Essential Amino Acids c) Functions: Structural, Enzymatic, Hormonal, Transport, Immune Function d) Digestion and Absorption: Enzymes (Pepsin, Trypsin), Absorption in the Small Intestine e) Metabolism: Deamination, Transamination, Urea Cycle f) Protein Quality Evaluation: Biological Value (BV), Net Protein Utilization (NPU), Protein Digestibility Corrected Amino Acid Score (PDCAAS), Protein Efficiency Ratio (PER) g) Requirements: Factors Influencing RDA (Age, Sex, Activity, Physiological State) h) Protein-Energy Malnutrition (PEM): Kwashiorkor, Marasmus, Causes and Management i) Concept of Mutual Supplementation: Combining Plant-Based Proteins for Better Quality	14
IV	Dietary Fats and Lipids: Digestion, Metabolism & Health Outcomes a) Definition and Classification: Saturated, Monounsaturated, Polyunsaturated, Trans Fats, Cholesterol b) Food Sources: Visible and Invisible Fats, Oils, Nuts, Animal Fats c) Functions: Energy, Insulation, Vitamin Absorption, Hormone Production d) Essential Fatty Acids (EFA): Omega-3 and Omega-6 – Sources, Roles, Deficiency Symptoms e) Digestion and Absorption: Bile Salts, Pancreatic Lipase, Micelle Formation f) Metabolism: Beta-Oxidation, Lipogenesis g) Lipoproteins: HDL, LDL, VLDL – Structure and Role in Cardiovascular Health h) Recommended Intake: Total Fat, Saturated Fat, EFA Requirements i) Health Implications: Obesity, Cardiovascular Diseases, Atherosclerosis, Fatty Liver	12
V	Energy Metabolism and Assessment a) Basal Metabolic Rate (BMR): Definition, Measurement, Influencing Factors b) Specific Dynamic Action (SDA): Thermic Effect of Food c) Total Energy Expenditure (TEE): Components – BMR, Physical Activity, SDA d) Methods of Energy Requirement Assessment: Direct and Indirect Calorimetry, Predictive Equations (E.g., Harris-Benedict, ICMR) e) Concept of Energy Balance and Weight Management f) Under and OverNutrition: Health Implications and Prevention Strategies	12

Reference / Text Books:

- a) Textbook Of Human Nutrition with Recent Update by M. Swaminathan Vol 2, Bappco Publications.
- b) Nutrition Science and Dietetics by B. Sri Lakshmi 8th Edition, New Age International Publishers
- c) Nutrition and Dietetics with Case Studies by Shubhangi A Joshi, 5th Edition, Mc Graw Hill Publishers.
- d) Nutritional Requirements for Indians by Indian Council of Medical Research – National Institute of Nutrition (NIN), Hyderabad (2020), ICMR-NIN Publications.

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-100
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100

Prerequisites for the course:

- Basic knowledge of Human Physiology, Chemistry and Biochemistry.
- Knowledge of basics of Food Science and Nutrition Science.

Course Learning Outcomes:

By the end of this course, students will be able to:

- CO1: Explain sources and functions of carbohydrates, proteins, and fats.
- CO2: Describe macronutrient digestion, absorption, and metabolism.
- CO3: Assess energy balance using nutritional calculations.
- CO4: Evaluate macronutrient impact on major health conditions.
- CO5: Plan balanced diets using dietary guidelines and tools.

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: I
Credits: 3 Theory: 3 Practical: 0		Subject: ENGLISH COMMUNICATION
Course Code: NHU- N-121		Title: ENGLISH COMMUNICATION
Course Objectives: 1. To enable students to understand the mechanism of speech. 2. To learn how to use grammar communicatively to become effective and efficient communicator. 3. To develop communicative skills in real-life situations		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: (In Hours/Week)- 0 Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week= 4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction • Nature and Process of Communication • Levels of communication, • Language as a tool of communication	6
II	Language of Communication • Verbal and Non-verbal • Spoken and Written • Difference between General and Business Communication • Personal, Social and Business • Barriers and strategies • Intra-personal, Inter-personal and Group communication	18
III	Speaking Skills • Monologue • Dialogue • Group Discussion • Interview • Public Speech	12
IV	Reading and Understanding • Reading Comprehension • Difference between abstract and summary • Summary Paraphrasing • Precise writing	12

V	Writing Skills • Notice • Report Writing • Email writing • Letter writing	12
Reference / Text Books: Recommended Readings: 1. Fluency in English- Part II, Oxford University Press, 2006. 2. Business English, Pearson, 2008. 3. Language, Literature and Creativity, Orient Blackswan, 2013. 4. Language through Literature (forthcoming) ed. Dr. Gauri Mishra, Dr. Ranjana Kaul, Dr. Brati Biswas 5. Oxford Guide to writing and speaking, John Seely, O.U.P. 6. Effective Technical Communication, M. Asraf Rizvi, Tata McGraw Hill. 7. English Grammar & composition, Wren & Martin.		
If the course is available as Generic Elective then the students of following departments may opt it. --		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/ Sessional Examination		5
2) Presentations /Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total:		50
Prerequisites for the course: 1. Functional communication learning skills. 2. To know about correct concept and use of communication skills.		
Course Learning Outcomes: CO1: Develop fluency in conversation and efficiency in interactional skills. CO2: Produce English sounds correctly with appropriate stress and intonation. CO3: Write effective application in English. CO4: Students will become more conscious of using proper English grammar while writing and speaking. CO5: Increasing students' reading fluency.		

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: B.Sc. (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: I
Credits: 2		Subject: FUNDAMENTALS OF NUTRITION LAB
Theory: 0		
Practical: 2		
Course Code: FSND-111P		Title: FUNDAMENTALS OF NUTRITION LAB
Course Objectives: 1. To provide practical skills in evaluating nutritional status, analysing food composition, and applying dietary guidelines to promote health.		
Nature of Paper: Core Lab		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICAL	- Weights and measures; preparing market order and table setting - Food preparation, understanding the principles involved, nutritional quality and portion size Cereals: Boiled rice, pulao, chapatti, parantha, puri, pastas. Pulses: Whole, dehusked Vegetables: curries, dry preparations Milk and milk products: Kheer, custard Soups: Broth, plain and cream soups Snacks: pakoras, cutlets, samosas, upma, poha, sandwiches Salads: salads and salad dressings. Fermented products: Idli, dosa, appam, batura, kulcha, dhokla References	
Reference / Text Books: - Chadha R and Mathur P (eds) (2015). <i>Nutrition: A Lifecycle Approach</i>. Hyderabad: Orient BlackSwan - Rekhi T and Yadav H (2014). Fundamentals of Food and Nutrition. New Delhi: Elite Publishing House Pvt Ltd. - Srilakshmi B (2014). <i>Food Science</i>, 6th Edition. Delhi: New Age International Ltd.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
Max. Marks-50		

1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50
Prerequisites for the course:	
• Basic knowledge of general terms of foods and nutrition. • Knowledge of basic food groups.	
Course Learning Outcomes:	
By the end of this course, students will be able to:	
CO1: To identify major food groups and explain their contribution to a balanced diet.	
CO2: To describe the functions of key nutrients and assess the effects of their deficiency or excess.	
CO3: To Learn Recommended Dietary Allowance (RDA) standards to plan appropriate diets.	

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: I
Credits: 2		Subject: HUMAN ANATOMY AND PHYSIOLOGY LAB
Theory: 0		
Practical: 2		
Course Code: FSND-112P		Title: HUMAN ANATOMY AND PHYSIOLOGY LAB
Course Objectives:		
1. To develop hands-on skills in identifying anatomical structures and understanding their physiological functions.		
2. To apply knowledge of human body systems in analyzing health, disease, and nutritional implications.		
Nature of Paper: Core Lab		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0		
T: 0		
P: 2 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
	1. Anatomical Positioning and Homeostasis: Exploring Organ Locations and Regulation 2. Cell Structure and Function: Analyzing Organelles and Membrane Transport 3. Cellular Growth and Division: Mitosis and Meiosis Laboratory Exercise 4. Tissue Classification and Identification: Structure and Function Analysis 5. Body Composition Analysis: Measuring Fat and Water Percentage Across Life Stages 6. Musculoskeletal System Anatomy: Bone, Cartilage, and Muscle Structure and Function 7. Respiratory System Physiology: Lung Volumes, Capacities, and Gas Exchange 8. Digestive System Anatomy and Physiology: Organ Structure, Enzymes, and Absorption 9. Urinary System Function: Nephron Structure, GFR, and Urine Analysis 10. Blood and Circulatory System: Cell Counts, Blood Types, and Cardiovascular Physiology	

Reference / Text Books:

- Tortora, G.J. and Derrickson, B.H. (2017). Principles of Anatomy and Physiology. 15th Edition. John Wiley and Sons. ISBN 1119400066
- Waugh, A and Grant, A. (2022). Ross & Wilson Anatomy and Physiology in Health and Illness. 14th Edition. Elsevier Health Sciences. ISBN 0323834612
- Standring, S. Gray's Anatomy. (2020). The Anatomical Basis of Clinical Practice. 42nd Edition. Elsevier ISBN 0702077054

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50

Prerequisites for the course:

- Basic knowledge of general terms of foods and nutrition.
- Knowledge of basic food groups.

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Identify anatomical structures and explain their physiological functions.

CO2: Conduct experiments to analyze body systems' responses to stimuli.

CO3: Apply anatomy and physiology knowledge to nutrition and health contexts.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: I
Credits: 2		Subject: INTRODUCTION TO ADVANCED FOOD SCIENCE LAB
Theory: 0		
Practical: 2		
Course Code:FSND-113AP		Title: INTRODUCTION TO ADVANCED FOOD SCIENCE LAB
Course Objectives:		
1. To provide practical knowledge of food processing, preservation, and quality evaluation techniques.		
2. To analyse physicochemical and sensory properties of food using laboratory methods.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0		
T: 0		
P: 2 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week=2 Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS	1. Identify and classify food items into cereals, pulses, milk, and beverage groups systematically 2. Prepare food samples using dry heat methods like baking, roasting, and grilling techniques. 3. Cook vegetables using moist heat techniques including boiling, steaming, and poaching methods. 4. Prepare vegetable pickles using vinegar, salt, and spices for preservation purposes. 5. Make jam and jelly from fruits using sugar and pectin for preservation. 6. Study starch gelatinization and retro gradation behavior in rice and wheat during cooking. 7. Demonstrate milk pasteurization and prepare paneer, cheese, or flavored milk from it. 8. Prepare bread using standard recipe and identify common faults in the product. 9. Conduct sensory evaluation tests using triangle test, ranking, and acceptability score cards. 10. Prepare extruded snacks from cereals and evaluate their texture, expansion, and quality.	30 hrs
Reference / Text Books:		

- a) Food Science by B. Srilakshmi
- b) Swaminathan. M.S (1987) Food science, Chemistry and Experimental Foods (2nd edition) Bappco Publishers
- c) Norman. N. Potter (2007) Food Science (5th edition) CBS
- d) Food Science by Norman. N. Potter.
- e) Experimental study of Foods by Griswold R.M.
- f) Food Science by Helen Charley.
- g) Beverages: Processing and Technology by Deepak Mudgil and Shwetha Barak
- h) Bakery Science and Technology by S.A. Matz
- i) Food Fundamentals by Mac Williams, John Willy and son's, New York.
 - Extrusion cooking by Robert Guy.
 - Cocoa, Confectionery, and chocolate products by Minife and Minife.
 - Fruit And Vegetable Preservation by Sanjeev Kumar and Srivastava.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50
Prerequisites for the course: • Basic knowledge of general terms of foods and nutrition. • Knowledge of basic food groups.	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Perform food processing and preservation techniques with quality control. CO2: Analyse physicochemical and sensory properties of food samples. CO3: Evaluate food safety and shelf-life using laboratory methods.	

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: B.Sc. (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: I
Credits: 2 Theory: 0 Practical: 2		Subject: MACRONUTRIENTS IN HUMAN NUTRITION LAB
Course Code: FSND-113BP		Title: MACRONUTRIENTS IN HUMAN NUTRITION LAB
Course Objectives: 1. To examine the roles, digestion, absorption, and metabolism of carbohydrates, proteins, and fats. 2. To assess dietary intake and evaluate macronutrient quality in relation to health and disease prevention.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICAL	1. Calculate energy values of food items using Atwater factors for carbohydrates, proteins, and fats. 2. Identify and classify carbohydrate-rich foods into monosaccharides, disaccharides, and polysaccharides categories systematically. 3. Determine the glycemic index of common foods and compare their blood glucose responses. 4. Assess protein quality using biological value, net protein utilisation, and PDCAAS methods. 5. Demonstrate protein complementation by combining plant-based foods for improved amino acid profiles. 6. Identify and classify dietary fats into saturated, unsaturated, and trans fat categories. 7. Extract and compare visible and invisible fat content from various food samples. 8. Calculate Basal Metabolic Rate using the Harris-Benedict equation for different age and gender groups. 9. Determine total energy expenditure by assessing BMR, physical activity, and thermic effect. 10. Plan balanced diets	30 hrs
Reference / Text Books:		

- a) Textbook Of Human Nutrition with Recent Update by M. Swaminathan Vol 2, Bappco Publications.
- b) Nutrition Science and Dietetics by B. Sri Lakshmi 8th Edition, New Age International Publishers
- c) Nutrition and Dietetics with Case Studies by Shubhangi A Joshi, 5th Edition, Mc Graw Hill Publishers.
- d) Nutritional Requirements for Indians by Indian Council of Medical Research – National Institute of Nutrition (NIN), Hyderabad (2020), ICMR-NIN Publications.

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-100
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100
Prerequisites for the course:	
• Basic knowledge of Human Physiology, Chemistry and Biochemistry. • Knowledge of basics of Food Science and Nutrition Science.	
Course Learning Outcomes:	
By the end of this course, students will be able to:	
CO1: Analyse the digestion, absorption, and metabolism of carbohydrates, proteins, fats.	
CO2: Assess dietary macronutrient intake and balance using standard methods.	
CO3: Interpret macronutrient quality and its impact on health and disease.	

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: B.Sc (Food Science, Nutrition and Dietetics) Class: I		Year: I
Credits: 2 Theory: 2 Practical: 0		Semester: I
Course Code:FSND-114		Subject: FOOD SAFETY AND STANDARDS
Course Objectives: 1. To understand the factors that threaten the safety of foods 2. To understand safe preparation, holding and storage of foods 3. To understand food safety laws		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits THEORY+Sessional		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Food Hygiene Concepts Importance of Food Hygiene and Sanitation in a: ▪ Community Setting, ▪ Hospital Setting ▪ Food Businesses Selection and Purchase of Food ▪ Receiving and Storing Food Safely ▪ Preparing and Holding Food Safely ▪ Serving Safe Food ▪ Storing Cooked Food Safely ▪ Personal Hygiene	5
II	a. Food Safety and Contaminants – Biological, Physical or Chemical Nature. b. Importance In Food Security and Associate Different Contaminants with Risks and Relevance to Food Safety and Food Safety. c. Precautions Against Contamination d. Risk Analysis e. Know and Define Risk Analysis f. HACCP System, Characterize Each Phase and Apply the System to Case Studies – Collective Restoration	5
III	Storage Temperatures; Relative Humidity of the Environment; Presence and Concentration	5

	a. Identify Temperatures in Food Processing and Conservation b. Identify the Humidity Reference Values c. Identify the Importance of Air Quality in Food Hygiene d. Importance of Water and Sanitation as an Important Element in Food, Hygiene and Health Promotion e. Strengthening Sustainable WASH Programming (UNICEF / WHO Guidelines)	
IV	Pest Control and Waste Management a. Insect, Rodent and Bird Infestation b. Use of Pesticides and Integrated Pest Management c. Waste Disposal – Solid Waste, Liquid Waste, ETP	5
V	Food Standards-Legal and Regulatory Documents Related to Food Safety a. Codex b. FSSAI c. Food Hygiene and Safety Audits d. Define Audit and Phases of an Audit	5

Reference / Text Books:

- Food Hygiene and Sanitation, 2nd Edition, by Roday S. (2017), Tata Mc Graw Hill Publication. ISBN: 978-0070700208
- Food Safety and Standards (Licensing & Registration of Food Businesses) Regulations, 2011. (<http://www.fssai.gov.in/home/fss-legislation/fss-regulations.html>)
- Food Safety & Standard Act, 2006 (<http://www.fssai.gov.in/home/fss-legislation/food-safety-and-standards-act.html>)
- <http://www.who.int/news-room/fact-sheets/detail/food-safety>.

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

Max. Marks-50	
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Prerequisites for the course:

- Basic Knowledge of Food Science and Nutrition
- Awareness of Public Health Concepts

Course Learning Outcomes:

By the end of this course, students will be able to:

- CO1: Apply hygiene and safe food handling in diverse food service settings.
- CO2: Identify food contaminants, assess risks, and implement HACCP-based controls.
- CO3: Ensure safe processing and storage through environmental control
- CO4: Implement sustainable pest and waste management practices.
- CO5: Apply food safety laws, including Codex and FSSAI standards.

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: I
Credits: NC		Subject: SPORTS
Theory: NC		
Practical: NC		
Course Code: FSND-115		Title: SPORTS
Course Objectives: 1. To build essential interpersonal skills, including collaborative strategy, ethical sportsmanship, and disciplined goal-setting within a team environment.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are encouraged to engage in a diverse range of indoor and outdoor recreational activities, such as carrom, chess, and various team sports, to promote physical well-being and strategic thinking.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/ Sessional Examination		5
2) Presentations /Seminar		10
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Execute specialized skills, techniques, and tactical strategies in at least two selected indoor or outdoor sports.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: I
Credits: NC		Subject: COMPUTER LITERACY
Theory: NC		
Practical: NC		
Course Code: FSND-117		Title: COMPUTER LITERACY
Course Objectives: 1. To familiarize students with basic computer operations. 2. To develop skills in using common software and internet tools. 3. To enable safe and effective use of computers in daily life.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (Practical)		
L: 1 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 1 Hrs.=1Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
	a. Introduction to Computers: Define a computer, its importance, and applications in daily life. b. History of Computers: Evolution from abacus to modern computers, generations of computers. c. Computer Hardware: Main parts (CPU, monitor, keyboard, mouse, storage, peripherals). d. Computer Software: System software (OS) and application software (Word, Excel, browsers). e. Basic Operations: Turning on/off, using mouse/keyboard, file management, and simple troubleshooting. f. Internet & Safety: Browsing, email, search techniques, and safe online practices. g. Microsoft Applications: MS Word for document creation and editing, MS Excel for data management and calculations. h. Microsoft Applications (contd.): MS PowerPoint for presentations and MS Outlook for email management. i. Activity: Field visit to NGOs or schools.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		10
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-

5) ETE	-
Total:	25
Course Learning Outcomes: CO1: Demonstrate basic computer operations, file management, and software usage. CO2: Apply Microsoft applications and internet skills for daily tasks.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: I
Credits: NC		Subject: INDUSTRIAL VISIT/SEMINAR PRESENTATION ON THE REPORT
Theory: NC		
Practical: NC		
Course Code: FSND-118		Title: INDUSTRIAL VISIT/SEMINAR PRESENTATION ON THE REPORT
Course Objectives: 1. Familiarize students with industrial environments and workplace culture basics.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (Practical)		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are required to deliver a formal report detailing their key observations, technical insights, and professional assessments gathered during the industrial visit.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		10
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: 1. Identify industry types, functions, and basic workplace safety practices.		

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: I
Credits: NC		Subject: UNIVERSITY SOCIAL RESPONSIBILITY
Theory: NC		
Practical: NC		
Course Code: FSND-119		Title: UNIVERSITY SOCIAL RESPONSIBILITY
Course Objectives:		
1. To generate awareness of social, ethical, and environmental responsibilities.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (Practical)		
L: 1 T :0 P: 0(In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Foundations of Social Responsibility - Introduction to USR: meaning, scope, and importance. - Ethics, values, and integrity in society. - Role of universities in nation-building. - Activity: Group discussions on social issues. Community Engagement - University–community partnerships. - Basics of volunteering and service learning. - Identifying local community needs. - Activity: Field visit to NGOs or schools.	-
Reference / Text Books:		
Recommended Readings:		
1. Fluency in English- Part II, Oxford University Press, 2006.		
2. Business English, Pearson, 2008.		
3. Language, Literature and Creativity, Orient Blackswan, 2013.		
4. Language through Literature (forthcoming) ed. Dr. Gauri Mishra, Dr. Ranjana Kaul, Dr. Brati Biswas.		
5. Oxford Guide to writing and speaking, John Seely, O.U.P.		
6. Effective Technical Communication, M. Asraf Rizvi, Tata Mc Graw Hill.		
7. English Grammar & composition, Wren & Martin.		
If the course is available as Generic Elective then the students of following departments may opt it. --		
Evaluation/Assessment Methodology		
Max. Marks-25		

1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	10
3) Assignments	10
4) Research Project Report Seminar On Research Project Report	-
5) ETE	-
Total:	25
Course Learning Outcomes:	
CO1: Explain concept and importance of social responsibility in higher education.	
CO2: Reflect on ethics, values, and integrity in personal and professional life.	

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: B.Sc (Food Science, Nutrition and Dietetics) Class: I		Year: I Semester: II
Credits: 3 Theory: 3 Practical: 0		Subject: Food Microbiology
Course Code: FSND-121		Title: Food Microbiology
Course Objectives: 1. To introduce basic concepts of entrepreneurship and business planning. 2. To explore opportunities in the nutrition and health industry. 3. To enable students to develop entrepreneurial skills with a focus on nutrition-based ventures. 4. To equip students with knowledge about legal, marketing, and financial aspects of nutrition entrepreneurship.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: (In Hours/Week)-0 Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Fundamentals of Food Microbiology a) History, scope, and significance in Food Science b) Classification of microorganisms: bacteria, yeasts, molds, viruses c) Intrinsic & extrinsic factors affecting microbial growth in foods (FATTOM) d) Growth curve and phases of microbial growth e) Microbiota of raw and processed foods	7
II	Microbial Food Spoilage a) Spoilage patterns in: • Milk and dairy products • Meats, poultry, fish • Fruits and vegetables • Grains and bakery items • Canned and packaged foods b) Spoilage indicators and detection methods c) Enzymatic and metabolic by-products in spoilage	7
III	Foodborne Pathogens and Safety a) Types of foodborne illnesses: infections, intoxications, and toxi-infections b) Common pathogens: <i>Salmonella spp.</i>, <i>E. coli</i>, <i>Listeria monocytogenes</i>, <i>Clostridium botulinum</i>, <i>Bacillus cereus</i>, <i>Campylobacter</i>, <i>Norovirus</i> c) Toxins and mycotoxins in food (e.g., aflatoxins) d) Epidemiology of foodborne outbreaks	8

	e) Preventive measures and hygiene practices f) Role of WHO, FSSAI, FAO, and Codex Alimentarius	
IV	Microbial Control and Preservation in Foods a) Heat treatments: pasteurization, sterilization, UHT b) Cold preservation: refrigeration, freezing c) Dehydration, freeze drying, irradiation, pulsed electric fields d) Preservatives: chemical (sorbates, benzoates), natural antimicrobials (essential oils, spices) e) Modified atmosphere packaging (MAP) and vacuum packaging f) Predictive microbiology and shelf-life modelling	8
V	Fermentation and Industrial Applications a) Principles of food fermentation b) Role of microorganisms in fermented foods: dairy, meat, soy, bakery c) Single-cell proteins (SCP) and microbial enzymes d) Probiotics, prebiotics, and functional foods e) Microbiological standards in food industry (ISO, GMP, HACCP)	11
PRACTICALS - Media preparation and sterilization (agar, broth) - Detection of coliforms in milk and water (MBRT and MPN methods) - Isolation of bacteria, molds, and yeasts from foods - Colony morphology and Gram staining - Effectiveness of common preservatives (salt, vinegar, citric acid, etc.) on microbial growth. - Shelf-life study of a perishable food item using microbial load estimation.		
Reference / Text Books: - Jay, J. M., Loessner, M. J., & Golden, D. A. (2005). <i>Modern Food Microbiology</i>. Springer. - Frazier, W. C., & Westhoff, D. C. (2004). <i>Food Microbiology</i>. Mc Graw-Hill. - Adams, M. R., & Moss, M. O. (2008). <i>Food Microbiology</i>. RSC Publishing. - Montville, T. J., Matthews, K. R., & Kniel, K. E. (2012). <i>Food Microbiology: An Introduction</i>. ASM Press.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/ Sessional Examination		10
2) Presentations /Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course: - Basic knowledge of general terms of foods and nutrition. - Knowledge of basic food groups.		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Understand the types and roles of microorganisms in food systems. CO2: Identify spoilage mechanisms in different food products. CO3: Recognize major foodborn pathogens and their impact on public health. CO4: Explain methods for microbial control and food preservation. CO5: Describe the use of microorganisms in food fermentation.		

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: II
Credits: 3		Subject: Fundamentals of Biochemistry
Theory: 3		
Practical: 0		
Course Code:FSND-122		Title: Fundamentals of Biochemistry
Course Objectives: 1. Understand the principles of food service management and operational control in institutions. 2. Gain skills in large-scale food production and quality assurance. 3. Learn planning, organizing, staffing, budgeting, and evaluating food service operations. 4. Develop proficiency in menu planning, food purchasing, cost control, and waste management.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 03 T: 00 P: 00 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Carbohydrates • Introduction to Carbohydrates, Definition and general formula, Biological significance. • Classification and Functions of Carbohydrates-Monosaccharides, Oligosaccharides, Polysaccharides • Digestion and Absorption of Carbohydrates • Sources of Carbohydrates	7
II	Lipids • Classification of Lipids– Includes: - <i>Simple lipids</i>: triglycerides (fats and oils) - <i>Compound lipids</i>: phospholipids (e.g., lecithin) with phosphate groups - <i>Derived lipids</i>: cholesterol and fat-soluble vitamins (A, D, E, K) - <i>Non-phosphorylated complex lipids</i>: cerebrosides, gangliosides, sulfolipids • Characterization of Fats • Rancidity of Fats – Types and Prevention • Chemistry and Nutritional Role of Essential Fatty Acids	7
III	Amino Acids, Peptides, and Proteins • Structure and Classification of Amino Acids –Standard, rare, and non-protein amino acids • Physical and Electrochemical Properties of Amino Acids • Reactions of Amino Acids – Amino group, carboxyl group, and R	8

	group reactions Color Reactions of Amino Acids • Peptide Bond Formation and Properties • Biological Importance of Peptides – Glutathione and Valinomycin	
IV	Vitamins • Classification – Water-soluble (B-complex, Vitamin C) and Fat-soluble (A, D, E, K) • Structure, Functions, Sources, and Requirements of each vitamin • Deficiency Symptoms and Toxicity Effects • Role in metabolism and antioxidant defense	8
V	Minerals • Classification–Major minerals (e.g., calcium, phosphorus, magnesium) and trace elements (e.g., iron, zinc, iodine, selenium) • Functions, Food Sources, Bioavailability, and Daily Requirements • Deficiency Disorders and Toxicity • Interactions with other nutrients	11

Reference / Text Books:

- Sethi, M. (2011). *Institutional food management*. New Age International.
- West, B. B., Wood, L., Harger, V. F., & Shugart, G. S. (2013). *Food service in institutions*. PHI Learning Pvt. Ltd.
- Payne-Palacio, J., & Theis, M. (2015). *Foodservice management: Principles and practices* (13th ed.). Pearson.
- Mudambi, S. R., & Rajagopal, M. V. (2015). *Fundamentals of foods, nutrition and diet therapy*. New Age International.
- Gisslen, W. (2018). *Professional cooking for Canadian chefs* (9th ed.). Wiley.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-100
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100

Prerequisites for the course:

- Basic knowledge of general terms of foods and nutrition.
- Knowledge of basic food groups.

Course Learning Outcomes:

By the end of this course, students will be able to:

- CO1: Explain various food service systems and their operations in institutional settings.
CO2: Design a functional kitchen layout with appropriate equipment and safety standards.
CO3: Plan, standardize, and cost menus for diverse institutional needs.
CO4: Demonstrate skills in large-scale food preparation, service, and hygiene management.
CO5: Manage human and financial resources effectively in a food service institution.

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: II
Credits: 3		Subject: Psychology and Sociology Applied to Health Care
Theory: 3		
Practical: 0		
Course Code:FSND-123A		Title: Psychology and Sociology Applied to Health Care
Course Objectives:		
1. To explain and discuss the relationship between Society and Health		
2. To explain concepts of health and illness from the sociological point of view		
3. To enumerate the different systems of medical Care and their relation to health - seeking behaviour with reference to India and		
4. To explain the pattern of utilization of the health system.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week=2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to psychology and sociology a) Foundational psychological theories and findings in psychology. psycho-social interventions approach b) Relationship between Psychology and Sociology c) Concept of Health, Concept of Illness, Illness: Sociological View d) Psychotherapeutic approaches for the treatment and care of persons with acute and chronic physical illness. e) Role of interdisciplinary approaches in health care.	18
II	Social determinants of Health a) Cultural, systemic, and environmental factors that affect human development b) Psychological factors influencing health behaviors and health care utilization	15
III	Chronic Illness and Management a) Psychological impact of chronic illness on patients and families. b) Sociological perspectives on chronic illness management. c) Case studies: Long-term care and patient support systems	15
IV	Application of Psycho-Social science theories: Social Science theories a) Psychoanalytic Theory	8

	b) Developmental Theory c) Interpersonal Theory d) Humanistic Theory e) Behavioral Theory f) Behavioral Aspects of Health and Medical Care, Policies to Improve Health Care	
V	Contemporary Issues and Mental Health in Community Health Care a) Mental health challenges in diverse populations: adolescents, elderly, women, LGBTQ+ b) Community perceptions and stigma surrounding mental illness c) Integration of mental health into primary health care (Indian and global models) d) Role of nutrition, physical activity, and lifestyle in mental well-being	7

PRACTICALS

- Practice giving psychological support during nutritional counseling sessions (e.g., for obesity, eating disorders).
- Analyze physical, psychological, and social aspects of real or documented patients (e.g., diabetes, cancer).
- Plan and present mock health education sessions to influence behavior (e.g., smoking cessation, diet adherence)
- Observe roles of different health professionals in patient care

Reference / Text Books:

- Pryce-Jones, J. (2010). Happiness at work: Maximizing your psychological capital• for success. John Wiley & Sons. ISBN-13:978-0470749463
- Gilbert, D. (2006). Stumbling on happiness. Alfred A. Knopf. ISBN-13:• 9780739474556
- Levy, P. (2016). Industrial/organizational psychology: Understanding the• workplace. (5th edit). Worth Publishers. ISBN-13: 978-1319014261 99 “Curriculum of Nutrition and Dietetics (Intellectual Property of the National Commission for Allied and Healthcare Professions, Ministry of Health and Family Welfare).”
- Rubin, G. (2009). The happiness project: Or, why I spent a year trying to sing in the morning, clean my closets, fight right, read Aristotle, and generally have more fun. Harper Collins. ISBN-13 : 978-0061583254
- Breuning, L. G. (2016). Habits of a happy brain: Retrain your brain to boost serotonin, dopamine, oxytocin, and endorphin levels. Adams Media. ISBN-13 : 978-1440590504
- Warr, P. B. (2002). Psychology at work. Penguin Books Ltd. ISBN-13: 978 0141000107
- Pasricha, N. (2016). The happiness equation: Want nothing + do anything = have everything. G.P. Putnam's Sons. ISBN-13 : 978-0425277980

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-100
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100
Prerequisites for the course:	

- Basic concepts of Psychology and sociology related to health

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Describe fundamental psychological and sociological concepts related to health and illness.

CO2: Explain the influence of social, cultural, psychological, and environmental determinants on health behavior and health care utilization.

CO3: Analyze the psychological and social impact of chronic illness on individuals and families using case-based approaches.

CO4: Apply major psycho-social theories (e.g., Psychoanalytic, Humanistic, Behavioral) to interpret health behavior and patient care models.

CO5: Evaluate different health care systems and their role in shaping health-seeking behaviors, especially within the Indian context.

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: II
Credits: 3		Subject: Maternal And Pediatric Nutrition
Theory: 3		
Practical: 0		
Course Code: FSND-123B		Title: Maternal And Pediatric Nutrition
Course Objectives: 1. Describe The Role of Maternal and Child Nutrition in the Lifelong Health of the Population. 2. To Understand the Physiological and Metabolic Adaptations of Pregnancy and Lactation. 3. Access to the Resources for Assessment, Assurance and Policy Development for Maternal and Child Nutrition 4. This Course Provides a Comprehensive Introduction to the Nutritional Requirements and Assessment of the Nutritional Needs During Pregnancy, Lactation, Infancy and Childhood at the Individual and Community Level. 5. Evaluate the Effectiveness of Nutrition and Other Programs and Interventions Aimed at Improving Maternal and Child Nutrition in Low-Income Countries.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 3 P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction. a) Nutrition Prior to Pregnancy b) Role of Nutrition in Women’s Health c) Effects of Pre-Conceptional Weight Status and Gestational Weight Gain on Pregnancy Outcomes d) Promising Practices and Evidence-Based Interventions to Improve Nutritional Status Prior to and Between Pregnancies.	10
II	Maternal Nutrition and Postpartum Weight Issues. a) Importance of Maternal Nutrition b) Current Scenario of Maternal and Child Nutrition in India, Vital Statistics c) Physiological and Psychological Changes during Pregnancy d) Nutritional Needs during Pregnancy e) Factors Affecting the Outcome of Pregnancy f) Pregnancy in Special Conditions • Adolescent Pregnancy	12

	• Pregnancy And Aids • Intrauterine Growth Retardation (IUGR) • Congenital Malformations • Fetal Alcoholic Syndrome • Gestational Diabetes Mellitus • Pregnancy Induced Hypertension g) Complications of Pregnancy and its Management h) Postpartum Weight Retention, Including Promising Practices and Evidence-Based Intervention Strategies	
III	Lactation. a) Development of Mammary Tissues and Role of Hormones b) Physiology of Lactation c) Nutritional Needs of Lactating Mothers d) Composition of Human Milk e) Effect of Nutritional Status of Lactating Mother on Quantity and Quality of Breast Milk f) Determinants Of Low Breast Milk Output g) Breast Feeding: Factors affecting Breast Feeding h) Breast Feeding Support and Counseling i) Role Of BPNI (Breastfeeding Promotion Network of India) in Promotion of Breast Feeding in India j) World Breast Feeding Week k) Breast Feeding Immunology	12
IV	Infant Nutrition (Pediatric Nutrition) and Focus on Breastfeeding Promotion. a) Physiology of Infant Feeding with a Focus on Physiological Reflexes and Hunger/Satiety Cues. b) Growth and Development During Infancy and Immunization Schedule c) Nutrient Needs of Infants and Overview of Feeding Options Including Breastfeeding and Formula Feeding. d) Breastfeeding Support and Promotion Programs and Interventions. e) Early initiation of Breastfeeding (EIBF) and Exclusive Breastfeeding (EBF) f) Pre-Term, LBW Infants: Implications for Feeding and Management g) Toddler and Preschool Nutrition: Effects on Health and Food Allergy Risk h) Physiological and Psychosocial Development in Early Childhood as it Pertains to Feeding Ability and Food Related Behaviors of Early Childhood. i) Etiology and Pathophysiology of Malnutrition j) Role of Childcare and Early Education Settings in Promoting Healthy Eating and Reducing Obesity Risk. k) Weaning and Recent Guidelines in Infant Feeding and Complimentary Feeding	16
V	Pediatric Nutrition: Childhood Nutrition and Programs to Promote Healthy Eating and Physical Activity Behaviors. a) Growth And Development of Children	10

	b) Growth Monitoring Using Growth Charts c) Nutritional Requirements of Pre-School and School Going Children d) Nutritional Challenges and Nutrition for Child with Special Needs e) Micronutrient Interventions for Mothers and Children. f) Overview of Maternal and Child Nutrition Policies and Programmes in India g) Federal Programs that Serve School Age Children and Adolescents h) Reflection on Challenges and Opportunities in Meeting School Nutrition Standards i) Promotion Healthy Eating Habits and Physical Activity Behaviors	
Practicals: • Planning and Evaluation of Balanced Diet for Pregnant and Lactating Mothers • Preparation of Low-Cost Complementary Foods • Analysis of Weaning/Complementary Foods for its Nutrient Content • Collection and Analysis of Immunization Practices Followed by Mothers • Assessment of Nutritional Status of Pre-School Children Using Growth Charts • Planning and Preparation of Nutri-Rich, Low-Cost Packed Lunch for School Children • Development of Educational Materials for Pregnant and Lactating Mothers • Evaluation of Ongoing Maternal and Child Nutrition Programmes of India • Menu Planning for Toddlers: Create a Simple One-Day Meal Plan for a Toddler, ensuring it Includes a Variety of Food Groups. • Nutrition Education Materials: Create an Educational Flyer or Poster on a Topic such as the Importance of Breastfeeding or Balanced Diets for Children. Visit to Local Hospitals		
Reference / Text Books: • B. Sri Lakshmi, 2014, Dietetics (7th Edition). New Age International Publishers, New Delhi • Joshi Shubhangini, A., 2017, Nutrition and Dietetics. McGraw Hill Education Publication. • Judith E. Brown, 2016, Nutrition Through the lifecycle (6th Edition). Wadsworth Publishing house. • Judith Sharlin and Sari Edelstein, 2010. Essentials of Life Cycle Nutrition. Jones and Bartlett Learning. • Jyotsana Gupta, 2008, Child Nutrition. Rajat Publications, New Delhi. • Boyle MA, Holben D. Community nutrition in action: an entrepreneurial approach. 4th edition. Thompson Wadworth, 2006. Chapter 10, pages 311-320 THEORY • Position of the American Dietetic Association: Nutrition and the lifestyle for a health pregnancy outcome. J Am Diet Assoc. 2002; 102:1479-1490. (Note – new position due to be published early 2008) • Position of the American Dietetic Association: Promoting and supporting breastfeeding. J Am Diet Assoc. 2005; 105:810-818. • Birch L, Dietz W. Eating behaviors of young child: Prenatal and postnatal influences on healthy eating. American Academy of Pediatrics, 2008. Prenatal and postnatal flavor learning in human infants, pages 59-68 and Breastfeeding and other infant feeding practices that may influence child obesity, pages 69-93 • Erikson JG. The fetal origins hypothesis- 10 years on. BMJ 2005; 330:1096-1097. • Textbook of Maternal and Child Health Nursing by M. Jayalakshmi (Jaypee Brothers Medical Publishers, New Delhi, India). • Textbook of Pediatric Nutrition by Veena Shatrugna (Parivar Prakashan, Mumbai, India).		

Essentials of Pediatrics by O. P. Ghai (CBS Publishers, New Delhi, India).	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks-100
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100
Prerequisites for the course: - Basic knowledge of Human Physiology and Anatomy. - Knowledge of Fundamentals of Nutrition.	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Understand the impact of preconception and prenatal nutrition on maternal and pregnancy outcomes. CO2: Evaluate nutritional needs, risks, and dietary strategies during pregnancy and postpartum. CO3: Explain lactation physiology and support breastfeeding through diet and counselling. CO4: Assess nutrition and feeding practices in infants, toddlers, and preschoolers. CO5: Critically analyse pediatric nutrition programs and interventions for healthy child development.	

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: II
Credits: 3 Theory: 3 Practical: 0		Subject: ENVIRONMENT AND ECOLOGY
Course Code: NHU-NPR-122		Title: ENVIRONMENT AND ECOLOGY
Course Objectives: 1. Students will integrate knowledge from multiple disciplines representing physical and life sciences perspectives political and economic perspectives and social and cultural perspectives on human interaction with their environment. 2. Students will contribute to facilitating interdisciplinary Research and problem-solving through Independent and collaborative work. 3. Students will use quantitative and qualitative research Tools and techniques to analyze implements envision assess and report sustainability efforts.		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to environmental studies Multidisciplinary nature of environmental studies; Scope and importance; Concept of sustainability and sustainable development.	6
II	Ecosystems What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems: Forest ecosystem Grassland ecosystem Desert ecosystem Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)	8
III	Natural Resources: Renewable and Non--renewable Resources Land resources and land use change; Land degradation, soil erosion and desertification. Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Water: Use and over--exploitation of surface and ground water, floods, droughts, conflicts over water (international & interstate).	8

	Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.	
IV	Biodiversity and Conservation Levels of biological diversity: genetic, species and ecosystem diversity; Bio geographic zones of India; Biodiversity patterns and global biodiversity hot spots India as a mega--biodiversity nation; Endangered and endemic species of India Threats to biodiversity: Habitat loss, poaching of wildlife, man--wildlife conflicts, biological invasions; Conservation of biodiversity: In--situ and Ex--situ conservation of biodiversity. Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.	6
V	Environmental Pollution Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution Nuclear hazards and human health risks Solid waste management: Control measures of urban and industrial waste. Pollution case studies.	6
VI	Environmental Policies & Practices Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD). Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context.	6
VII	Human Communities and the Environment Human population growth: Impacts on environment, human health and welfare. Resettlement and rehabilitation of project affected persons; case studies. Disaster management: floods, earthquake, cyclones and landslides. Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan. Environmental ethics: Role of Indian and other religions and cultures in environmental conservation. Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).	6
Reference / Text Books: • Too Smart for Our Own Good: The Ecological Predicament of Humankind by Dilworth, C. Publication Date: 2009. • Encyclopedia of Environmental Studies by William Ashworth; Charles E. Little Publication Date: 2001.		

Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	-
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total:	50
Prerequisites for the course: 1. Basic knowledge about Ecosystems. 2. To understand about atmosphere. And layers of atmosphere.	
Course Learning Outcomes: CO1: Articulate the interconnected and interdisciplinary nature of environmental studies. CO2: Demonstrate and integrated approach to environmental issues with a focus on sustainability. CO3: Communicate Complex environmental information to both technical and non-technical evidences. CO4: Use critical thinking problem solving and the method to logical approaches of the Social Sciences natural Sciences and Humanities in environmental problem solving.	

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: B.Sc. in Nutrition & Dietetics		Year: I
Class: I		Semester: II
Credits: 2		Subject: Elementary Statistics
Theory: 2		
Practical: 0		
Course Code: FSND-124		Title: Elementary Statistics
Course Objectives:		
1. To develop understanding of data collection, classification, tabulation, and graphical representation of data.		
2. To familiarise students with basic descriptive statistical measures for summarizing data.		
3. To enable students to apply elementary statistical techniques for analysis and interpretation of data in real-life situations.		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits THEORY+Sessional		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit(4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Statistics • Meaning and scope of statistics. • Importance of statistics in everyday life and scientific studies. • Types of data (primary and secondary). • Methods of data collection. • Classification and tabulation of data. Frequency distribution.	6
II	Presentation of Data • Diagrammatic and graphical presentation of data. Bar diagrams, pie charts, histogram, frequency polygon, and ogive. Uses and limitations of graphical representation.	6
III	Measures of Central Tendency • Concept and importance of averages. • Arithmetic Mean (simple and grouped data), Median, and Mode. • Comparison and applications of measures of central tendency.	6
IV	Measures of Dispersion • Meaning and need for dispersion. • Range, Quartile Deviation, Mean Deviation, and Standard Deviation (simple problems). • Concept of variability and its significance.	6
V	Statistics in Research	7

	• Meaning and role of statistics in research. • Introduction to research data. • Sampling methods and sample size. • Basics of data analysis and interpretation. • Use of statistics in simple research studies and project work.	
Reference / Text Books: • Lad, Vasant (2002). <i>Textbook of Ayurveda: Volume 1</i>. Ayurvedic Press. • Murthy, K.R. Srikantha (2005). <i>Bhavaprakasha of Bhavamishra</i>. Chaukhambha Krishnadas Academy. • Sharma, H. & Clark, C. (1998). <i>Contemporary Ayurveda: Medicine and Research in Maharishi Ayur-Veda</i>. Churchill Livingstone. • Mishra, L. C. (2004). <i>Scientific Basis for Ayurvedic Therapies</i>. CRC Press. • Ministry of AYUSH (India). <i>Diet and Lifestyle Guidelines based on Ayurveda</i>.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total		50
Prerequisites for the course: • Basic knowledge of mathematics and numbers • Understanding of simple tables and graphs		
Course Learning Outcomes: By the end of the course, students will be able to: CO1: Define and explain basic statistical concepts, types of data, and methods of data collection. CO2: Organize data using tabulation, diagrams, and graphical methods. CO3: Compute and interpret measures of central tendency and dispersion. CO4: Apply elementary statistical tools to analyze simple datasets. CO5: Interpret statistical results and draw meaningful conclusions for academic and practical applications.		

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: B.Sc (Food Science, Nutrition and Dietetics) Class: I		Year: I
Credits: 2 Theory: 0 Practical: 2		Semester: II
Course Code: FSND-121P		Subject: Food Microbiology Lab
Course Code: FSND-121P		Title: Food Microbiology Lab
Course Objectives: 1. To provide fundamental knowledge on microorganisms relevant to foods, their growth, spoilage patterns, and their role in foodborne diseases. 2. To familiarise students with microbial control, food preservation techniques, fermentation processes, and food safety standards used in the food industry.		
Nature of Paper: Core Lab		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS	• Study of laboratory safety rules, instruments, glassware, and sterilization techniques. • Microscopic Observation of bacteria, yeasts, and molds using simple and staining techniques (Gram staining). • Demonstration of phases of microbial growth using a bacterial culture. • Influence of pH, temperature, moisture, and oxygen on microbial growth. • Enumeration of microorganisms from milk, fruits, vegetables, or cereal-based foods. • Comparative analysis of microbial load in raw vs processed food samples. • Observation of physical, chemical, and sensory changes in spoiled foods (milk, bread, fruits). • Study of common foodborne pathogens, symptoms, sources, and prevention. • Demonstration of Food Preservation Techniques- Effect of heat, cold, dehydration, or preservatives on microbial growth. • Study of Fermented Foods and Beneficial Microorganisms: involved in curd, bread, fermented batter, probiotics, and their health benefits.	

Reference / Text Books:

- Jay, J. M., Loessner, M. J., & Golden, D. A. (2005). *Modern Food Microbiology*. Springer.
- Frazier, W. C., & Westhoff, D. C. (2004). *Food Microbiology*. McGraw-Hill.
- Adams, M. R., & Moss, M. O. (2008). *Food Microbiology*. RSC Publishing.
- Montville, T. J., Matthews, K. R., & Kniel, K. E. (2012). *Food Microbiology: An Introduction*. ASM Press.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Identify and classify food-related microorganisms and explain factors influencing their growth and survival in different foods.

CO2: Explain mechanisms of microbial spoilage and foodborne illnesses.

CO3: Apply principles of microbial control and preservation to enhance food safety and shelf life.

CO4: Understand industrial and beneficial applications of microorganisms, including fermentation, probiotics, and quality assurance systems such as HACCP and GMP.

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: II
Credits: 2		Subject: Fundamentals of Biochemistry Lab
Theory: 0		
Practical: 2		
Course Code:FSND-122P		Title: Fundamentals of Biochemistry Lab
Course Objectives: 1. To impart fundamental knowledge on the chemistry, classification, digestion, absorption, and biological significance of macronutrients and micronutrients. 2. To develop practical skills in qualitative and quantitative analysis of carbohydrates, lipids, proteins, vitamins, and minerals using standard biochemical techniques.		
Nature of Paper: Core Lab		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
Practical	1. To perform qualitative tests to identify different types of carbohydrates using standard biochemical reactions. 2. To estimate the amount of reducing sugars in food samples using an appropriate quantitative method. 3. To determine the total carbohydrate content of a given sample. 4. To extract lipids from food samples and study their physical and chemical characteristics. 5. To assess the rancidity of fats and oils by determining acid value or peroxide value. 6. To carry out qualitative tests for the identification of proteins and amino acids. 7. To estimate the protein content of a given sample using a standard biochemical method. 8. To identify fat-soluble vitamins in food samples using suitable qualitative tests. 9. To identify water-soluble vitamins, including vitamin C and selected B-complex vitamins, in food samples. 10. To detect the presence of essential minerals such as calcium, iron, phosphorus, iodine, and zinc in food samples.	
Reference / Text Books: • Sethi, M. (2011). <i>Institutional food management</i> . New Age International.		

- West, B. B., Wood, L., Harger, V. F., & Shugart, G. S. (2013). *Food service in institutions*. PHI Learning Pvt. Ltd.
- Payne-Palacio, J., & Theis, M. (2015). *Foodservice management: Principles and practices* (13th ed.). Pearson.
- Mudambi, S. R., & Rajagopal, M. V. (2015). *Fundamentals of foods, nutrition and diet therapy*. New Age International.
- Gisslen, W. (2018). *Professional cooking for Canadian chefs* (9th ed.). Wiley.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Prerequisites for the course:

- Basic knowledge of general terms of foods and nutrition.
- Knowledge of basic food groups.

Course Learning Outcomes:

By the end of this course, students will be able to:

- Explain the structure, functions, and metabolic roles of nutrients including carbohydrates, lipids, proteins, vitamins, and minerals.
- Perform laboratory tests for identification and estimation of nutrients and interpret experimental results accurately.
- Relate nutrient deficiencies, toxicities, and interactions to health, disease prevention, and nutritional planning.

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: II
Credits: 2		Subject: Psychology and Sociology Applied to Health Care Lab
Theory: 0		
Practical: 2		
Course Code:FSND-123AP		Title: Psychology and Sociology Applied to Health Care Lab
Course Objectives:		
1. To introduce psychological and sociological theories influencing health, illness, and healthcare behavior.		
2. To develop understanding of psychosocial, cultural, and interdisciplinary approaches in healthcare delivery.		
Nature of Paper: DSE Lab		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L:0		
T:0		
P: 2(In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit(4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS	1. To study the relationship between psychology, sociology, and health care practices. 2. To identify psychological and sociological concepts of health and illness. 3. To analyze social determinants influencing physical and mental health outcomes. 4. To assess psychological factors affecting health behavior and healthcare utilization. 5. To study the psychosocial impact of chronic illness on patients and families. 6. To examine sociological perspectives in long-term illness management through case studies. 7. To apply psychoanalytic, developmental, behavioral, and humanistic theories to health scenarios. 8. To study psychotherapeutic approaches used in acute and chronic illness care. 9. To assess mental health challenges and stigma in diverse community populations. 10. To study the role of lifestyle, nutrition, and physical activity in mental well-being.	

Reference / Text Books:

- Pryce-Jones, J. (2010). Happiness at work: Maximizing your psychological capital• for success. John Wiley & Sons. ISBN-13:978-0470749463
- Gilbert, D. (2006). Stumbling on happiness. Alfred A. Knopf. ISBN-13:• 9780739474556
- Levy, P. (2016). Industrial/organizational psychology: Understanding the• workplace. (5th edit). Worth Publishers.ISBN-13: 978-1319014261 99 “Curriculum of Nutrition and Dietetics (Intellectual Property of the National Commission for Allied and Healthcare Professions, Ministry of Health and Family Welfare).”
- Rubin, G. (2009). The happiness project: Or, why I spent a year trying to sing in the morning, clean my closets, fight right, read Aristotle, and generally have more fun. Harper Collins.ISBN-13: 978-0061583254
- Breuning, L. G. (2016). Habits of a happy brain: Retrain your brain to boost serotonin, dopamine, oxytocin, and endorphin levels. Adams Media. ISBN-13 : 978-1440590504
- Warr, P. B. (2002). Psychology at work. Penguin Books Ltd. ISBN-13 : 978 0141000107
- Pasricha, N. (2016). The happiness equation: Want nothing + do anything = have everything. G.P. Putnam's Sons. ISBN-13 : 978-0425277980

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Course Learning Outcomes:

By the end of this course, students will be able to:

1. Explain psychological and sociological concepts related to health, illness, and behavior.
2. Analyze psychosocial factors influencing chronic illness management and healthcare utilisation.
3. Apply social science theories to community mental health and healthcare interventions.

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: II
Credits: 2		Subject: Maternal And Pediatric Nutrition Lab
Theory: 0		
Practical: 2		
Course Code:FSND-123BP		Title: Maternal And Pediatric Nutrition Lab
Course Objectives:		
1. To expose students to the practical functioning of hospital nutrition and dietetics services, including patient care and food service systems.		
2. To help students understand the role of dietitians in disease management, maternal and child nutrition, and therapeutic diet planning in a clinical setting.		
Nature of Paper: DSE Lab		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0		
T: 0		
P: (In Hours/Week)-02		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit(4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
Practical	1. Planning and Evaluation of Balanced Diet for Pregnant and Lactating Mothers 2. Preparation of Low-Cost Complementary Foods 3. Analysis of Weaning/Complementary Foods for its Nutrient Content 4. Collection and Analysis of Immunization Practices Followed by Mothers 5. Assessment of Nutritional Status of Pre-School Children Using Growth Charts 6. Planning and Preparation of Nutri-Rich, Low-Cost Packed Lunch for School Children 7. Development of Educational Materials for Pregnant and Lactating Mothers 8. Evaluation of Ongoing Maternal and Child Nutrition Programmes of India 9. Menu Planning for Toddlers: Create a Simple One-Day Meal Plan for a Toddler, ensuring it includes a Variety of Food Groups. 10. Nutrition Education Materials: Create an Educational Flyer or Poster on a Topic such as the Importance of Breastfeeding or Balanced Diets for Children. 11. Visit to Local Hospitals	
Reference / Text Books:		

- B. Sri Lakshmi, 2014, Dietetics (7th Edition). New Age International Publishers, New Delhi
- Joshi Shubhangini, A., 2017, Nutrition and Dietetics. Mc Graw Hill Education Publication.
- Judith E. Brown, 2016, Nutrition Through the lifecycle (6th Edition). Wadsworth Publishing house.
- Judith Sharlin and Sari Edelstein, 2010. Essentials of Life Cycle Nutrition. Jones and Bartlett Learning.
- Jyotsana Gupta, 2008, Child Nutrition. Rajat Publications, New Delhi.
- Boyle MA, Holben D. Community nutrition in action: an entrepreneurial approach. 4th edition. Thompson Wadworth, 2006. Chapter 10, pages 311-320 THEORY
- Position of the American Dietetic Association: Nutrition and the lifestyle for a health pregnancy outcome. J Am Diet Assoc. 2002; 102:1479-1490. (Note – new position due to be published early 2008)
- Position of the American Dietetic Association: Promoting and supporting breastfeeding. J Am Diet Assoc. 2005; 105:810-818.
- Birch L, Dietz W. Eating behaviors of young child: Prenatal and postnatal influences on healthy eating. American Academy of Pediatrics, 2008. Prenatal and postnatal flavor learning in human infants, pages 59-68 and Breastfeeding and other infant feeding practices that may influence child obesity, pages 69-93
- Erikson JG. The fetal origins hypothesis- 10 years on. BMJ 2005; 330:1096-1097.
- Textbook of Maternal and Child Health Nursing by M. Jayalakshmi (Jaypee Brothers Medical Publishers, New Delhi, India).
- Textbook of Pediatric Nutrition by Veena Shatrugna (Parivar Prakashan, Mumbai, India).
- Essentials of Pediatrics by O. P. Ghai (CBS Publishers, New Delhi, India).

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Understand hospital nutrition services such as diet planning and therapeutic diets

CO2: Identify the role and responsibilities of clinical dietitians in patient counseling and multidisciplinary healthcare teams.

CO2: Observe maternal and child health practices including antenatal, postnatal, infant feeding, and immunization-related nutrition care provided in hospitals.

CO4: Apply theoretical knowledge to real-life clinical situations by relating therapy, and food safety to hospital practices.

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: II
Credits: 1 Theory: 0 Practical: 1		Subject: SPORTS
Course Code-SPWC-121		Title: SPORTS
Course Objectives: 1. Develop teamwork and leadership via group sports activities.		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 50% Marks / 1 Credit PRACTICAL		
L: 0 T: 0 P: 1(In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are encouraged to engage in a diverse range of indoor and outdoor recreational activities, such as carrom, chess, and various team sports, to promote physical well-being and strategic thinking.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/ Sessional Examination		5
2) Presentations /Seminar		10
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Show improved coordination and sportsmanship in group activities. CO2: Lead a small group in a recreational sports event.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: II
Credits: 2		Subject: MOOC/NPTEL, E/IPR
Theory: 2		
Practical: 0		
Course Code: FSND-VAC-124		Title: MOOC/NPTEL, E/IPR
Course Objectives: 1. To familiarize students with online learning platforms and fundamentals of Intellectual Property Rights for academic and professional advancement..		
Nature of Paper: VAC-1		
Minimum Passing Marks/Credits: 40% Marks / 2 Credit (NPTEL Certificate)		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	MOOC/NPTEL and E/IPR courses enhance value addition by offering flexible, industry-relevant learning, enabling students to strategically select subjects aligned with career goals.	-
If the course is available as Generic Elective then the students of following departments may opt it. --		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/ Sessional Examination		50
2) Presentations /Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		50
Course Learning Outcomes: CO1: To utilize MOOC/NPTEL platforms and apply basic IPR concepts in research, innovation, and career planning.		

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: II
Credits: NC		Subject: PERSONALITY DEVELOPMENT
Theory: NC		
Practical: NC		
Course Code: FSND-126		Title: PERSONALITY DEVELOPMENT
Course Objectives: 1. To enhance self-awareness, self-confidence, and positive personality traits for personal growth. 2. To develop effective communication, interpersonal skills, and professional behavior for life and career success		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 1 T: 0 P: (In Hours/Week)- 0 Theory - 1 Hr. = 1 Credit Practical- 1 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	This course focuses on self-awareness, communication skills, emotional intelligence, leadership, positive attitude, stress management, interpersonal relations, professional etiquette, and overall personal and career development.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/ Sessional Examination		5
2) Presentations /Seminar		10
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Demonstrate improved self-confidence, communication, and interpersonal skills in personal and professional settings. CO2: Apply positive attitudes, emotional intelligence, and leadership qualities to real-life situations.		

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: I
Credits: NC		Subject: INDUSTRIAL VISIT/SEMINAR PRESENTATION ON THE REPORT
Theory: NC		
Practical: NC		
Course Code: FSND-127		Title: INDUSTRIAL VISIT/SEMINAR PRESENTATION ON THE REPORT
Course Objectives: 1. Familiarize students with industrial environments and workplace culture basics.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 1 T: 0 P: (In Hours/Week)- 0 Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are required to deliver a formal report detailing their key observations, technical insights, and professional assessments gathered during the industrial visit.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		10
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Identify industry types, functions, and basic workplace safety practices.		

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: I
Class: I		Semester: II
Credits: NC		Subject: UNIVERSITY SOCIAL RESPONSIBILITY
Theory: NC		
Practical: NC		
Course Code: FSND-128		Title: UNIVERSITY SOCIAL RESPONSIBILITY
Course Objectives:		
1. To generate awareness of social, ethical, and environmental responsibilities.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 1		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Sustainability and green campus initiatives. Climate change, waste management, and energy conservation. Eco-friendly lifestyle practices.	-
If the course is available as Generic Elective then the students of following departments may opt it. --		
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/ Sessional Examination		5
2) Presentations /Seminar		10
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes:		
CO1: Identify community needs and explore university community partnership opportunities.		
CO2: Participate in volunteer activities and document experiences for reflection		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: B.Sc. in Food Science, Nutrition & Dietetics Class: II		Year: II Semester: III
Credits: 3 Theory: 3 Practical: 0		Subject: Techniques of Nutritional Assessment
Course Code: FSND-231		Title: Techniques of Nutritional Assessment
Course Objectives: 1. To Learn the Principles and Methods of Nutritional Assessment 2. To Monitor Nutritional Status and Trends in Population Groups 3. To Identify At-Risk Individuals & Groups 4. To Investigate Diet and Disease Relationships		
Nature of Paper: Core Theory		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Anthropometric Assessment a) Introduction To Anthropometry in Nutrition. b) Anthropometric Assessment Techniques For: • Children (Length/Height-For-Age, Weight-For-Age, MUAC, Head Circumference), Use of WHO child growth standards. • Adults (BMI, Waist-Hip Ratio) • Elderly (Calf Circumference, Functional Indicators) c) Body Composition Measurements: Skinfold Thickness, BIA (Bioelectrical Impedance Analysis), DEXA, calipers.	8
II	Biochemical Assessment of Nutritional Status a) Assessment Of Protein Status • Measurement And Interpretation of Serum Albumin, Prealbumin, Transferrin b) Assessment For Anaemia • Haemoglobin, Haematocrit, Serum Ferritin, And Relevant Biomarkers c) Target Group Identification • Selecting Individuals from Local Hospitals with Nutritional Deficiencies d) Data Tabulation, Interpretation & Reporting • Steps In Collecting, Tabulating, Interpreting Lab Data, And Writing Reports	8

III	Clinical Assessment Methods - Screening in Clinical Assessment - Application of the Must (Malnutrition Universal Screening Tool) - Use of Subjective Global Assessment (SGA) - Medical History & Physical Examination - Collecting Medical, Lifestyle, and Dietary History - Physical Examination for Signs of Nutrient Deficiencies and Malnutrition - Assessment of Energy Expenditure and Requirements - Estimating Basal Metabolic Rate (BMR), Physical Activity Level (PAL), and Total Energy Expenditure (TEE)	8
IV	Introduction To Dietary Assessment - Purpose And Significance of Nutritional Assessment - Understanding The Importance in Health Care and Public Health - Dietary Assessment Methods 24-Hour Dietary Recall - Food Frequency Questionnaire - Diet History Method - Weighed Food Record and Estimated Food Record - Using Food and Nutrient Databases - Introduction To Food Composition Tables - Assessing Accuracy, Precision, And Validity - Sources of Bias and Error in Dietary Assessment - Improving Reliability and Validity of Dietary Data	8
V	Evaluation Of Individual Nutrient Intakes - Recommended Dietary Allowances (RDAs) - Concepts And Application for Various Age and Demographic Groups - Assessing Individual Intakes - Comparison Of Dietary Intake Data with RDAs - Identifying Inadequacies and Excesses in Nutritional Intake - Using Dietary Software and Analysis Tools - Hands-On Practice in Entering and Analysing Food Intake Records - Reporting and Interpretation - Tabulation and Interpretation of Dietary Data for Individuals	8

Reference / Text Books:

- Sehgal S. and Raghuvanshi RS (2007) Textbook of community nutrition. Directorate of Information and Publications of Agriculture, Indian Council of Agricultural Research, New Delhi.
- Latham M.C. (1997) Human nutrition in the developing world. Food and Agricultural Organization of United Nations.
- Dahiya, S., Boora, P. and Rani, V. (2013). A manual on community nutrition, Department of Foods and Nutrition, published under ICAR Assistance scheme.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

Max. Marks-100

1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100
Prerequisites for the course: • Basic Knowledge of Nutrition and Human Physiology and Anatomy. • Knowledge of Basic Biochemistry and Public Health Nutrition.	
Course Learning Outcomes: By the end of this course, students will be able to: 1. Measure and analyse body composition using standard methods. 2. Assess nutritional status via key biochemical markers. 3. Use clinical tools to evaluate nutritional health. 4. Conduct and appraise dietary assessments. 5. Compare nutrient intakes with RDAs using software.	

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: B.Sc. in Food Science, Nutrition & Dietetics		Year: II
Class: II		Semester: III
Credits: 3		Subject: Introduction to Advanced Dietetics
Theory: 3		
Practical: 0		
Course Code: FSND-232		Title: Introduction to Advanced Dietetics
Course Objectives: 1. Develop Skills in Planning, Preparation and Evaluation of Various Therapeutic Diets. 2. Develop The Ability to Apply, Integrate the Principles of Medical Nutrition Therapy in Combination of Clinical Disorders. 3. Understand The Principles of Planning Therapeutic Diets for Advanced Clinical Disorders in Hospital Settings.		
Nature of Paper: Core Theory		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L:3 T:0 P: 0(In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Foundations of Dietetics and Nutrition Care a) Concepts of Diet Therapy: • Purpose, Principles, Classification, Adaptation of Normal Diet • Modification for Fever, Surgery, Infections and Special Needs b) Feeding Methods: • Oral, Enteral (Tube), Parenteral, IV Nutrition – Principles, Formulations, Indications, Complications c) Routine Hospital Diets: • Regular, Soft, Liquid, Therapeutic Diets (Pre/Post-Operative, Febrile) d) Role Of Dietitian: • Nutritional Care, Team Approach, Counselling, Interpersonal Relationships • Community & Hospital Dietetics, Patient Assessment, Diet Clinics e) Psychology of Feeding: • Patient Needs, Feeding in Children and Infants in Hospitals	8
II	Medical Nutrition Therapy for Metabolic and Endocrine Disorders a) Obesity And Underweight: • Causes, Health Risks, Dietary Management, Behaviour Modification b) Diabetes Mellitus and Metabolic Disorders: • Classification (Type 1, 2, GDM, Prediabetes)	8

	• Pathophysiology, Symptoms, Tests, Insulin and Hypoglycaemic Agents • MNT for Different Diabetes Types, Complications, and Special Conditions • Education and Counselling Strategies c) Gout and Hyperuricemia • Causes, Uric Acid Metabolism, Dietary Principles d) Metabolic Syndrome • Risk Factors, Components, Diet and Lifestyle Interventions e) Pharmacotherapy and Diet Interactions • Drug-Nutrient Interactions, Effects of Nutritional Status on Drug Efficacy	
III	Cardiovascular, Renal, And Pulmonary Nutrition Therapy a) Cardiovascular Disorders: • Atherosclerosis, CHD, Hypertension, Dyslipidaemia, CHF • Rheumatic Heart Disease, Ischemic Heart Disease (Compensated/Decompensated) • Dietary Fat, Fiber, Sodium Restriction, Cardiac Function Tests b) Renal Disorders: • Structure & Function of Kidney • MNT In Glomerulonephritis, Nephrotic Syndrome, Acute/Chronic Renal Failure • Dialysis, Renal Transplant, Renal Calculi • Electrolyte/Fluid/Protein/Phosphorus/Sodium Management • Acid-Base Balance, Exchange Lists c) Pulmonary Conditions (New Inclusion): • MNT For Asthma, Bronchitis, COPD • Nutritional Care During Respiratory Distress or Reduced Intake	8
IV	Gastrointestinal, Hepatic, And Neurological Nutrition Therapy a) Upper & Lower GI Disorders: • GERD, Gastritis, Peptic Ulcers, Diarrhoea, Constipation • Ulcerative Colitis, IBS, Crohn's Disease, Enzyme Deficiencies • Celiac Disease, Lactose/Fructose Intolerance b) Liver, Gallbladder, Pancreas: • Hepatitis, Cirrhosis, Jaundice, Hepatic Coma, Pancreatitis • Cholecystitis, Gallstones, Alcohol-Related Liver Diseases c) Neurological Disorders: • Parkinson's, Alzheimer's, Epilepsy, Migraine, MS, Neurotrauma • Feeding Problems in Neurological Impairment d) Allergies And Intolerances: • Food Allergies, Skin Disturbances, Diagnosis and Dietary Management e) HIV/AIDS And Immunodeficiency: • Nutrition-Infection Link, Immune Support, Antiretroviral Diet Management	8

V	Cancer, Critical Care, Eating Disorders & Special Conditions a) Cancer: - Nutritional Risk Factors, Metabolic Changes, Therapy-Related Needs - MNT During Chemo/Radiation, Cachexia, Prevention Strategies b) Surgery, Trauma, Burns: - Metabolic Stress, MNT For Recovery, Critical Care Nutrition - Sepsis And Trauma-Induced Nutritional Changes c) Eating Disorders & Addictive Behaviours: - Anorexia Nervosa, Bulimia, Binge Eating, Alcoholism – MNT And Counselling d) Special Populations and Scenarios: - Infants, Children, Elderly, Pregnancy, And Lactation (Optional Extension) - Feeding Challenges in Hospitalized or Critically Ill Patients e) Nutrition Education and Counselling: - Counselling Techniques, Patient Communication, Follow-Up Care	8
Reference / Text Books: - Raymond, Janice L., and Morrow, Kelly. (2022). Krause and Mahan's Food and the Nutrition Care Process (16th ed.). St. Louis, MO: Elsevier. - Skipper, Annalynn. (2009). Advanced Medical Nutrition Therapy Practice. Jones & Bartlett Learning. - Marian, Mary, Mary K. Russell, and Scott A. Shikora. (2008). Clinical Nutrition for Surgical Patients. Jones & Bartlett Learning. - Thomas, B. (Ed.). (1994). Manual of dietetics practice. Blackwell Scientific Publication. - Wardlaw, G., & Hampl, J. S. (1999). Perspectives in nutrition (4th ed.). McGraw-Hill Education. - Zeman, F. J., & Ney, D. M. (1988). Applications of clinical nutrition. Prentice-Hall International. - Shils, M. E., Olson, J. A., Shike, M., & Ross, A. C. (Eds.). (1994). Modern nutrition in health and disease (8th ed.). Lea &Febiger. - Williams, S. R. (1993). Nutrition and diet therapy (7th ed.). Mosby Year Book, Inc. - Anderson, L., & Dibble, M. V. (1982). Nutrition in health and disease (17th ed.). J. B. Lippincott Company. - Alpers, D. H., Stenson, W. F., Bier, D. M., & Taylor, B. E. (Eds.). (1995). Manual of nutritional therapeutics (3rd ed.). Little, Brown and Company.		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/ Sessional Examination		10
2) Presentations /Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course:		
Basic Knowledge of Biology, Chemistry, Foods, Nutrition and Dietetics		
Course Learning Outcomes:		
By the end of this course, students will be able to:		

1. Apply diet therapy principles in clinical care.
2. Plan diets for metabolic and endocrine disorders.
3. Formulate diets for cardiovascular, renal, and pulmonary conditions.
4. Design nutrition plans for gastrointestinal, hepatic, neurological, and immune disorders.
5. Use MNT for cancer, critical care, eating disorders, and special populations.

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: B.Sc. in Food Science, Nutrition & Dietetics		Year: II
Class: II		Semester: III
Credits: 3 Theory: 3 Practical: 0		Subject: Basics of Medical Nutrition Therapy
Course Code: FSND-233A		Title: Basics of Medical Nutrition Therapy
Course Objectives: 1. Understand the concepts and principles of nutrition in basic dietetics. 2. Develop the ability to plan and prepare diets for therapeutic conditions 3. Apply knowledge of clinical practice in medical nutrition therapy.		
Nature of Paper: DSE Theory		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 0 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Concepts in Basic Dietetics (a) Growth of dietetics- Purpose and principles of therapeutic diets. (b) Modifications of normal diet. (c) Cultural aspects in diet planning. (d) Role of a dietitian. (e) Modified hospital diets – 1. Consistency and texture modifications 2. Clear liquid Full liquid diets 3. Soft diets, Mechanically soft diets 4. Convalescent diets 5. Regular diets (f) Nutrient modifications –Sodium, Fibre, Residue	6
II	Nutrition and Weight management(Obesity and Underweight) (a) Concept of energy balance. Body, Composition and Fitness. (b) Parameters for assessment, Grades of Obesity and Underweight, Types of obesity, etiology and pathophysiology of obesity and underweight. (c) Medical Nutrition Therapy of weight management, Diet, Exercise, Behavioral modification strategies (d) Pharmacological treatments (e) Surgical treatments (f) A brief dietary guideline to states like anorexia nervosa and Bulimia nervosa.	8

	(g) FAD Diets. (h) Medical Nutrition Therapy for thyroid related disorders and poly cystic ovarian disease (PCOD)	
III	Immunity and Infections (a) Immune Systems- Brief Introduction (b) Nutritional Status, Nutrients for Immunity (c) Medical Nutrition Therapy for different types of fevers Food borne – 1. Typhoid 2. Tuberculosis 3. Malaria 4. Dengue (d) Viral fever: -H1N1. (e) Pathophysiology and Medical Nutrition Therapy for HIV.	8
IV	Pathophysiology and Medical Nutrition Therapy of the following conditions: (a) Disorders of the upper Gastrointestinal tract 1. Gastroesophageal Reflux 2. Esophagitis 3. Hiatus Hernia 4. Gastritis Peptic ulcers Diseases (b) Disorders of the Lower Gastrointestinal tract- 1. Celiac Disease 2. Lactose Intoleranc 3. Crohn's Disease 4. Ulcerative colitis 5. Irritable Bowel Syndrome 6. Diverticular Disease	10
V	Diseases of the liver & Gallbladder (a) Liver- 1. Hepatitis 2. Hepatic failure 3. Alcoholic liver disease 4. Liver transplant (b) Gall bladder- 1. Cholelithiasis 2. Cholecystitis 3. Cholestasis	7

.Reference / Text Books:

- Karuse and Mahan (2022); Food and the Nutrition Care Process; Saunders. ISBN0323810268.
- Annalynn Skipper. (2009). Medical Nutrition Therapy Practice. Jones & Barlett Publishers.
- Mary Mariah, Mary K. Russell., Scott.A. Shikora. (2008).Clinical Nutrition for surgical patients. Jones & Barlett Publishers.
- Thomas, Briony. (Eds). (1994). Manual of Dietetics Practice. Oxford: Blackwell Scientific Publication.
- Wardlaw M, Gardon. (1999) Perspectives In Nutrition. (4th ed). USA: WCB/McGraw – Hill.
- Zeman J. Frances., Ney M. Denise. (1988). Application of Clinical Nutrition. London: Prentice – Hall International.

- Shills E, Maurice., Olson A, James., Shike, Moshe.(Eds). (1994) Modern Nutrition in Health and Disease. (8th ed.). USA: Lea & Febige.
- Williams, Rodwell. (1993). Nutrition and Diet Therapy (7th ed.). USA: Mosby Year book. Inc.
- Anderson, Dibble. (1982) Nutrition in Health and Disease (17th ed.).Philadelphia: J. B. Lippincott Company.
- Alpers, D., Stenson, Williams., Denis, Bier. (1995) Manual of Nutrition Therapeutics (3rd ed.) Boston: Little Brown and Company.
- Nambiar VS and Zaveri D (2024). Nutrition Guidance after Mini Gastric Bypass Bariatric Surgery. Adhyayan Publishers and Distributors. ISBN-10: 8119681169.
- Nambiar VS and Zaveri D (2024).Nutrition Guidelines for Roux-en-Y Gastric Bypass Bariatric Surgery. Adhyayan Publishers and Distributors. ISBN-10: 8119681215

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-100
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	75
Total	100
Prerequisites for the course: The second semester of Bachelor of Nutrition and Dietetics in Honours	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Explain principles and modifications of therapeutic diets. CO2: Assess nutritional needs for various health conditions. CO3: Plan and prepare modified hospital and therapeutic diets. CO4: Apply MNT for immunity, weight, and disease management. CO5: Evaluate diets using guidelines and case studies.	

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: B.Sc. in Food Science, Nutrition & Dietetics		Year: II
Class: II		Semester: III
Credits: 3 Theory: 3 Practical: 0		Subject: Therapeutic Meal Preparation
Course Code: FSND-233B		Title: Therapeutic Meal Preparation
Course Objectives: 1. Translate nutritional science into practice by preparing safe and appealing therapeutic meals. 2. Master disease-specific modifications for conditions like diabetes and heart disease. 3. Apply professional standards to plan, document, and manage therapeutic menus.		
Nature of Paper: DSE Theory		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: (In Hours/Week)-0 Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Foundations of Therapeutic Meal Preparation a. Introduction to Therapeutic Nutrition and Meal Preparation • Definition and scope of therapeutic meal preparation • Difference between normal diet and therapeutic diet modifications • Role of therapeutic meals in patient care and recovery • Basic principles of diet therapy and nutritional intervention b. Classifications of Therapeutic Diets • Consistency modifications: Clear liquid, full liquid, soft, and pureed diets • Nutrient modifications: High protein, low sodium, diabetic, cardiac diets • Texture modifications for dysphagia management	12
II	Modified Texture Diet Preparation Techniques A. Understanding Texture Modification Requirements • IDDSI (International Dysphagia Diet Standardization Initiative) framework • Assessment of swallowing difficulties and texture needs B. Nutritional challenges in texture-modified diets	12
III	Clinical Nutrition-Specific Meal Preparation Metabolic and Disease-Specific Dietary Requirements • Diabetes mellitus: Carbohydrate counting, glycemic index considerations	12

	- Cardiovascular disease: Low sodium, DASH diet principles - Renal disorders: Protein, potassium, phosphorus modifications - Gastrointestinal disorders: Fiber modification, bland diet principles - Liver Disorders	
IV	Nutritional Enhancement and Cooking Methods - Impact of cooking methods on nutrient retention - Heat-sensitive vitamin preservation techniques - Mineral and protein bioavailability optimisation	12
V	Menu Planning, Quality Control, and Professional Applications a) Therapeutic Menu Planning Principles - Cycle menu development for institutional settings - Cost-effective therapeutic meal planning - Cultural and religious considerations in therapeutic diets b) Nutrition labeling and documentation for therapeutic meals	12
Reference / Text Books: "Manual of Nutrition & Therapeutic Diet" by Indrani TK and other similar academic texts. "Guidelines for Planning Therapeutic Diets: A Practical Manual for Nutrition" which provides clear guidelines, sample meal plans, and case studies. - Publications from professional organizations, such as the Academy of Nutrition and Dietetics or the American Heart Association, which often publish professional guides and reference materials. - Dietetics by B. Sri Lakshmi		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/ Sessional Examination		10
2) Presentations /Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ETE		75
Total		100
Prerequisites for the course: - Biology - Fundamental Nutrition - Basic Culinary Skills.		
Course Learning Outcomes: By the end of this course, students will be able to: - Explain purpose and principles of therapeutic diets. - Apply IDDSI framework for texture-modified meals. - Adapt cooking for disease-specific dietary needs. - Use cooking methods to retain nutrients. - Plan and document professional therapeutic menus.		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: B.Sc. in Food Science, Nutrition & Dietetics		Year: II
Class: II		Semester: III
Credits: 3 Theory: 3 Practical: 0		Subject: Indian Knowledge System on Foods
Course Code: FSND-234		Title: Indian Knowledge System on Foods
Course Objectives: 1. To explore and understand the Indian Knowledge system in the context of the diverse Indian food culture. 2. To understand the concept of Food Anthropology and its importance - regional cuisines, culinary traditions historical, cultural, and social factors that have shaped Indian food practices and traditions over time. 3. To analyze the Dietary Patterns and Investigate the local, Indigenous ingredients used in traditional Indian culinary practices across different parts of India- Central, Northern, Western, and Eastern India. 4. To promote the rich culinary heritage of India and explore ways to preserve and promote traditional food practices by documenting and recording traditional recipes, cooking methods, and food stories from different regions.		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Indian Knowledge Systems and its importance as per NEP 2020. Traditional diets and food culture (Food anthropology) and Regional diets of North India (Jammu, Kashmir, Ladakh, Punjab, Haryana, Uttarakhand) and South India (Tamil Nadu, Kerala, Andhra Pradesh, Telangana, Puducherry, Karnataka)	8
II	Traditional diets and food culture (Food anthropology) and Regional diets of Central India (Uttar Pradesh, Madhya Pradesh) and Western India (Gujarat, Maharashtra, Rajasthan, Goa).	8
III	Traditional diets and food culture (Food anthropology) and Regional diets of anthropology Regional diets of East India (West Bengal, Bihar, Odisha)	8
IV	Traditional diets and food culture (Food anthropology) and Regional diets of North east India (Assam, Mizoram, Manipur, Meghalaya, Sikkim, Nagaland, Tripura, Arunachal Pradesh)	
V	Traditional diets and food culture (Food anthropology) of specific religions	8

	of India (Mulsims, Parsi, Buddhist, Sikhs and any other local communities).	
Reference / Text Books: 1. Nambiar, V. (Ed.). (2021). Indian Food Anthropology and the Eat Right Movement- Volume 1. Selective & Scientific Books. ISBN: 978-81-951492-2-3. 2. Nambiar, V. (Ed.). (2021). Indian Food Anthropology and the Eat Right Movement- Volume 2. Selective & Scientific Books. ISBN: 978-81-951492-4-7. 3. Achaya, K. T. (1994). Indian food: a historical companion. Oxford University Press. ISBN-13978-0195634488 4. Sen, C. T. (2014). Feasts and fasts: A history of food in India. Reaktion Books. ISBN-13978-1780233529. 5. Webliography 1. Indian Knowledge Systems: (iksindia.org) 6. Centre for Indian Knowledge Systems (ciks.org)		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/ Sessional Examination		5
2) Presentations /Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ETE		35
Total		50
Prerequisites for the course: • Foundational understanding of IKS and basic sciences • Ethical Values from Indian Cultural Heritage		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Explain the relevance of Indian Knowledge Systems in the context of NEP 2020 and their influence on traditional dietary practices. CO2: Describe the traditional diets and food culture of North, South, Central, Western, Eastern, and North-East Indian regions. CO3: Compare regional food patterns across India and analyze how geography, climate, and agriculture influence dietary habits. CO4: Interpret traditional food practices from a food anthropology perspective, including rituals, taboos, and cultural significance. CO5: Evaluate traditional diets followed by major Indian religious and ethnic communities in terms of cultural context and nutritional relevance.		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: B.Sc. in Food Science, Nutrition & Dietetics		Year: II
Class: II		Semester: III
Credits: 2 Theory: 0 Practical: 2		Subject: TECHNIQUES OF NUTRITIONAL ASSESSMENT LAB
Course Code:FSND-231P		Title: TECHNIQUES OF NUTRITIONAL ASSESSMENT LAB
Course Objectives: 1. To teach students in applying various anthropometric, biochemical, clinical, and dietary assessment techniques. 2. To develop skills in interpreting nutritional assessment data for identifying nutritional status and risk.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS	1. Measurement of height, weight, BMI, and waist–hip ratio 2. Assessment of body composition using skinfold thickness 3. Mid-upper arm circumference (MUAC) measurement 4. Dietary survey using 24-hour recall method 5. Food frequency questionnaire (FFQ) analysis 6. Weighed food record method 7. Clinical examination for signs of nutrient deficiencies 8. Interpretation of biochemical parameters (Hb, blood glucose, lipid profile) 9. Nutritional assessment of infants and young children 10. Nutritional assessment of adolescents and adults 11. Assessment of nutritional status of elderly individuals 12. Preparation and interpretation of complete nutritional assessment reports	
Reference / Text Books: • Sehgal S. and Raghuvanshi RS (2007) Textbook of community nutrition. Directorate of Information and Publications of Agriculture, Indian Council of Agricultural Research, New Delhi. • Latham M.C. (1997) Human nutrition in the developing world. Food and Agricultural Organization of United Nations. • Dahiya, S., Boora, P. and Rani, V. (2013). A manual on community nutrition, Department of		

Foods and Nutrition, published under ICAR Assistance scheme.	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Apply standardized methods for assessing nutritional status. CO2: Interpret assessment data to identify malnutrition and nutritional risks. CO3: Prepare comprehensive nutritional assessment reports for individuals and groups.	

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: B.Sc. in Food Science, Nutrition & Dietetics		Year: II
Class: II		Semester: III
Credits: 2 Theory: 0 Practical: 2		Subject: INTRODUCTION TO ADVANCED DIETETICS LAB
Course Code: FSND-232P		Title: INTRODUCTION TO ADVANCED DIETETICS LAB
Course Objectives: 1. Develop Skills in Planning, Preparation and Evaluation of Various Therapeutic Diets. 2. Develop The Ability to Apply, Integrate the Principles of Medical Nutrition Therapy in Combination of Clinical Disorders. 3. Understand The Principles of Planning Therapeutic Diets for Advanced Clinical Disorders in Hospital Settings.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS	a. Planning Diets for the Following Conditions: - Hypertension - Hyperlipidemia - Atherosclerosis - Ischemic Heart Disease (Compensated and Decompensated) - Congestive Heart Failure b. Planning Diets for the Following Conditions: c. Metabolic Syndrome, Prediabetes and Other Disorders - Type 1 Diabetes, - Type 2 Diabetes and - Gestational Diabetes. d. Complications of Diabetes Mellitus (Acute and Chronic) and its Management. e. Education And Counseling in Diabetes f. Planning Diets for The Following Conditions: - Glomerulonephritis - Nephrotic Syndrome - Acute Renal Failure - Chronic Kidney Disease	

	- Renal Replacement Therapy - Renal Transplant - Renal Calculi g. Focus on Protein Requirements, Electrolyte and Fluid Balance with the Progression of Renal Disease. h. Development of Protein, Sodium, Potassium, and Phosphorus Exchange in Renal Disease. i. Market Survey of Enteral Formulations; Demonstration of Preparation of Enteral Feeds. Basic Orientation for Parenteral Feeds in A Clinical Setting. j. Planning Diets for The Following Conditions: Range of Pulmonary Disease - Bronchitis, Asthma, Chronic Obstructive Pulmonary Disease.	
Reference / Text Books: • Raymond, Janice L., and Morrow, Kelly. (2022). Krause and Mahan's Food and the Nutrition Care Process (16th ed.). St. Louis, MO: Elsevier. • Skipper, Annalynn. (2009). Advanced Medical Nutrition Therapy Practice. Jones & Bartlett Learning. • Marian, Mary, Mary K. Russell, and Scott A. Shikora. (2008). Clinical Nutrition for Surgical Patients. Jones & Bartlett Learning. • Thomas, B. (Ed.). (1994). Manual of dietetics practice. Blackwell Scientific Publication. • Wardlaw, G., & Hampl, J. S. (1999). Perspectives in nutrition (4th ed.). McGraw-Hill Education. • Zeman, F. J., & Ney, D. M. (1988). Applications of clinical nutrition. Prentice-Hall International. • Shils, M. E., Olson, J. A., Shike, M., & Ross, A. C. (Eds.). (1994). Modern nutrition in health and disease (8th ed.). Lea & Febiger. • Williams, S. R. (1993). Nutrition and diet therapy (7th ed.). Mosby Year Book, Inc. • Anderson, L., & Dibble, M. V. (1982). Nutrition in health and disease (17th ed.). J. B. Lippincott Company. • Alpers, D. H., Stenson, W. F., Bier, D. M., & Taylor, B. E. (Eds.). (1995). Manual of nutritional therapeutics (3rd ed.). Little, Brown and Company.		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/ Sessional Examination		5
2) Presentations /Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total		50
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Plan nutritionally adequate diets using advanced dietetic principles. CO2: Modify normal diets according to individual requirements. CO3: Demonstrate effective dietary counseling skills.		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: B.Sc. in Food Science, Nutrition & Dietetics		Year: II
Class: II		Semester: III
Credits: 2		Subject: Basics of Medical Nutrition Therapy Lab
Theory: 0		
Practical: 2		
Course Code: FSND-233AP		Title: Basics of Medical Nutrition Therapy Lab
Course Objectives: 1. To provide hands-on training in diet therapy for common clinical disorders. 2. To develop competency in designing and evaluating therapeutic diets.		
Nature of Paper: DSE Lab		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS-	1. Modified hospital diets: Standardization of recipes for the following: Consistency and texture modifications, Clear liquid, Full liquid diets, Soft diets, Mechanically soft diets, Convalescent diets, and Regular diets. 2. Nutrient modifications ;Sodium, Fibre, Residue 3. Planning and preparation of diets and standardized recipes with the concept of portions and portion control in My Indian Plate (ICMR, NIN 2024) ➤ Obesity Grade ➤ Bariatric surgery ➤ Bulimia /Anorexia Nervosa ➤ Underweight ➤ Thyroid Disorders 4. Planning and preparation of diets-Immunity and Infections ➤ Typhoid ➤ Covid ➤ Gastroesophageal Reflux ➤ Lactose Intoleranc 5. Planning and preparation of diets-Gastrointestinal tract ➤ Gastroesophageal Reflux ➤ Celiac Disease ➤ Lactose Intoleranc 6. Planning and preparation of diets-liver & Gallbladder	

	➤ Hepatitis ➤ Hepatic failure ➤ Cholelithiasis	
Reference / Text Books: • Karuse and Mahan (2022); Food and the Nutrition Care Process; Saunders.ISBN0323810268. • Annalynn Skipper. (2009). Medical Nutrition Therapy Practice. Jones & Barlett Publishers. • Mary Mariah, Mary K. Russell., Scott. A. Shikora. (2008). Clinical Nutrition for surgical patients. Jones & Barlett Publishers. • Thomas, Briony. (Eds). (1994). Manual of Dietetics Practice. Oxford: Blackwell Scientific Publication. • Wardlaw M, Gardon. (1999) Perspectives In Nutrition. (4th ed). USA: WCB/ McGraw – Hill. • Zeman J. Frances., Ney M. Denise. (1988). Application of Clinical Nutrition. London: Prentice – Hall International. • Shills E, Maurice., Olson A, James., Shike, Moshe. (Eds). (1994) Modern Nutrition in Health and Disease. (8th ed.). USA: Lea & Febige. • Williams, Rodwell. (1993). Nutrition and Diet Therapy (7th ed.). USA: Mosby Year book. Inc. • Anderson, Dibble. (1982) Nutrition in Health and Disease (17th ed.). Philadelphia: J. B. Lippincott Company. • Alpers, D., Stenson, Williams., Denis, Bier. (1995) Manual of Nutrition Therapeutics (3rd ed.) Boston: Little Brown and Company. • Nambiar VS and Zaveri D (2024). Nutrition Guidance After Mini Gastric Bypass Bariatric Surgery. Adhyayan Publishers and Distributors. ISBN-10: 8119681169. • Nambiar VS and Zaveri D (2024).Nutrition Guidelines for Roux-en-Y Gastric Bypass Bariatric Surgery. Adhyayan Publishers and Distributors. ISBN-10: 8119681215		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/ Sessional Examination		5
2) Presentations /Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total		50
Prerequisites for the course: The second semester of Bachelor of Nutrition and Dietetics in Honours		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Design appropriate therapeutic diets for common diseases. CO2: Interpret medical and nutritional case data for diet planning. CO3: Apply principles of medical nutrition therapy in clinical settings.		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: B.Sc. in Food Science, Nutrition & Dietetics		Year: II
Class: II		Semester: III
Credits: 2 Theory: 0 Practical: 2		Subject: THERAPEUTIC MEAL PREPARATION LAB
Course Code: FSND-233BP		Title: THERAPEUTIC MEAL PREPARATION LAB
Course Objectives: 1. To develop practical skills in preparation of therapeutic meals for various disease conditions. 2. To understand food modification techniques to meet specific dietary needs.		
Nature of Paper: DSE Lab		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS	1. Standardization of recipes for therapeutic diets 2. Preparation of clear and full fluid diets 3. Preparation of soft and semi-solid diets 4. Low-calorie diet preparations 5. High-protein and high-calorie diet preparations 6. Diabetic-friendly meal preparation 7. Low-fat and cardiac diet preparation 8. Low-sodium diet preparation 9. Renal diet meal preparation 10. Gluten-free diet preparation 11. Texture-modified diets for elderly patients 12. Cost calculation and portion control of therapeutic meals	
Reference / Text Books: • "Manual of Nutrition & Therapeutic Diet" by Indrani TK and other similar academic texts. • "Guidelines for Planning Therapeutic Diets: A Practical Manual for Nutrition" which provides clear guidelines, sample meal plans, and case studies. • Publications from professional organizations, such as the Academy of Nutrition and Dietetics or the American Heart Association, which often publish professional guides and reference materials. • Dietetics by B. Sri Lakshmi		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		

Max. Marks-50	
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Prepare appropriate therapeutic meals for different medical conditions. CO2: Apply food modification and cooking techniques for special diets. CO3: Ensure nutritional adequacy, hygiene, and patient acceptability of therapeutic foods.	

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: B.Sc. in Food Science, Nutrition & Dietetics		Year: II
Class: II		Semester: III
Credits: 2 Theory: 2 Practical: 0		Subject: Food Quality & Quantity Assurance
Course Code: FSND-235		Title: Food Quality & Quantity Assurance
Course Objectives: 1. Understand Scientific Concepts of Food Quality and Safety Assurance Systems 2. Apply Quality Control Principles in Food Manufacturing and Service Operations 3. Implement Food Safety Management Systems (HACCP, GMP, ISO Standards) 4. Analyze Food Laws, Regulations, And Compliance Requirements 5. Develop Quantity Food Production Systems with Quality Maintenance		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits THEORY+Sessional		
L: 2 T: 0 P: (In Hours/Week)-00 Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.= 1 Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction To Food Safety & Quality Concepts A. Fundamentals Of Food Safety • Definition Of Food Safety, Food Quality, And Food Security • Types Of Hazards: Physical, Chemical, Biological, And Allergens • Factors Affecting Food Safety and Quality • Food Spoilage Mechanisms and Prevention • Water Activity and Its Importance in Food Preservation B. Quality Control Concepts • Definitions: Quality Control (QC) Vs Quality Assurance (QA) • Quality Parameters: Appearance, Flavor, Texture, Nutritional Value • Major Quality Control Functions in Food Industry • Cost Of Quality and Its Economic Impact	12
II	Quality Assurance Systems & Statistical Quality Control A. Total Quality Management (TQM) • Principles And Philosophy of TQM • Quality Improvement Plans (QIP) • Quality Control Circles (QCC) • Statistical Quality Control (SQC) Techniques • Control Charts and Process Control	12

	B. Quality Management Systems • Iso 9000:2015 Quality Management Standards • Documentation And Record-Keeping Systems • Continuous Improvement Methodologies • Performance Measurement and Monitoring	
III	Food Safety Management Systems A. HACCP System • Seven Principles Of HACCP • Hazard Analysis and Critical Control Points Identification • Development And Implementation of HACCP Plans • Monitoring, Verification, And Validation Procedures B. Good Manufacturing Practices (GMP) • Personnel Hygiene and Training Requirements • Facility Design and Maintenance Standards • Equipment Cleaning and Sanitization • Pest Control and Waste Management C. Food Safety Modernization Act (FSMA) & Preventive Controls • Preventive Controls for Human Food • Supply Chain Verification Programs • Traceability and Recall Procedures	12
IV	Food Laws, Standards & Regulations a) National Food Legislation • Food Safety and Standards Act (FSSAI) 2006 • Food Safety and Standards Authority of India Structure • Licensing And Registration Requirements • Inspection And Enforcement Procedures b) Standards And Specifications • Voluntary Vs Compulsory Standards • BIS (Bureau of Indian Standards) And Agmark • Packaging And Labeling Standards • Import/Export Regulations and Certifications c) International Standards • Codex Alimentarius Commission • WHO/FAO Food Safety Guidelines • WTO Agreements and SPS Measures • International Certification Schemes	12
V	Quantity Food Production & Quality Assurance A. Quantity Food Service Systems • Types Of Food Service Operations • Menu Planning and Standardization • Recipe Standardization and Portion Control • Cost Control and Inventory Management B. Large-Scale Food Production Quality Control • Raw Material Procurement and Quality Assessment • In-Process Quality Monitoring	12

	- Finished Product Evaluation - Storage And Distribution Quality Maintenance	
	C. Institutional Food Safety - Food Safety in Hospitals, Schools, And Catering - Special Dietary Requirements Management - Nutritional Quality Assurance - Food Service Hygiene and Sanitation	
Reference / Text Books: - Eram S. Rao, <i>Food Quality Evaluation</i>, Variety Books Publishers (2013) - Norman N. Potter & Joseph H. Hotchkiss, <i>Food Science</i>, CBS Publishers B. Srilakshmi, <i>Food Science</i>, New Age International Publishers - Pearson D., <i>The Chemical Analysis of Foods</i>, Churchill Livingstone - Nielsen, Suzanne, <i>Food Analysis</i>, Springer US (2010) - Gordon Robertson, <i>Food Packaging Principles</i>, 3rd Edition, CRC Press - FSSAI Guidelines and Regulations (Current Edition) - Codex Alimentarius standards and guidelines - WHO/FAO food safety publications - Industry-specific quality manuals - Current research articles on food safety and quality		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/ Sessional Examination		5
2) Presentations /Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total		50
Prerequisites for the course: - Basic Human Nutrition - Fundamentals of Biochemistry - Human Physiology		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Apply quality management principles in food manufacturing and services. CO2: Identify hazards and implement food safety controls. CO3: Comply with domestic and international food laws and standards. CO4: Design and manage HACCP-based quality systems. CO5: Execute large-scale food production with consistent quality and safety.		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: II
Class: II		Semester: III
Credits: 2		Subject: MOOC/NPTEL, E/IPR
Theory: 2		
Practical: 0		
Course Code: FSND-VAC-234		Title: MOOC/NPTEL, E/IPR
Course Objectives: 1. To familiarize students with online learning platforms and fundamentals of Intellectual Property Rights for academic and professional advancement.		
Nature of Paper: VAC-2		
Minimum Passing Marks/Credits: 40% Marks / 2 Credit (NPTEL Certificate)		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	MOOC/NPTEL and E/IPR courses enhance value addition by offering flexible, industry-relevant learning, enabling students to strategically select subjects aligned with career goals.	-
If the course is available as Generic Elective then the students of following departments may opt it. --		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/ Sessional Examination		50
2) Presentations /Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		50
Course Learning Outcomes: CO1: To utilize MOOC/NPTEL platforms and apply basic IPR concepts in research, innovation, and career planning.		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: II
Class: II		Semester: III
Credits: NC		Subject: SPORTS
Theory: NC		
Practical: NC		
Course Code: SPNC-237		Title: SPORTS
Course Objectives: 1. To build essential interpersonal skills, including collaborative strategy, ethical sportsmanship, and disciplined goal setting within a team environment.		
Nature of Paper: SEC-6		
Minimum Passing Marks/Credits: NC PRACTICAL		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are encouraged to engage in a diverse range of indoor and outdoor recreational activities, such as carrom, chess, and various team sports, to promote physical well-being and strategic thinking.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		-
3) Assignments		25
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Execute specialized skills, techniques, and tactical strategies in at least two selected indoor or outdoor sports.		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: II
Class: II		Semester: III
Credits: NC		Subject: SOFT SKILLS
Theory: NC		
Practical: NC		
Course Code: FSND-236		Title: SOFT SKILLS
Course Objectives: 1. Students will learn basic communication, interpersonal skills, and positive personality development.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 1 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 1 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	1. Introduction, meaning, and importance of soft skills in academic and professional life. 2. Communication skills, interpersonal skills, and personality development for effective behavior. 3. Presentation skills, time management, and stress management. 4. Leadership skills, teamwork, problem-solving, and decision-making. 5. Career readiness, professional ethics, work values, and workplace etiquette.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: 1. Demonstrate effective communication, teamwork, and interpersonal skills in academic and professional environments. 2. Apply time management, problem-solving, and decision-making skills in real-life situations. 3. Exhibit professional behavior, ethical values, and confidence required for career development and lifelong learning.		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: II
Class: II		Semester: III
Credits: NC		Subject: INDUSTRIAL VISIT/SEMINAR PRESENTATION ON THE REPORT
Theory: NC		
Practical: NC		Title: INDUSTRIAL VISIT/SEMINAR PRESENTATION ON THE REPORT
Course Code: FSND-238		
Course Objectives: 1. Develop skills to observe, record, and analyze industrial processes effectively.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are required to deliver a formal report detailing their key observations, technical insights, and professional assessments gathered during the industrial visit.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Identify community needs and explore university–community partnership opportunities. CO2: Participate in volunteer activities and document experiences for reflection.		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: II
Class: II		Semester: III
Credits: NC		Subject: UNIVERSITY SOCIAL RESPONSIBILITY
Theory: 0		
Practical: 0		Title: UNIVERSITY SOCIAL RESPONSIBILITY
Course Code: FSND-239		
Course Objectives:		
1. To generate awareness of social, ethical, and environmental responsibilities.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: 50% Marks / Non Credit (PRACTICAL)		
L: 0		
T: 0		
P: 1 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Community Engagement University–community partnerships. Basics of volunteering and service learning. Identifying local community needs. Activity: Field visit to NGOs or schools.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes:		
CO1. Analyze environmental challenges and promote sustainable campus practices.		
CO2. Implement eco-friendly initiatives like waste management and tree plantation.		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: IV

Programme: B.Sc. in Food Science, Nutrition & Dietetics Class: II		Year: II Semester: IV
Credits: 3 Theory: 3 Practical: 0		Subject: Sports and Fitness Nutrition
Course Code: FSND-241		Title: Sports and Fitness Nutrition
Course Objectives: 1. To Learn the Fundamental Principles of Sports Nutrition. 2. To Identify the Nutritional Requirements of Athletes in Various Sports. 3. To Assess the Role of Macro and Micronutrients in Athletic Performance and Recovery. 4. To Develop Individualized Nutrition Plans for Athletes. 5. To Understand the Psychological and Physiological Aspects of Eating Disorders in Athletes.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Foundations of Sports Nutrition & Health Management a) Introduction To Sports Nutrition: Definition, Evolution, And Growth of Sports Nutrition as a Discipline. b) Fitness & Health Interrelationships: Components of Specific Fitness and Health Status. The Interrelationship Between Nutrition, Exercise, Physical Fitness and overall, Health. c) Assessment & Measurement: Various Techniques for Measuring Body Composition and Work Capacity. Parameters of Physical Fitness and Common Fitness Tests. d) Nutrition For Health & Disease Prevention: Significance of Physical Fitness and Nutrition in the Prevention and Management of Weight Control, Obesity, Cardiovascular Disorders and Diabetes. e) Basic Physiology & Metabolism: Fundamentals of Human Nutrition, Basic Physiology, Metabolism, and Their Direct Link to Exercise. Energy Input & Output, Diet & Exercise.	12
II	Energy Systems & Core Nutrient Demands of Exercise a) Energy Systems in Exercise: Review of Different Energy Systems Crucial for Endurance and Power Activities. b) Fuel Metabolism during Exercise: Shifts in Carbohydrate and Fat Metabolism during Physical Activity. Mobilization of Fat Stores During	12

	Exercise. c) Macronutrient Requirements: Nutritional Demands of Sports, Including Detailed Requirements for Carbohydrates and Proteins for Muscle Gain and Repair. d) Fluid & Electrolyte Balance: Importance of Fluid Requirements, Strategies for Preventing Dehydration, and the Role of Electrolyte Replenishment during Physical Activity.	
III	Applied Nutrition for Sports Performance & Athlete Management a) Sports-Specific Nutritional Strategies: Tailoring Nutrition for Different Types of Athletes (Endurance, Strength & Power, Weightlifting, Etc.). b) Diet Manipulation & Meal Timing: Importance of Carbohydrate Loading, Pre-Game and Post-Game Meal Strategies and Overall Diet Manipulation for Optimal Performance. c) Special Considerations in Athletes: Nutritional Requirements for Individuals with High Energy Demands and Dietary Management for Stress, Fracture and Injury Recovery. d) Special Dietary Needs: Addressing and Planning for Specific Dietary Needs Such as Vegan Diets, Food Allergies and Other Individual Considerations in Athletes	12
IV	Dietary Supplements & Ergogenic Aids a) Definitions & Classification: Clear Definitions and Classification of Dietary Supplements, Nutrigenic Aids and Ergogenic Aids. b) Types & Uses: Detailed Study of Various Commercial Supplements, Sports Drinks and Sports Bars. c) Supplementation Strategies: Safe and Effective Strategies for Using Dietary Supplements and Ergogenic Aids in Training and Competition. d) Regulation & Ethics: Understanding the Regulatory Framework, Permitted Vs. Non-Permitted Aids and Ethical Considerations Surrounding Supplement Use in Sports.	12
V	Professional Competencies & Integrated Athlete Care a) Nutritional Counselling & Communication: Developing Effective Communication Skills for Sports Promotion and Providing Specialized Nutritional Counselling to Athletes. b) Food Service Management: Principles Of Food Service Management Relevant to Sports Teams and Athletic Facilities. c) Research & Professional Development: Fundamentals of Research Methodology and Biostatistics in Sports Nutrition. d) Integrated Care: Basics of Sports Psychology and its Integration with Nutritional Counselling for Holistic Athlete Development and Addressing Nutrition-Related Disorders in Athletes. e) Entrepreneurship: Introduction to Entrepreneurial Opportunities in the Field of Sports and Fitness Nutrition.	12

Reference / Text Books:

- Whitney E.N and Rolfes S.R. Understanding Nutrition. Wadsworth Publishing; 10 edition (May 25, 2004).
- Ira Wolinsky. Nutrition in Exercise and Sports. 3 illustrated, revised publisher CRC press, 1997.
- Parizkova. J. Nutrition, Physical activity and health in early life. Illustrated, revised publisher CRC

press, 1996.

- Kang J and Barnett S R N (2022) Nutrition and Metabolism in Sports, Exercise and Health (2nd Edition). Routledge publishing company.
- Maughan R J and Burke L M (2023) Sports Nutrition: Enhancing Athletic Performance" (3rd Edition). CRC Press
- Dunford M J, Doyle A and Kalman D M (2021) Nutrition for Sport, Exercise, and Health (2nd Edition) Cengage Learning
- Burke L and Deakin V (2022) Clinical Sports Nutrition (6th Edition) McGraw-Hill Education 160 "Curriculum of Nutrition and Dietetics (Intellectual Property of the National Commission for Allied and Healthcare Professions, Ministry of Health and Family Welfare)."
- Ryan M (2020) Sports Nutrition for Endurance Athletes (3rd Edition). Velo Press
- William D. Mc Ardle, F I K and Victor L K (2020) Sports and Exercise Nutrition (5th Edition). Wolters Kluwer
- Austin K G and Seebohar B (2021) Performance Nutrition for Athletes. Human Kinetics
- Heather Hedrick Fik and Alan E. Mikesky (2015) Practical Application in Sports and Nutrition. Fourth Edition. Jones & Bartlett Learning, Burlington, MA 01803.
- www.eatright.org/fitness
- www.nutritionist-resource.org
- www.sportsoracle.com
- www.nutritionaustralia.org
- www.acsm.org/nutrition
- www.sportsnutritionistsociety.org
- www.sportsdietitians.com

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-100
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100

Prerequisites for the Course:

- Understanding of Basic Nutrition, Food Science and Biochemistry
- Knowledge About Human Anatomy and Exercise Physiology
- Knowledge About Dietetics Including Dietary Assessment, Nutrition Counselling and Meal Planning.

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Apply exercise science to create effective nutrition strategies.

CO2: Understand energy systems and determine athlete fuel needs.

CO3: Develop personalized nutrition based on sport and individual needs.

CO4: Evaluate the safety and ethics of supplements for performance.

CO5: Provide personalized care through effective communication and research-based advice.

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: IV

Programme: B.Sc. in Food Science, Nutrition & Dietetics Class: II		Year: II Semester: IV
Credits: 3 Theory: 3 Practical: 0		Subject: Public Health Nutrition
Course Code: FSND-242		Title: Public Health Nutrition
Course Objectives: 1. To understand the foundational concepts of Public Health Nutrition (PHN) and its relevance to population health and well-being. 2. To examine the role of nutrition across the life cycle and its critical contribution to achieving global targets such as the Sustainable Development Goals (SDGs). 3. To evaluate the influence of public policies and nutrition interventions on community health outcomes at national and global levels. 4. To develop skills in utilizing nutritional surveillance and epidemiological data for the monitoring, evaluation, and improvement of public health nutrition programs. 5. To explore community-based nutrition and health promotion strategies aimed at addressing specific health challenges in diverse populations.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Public Health Nutrition a) What Is Public Health Nutrition (PHN)? b) Roles and Responsibilities of Public Health Nutritionists. c) Definitions of Important Concepts: Positive Health, Malnutrition (Under Nutrition, Overweight, Obesity, Micronutrient Malnutrition), d) Nutritional Status, Nutrition Intervention, e) Food And Nutrient Supplements, Food Substitutes, Nutrition Education	12
II	Sectors In Public Health Nutrition a) Primary Health Care of the Community and Health Systems of India. National Health Care Delivery System. Determinants of Health Status, Indicators of Health. b) Food and Nutrition Security: Food Production, Access, Distribution Availability, Losses, Consumption, Dietary Patterns and their Implications on Nutrition and Health c) Nutritional Status: Determinants of Nutritional Status of Individuals and	12

	Populations d) Nutrition and Non-Nutritional Indicators: Sociocultural Biological, Environmental and Economic e) Approaches and Strategies for Improving Nutritional Status and Health: Health-Based Intervention, Food-Based Intervention, Nutrition Education for Behavior Change f) Supplementation and Food Fortification	
III	Nutrition and Population Dynamics in Sustainable Development • Nutrition – A Developmental Priority, Population Dynamics (Local, National, Global), Demographic Transition, Population Structure, Fertility, Behavior, • Quality of Life, Burden of Death and Disease (Local, National, Global), United Nations (UN) Decade of Action on Nutrition (2016-2025), Nutrition at Center Stage of Sustainable Development Goals (SDGs), 12 of the 17 Goals Require Good Nutrition to be met – An Overview.	12
IV	Life Cycle Nutrition and Global Health: Priorities and Interventions a) Importance of Nutrition Throughout the Life Cycle: Role of Nutrition in Achieving Global Targets, b) Optimal Infant and Young Child Feeding: Significance of the First 1000 Days of Life, c) Improving Maternal, Infant and Young Child Nutrition – WHO Global Targets, d) Role of Dietary Risk Factors in Achieving Global Targets Related to Non-Communicable Diseases (NCDs), e) Maternal and Child Health, f) Addressing Micronutrient Deficiencies	12
V	Nutritional Surveillance and Surveillance Systems a) Understanding Nutritional Surveillance and its Purpose in Programme Design Planning, Implementation, Operation Monitoring, Surveillance, and Evaluation. b) Surveillance/Reporting System Used in ICDS Program, Strength & Weaknesses, Newer Initiatives Taken by Government to Improve ICDS Surveillance System. c) Monthly Program Report and Its Uses in Surveillance, Definitions of Terms Used in Nutritional Surveillance, Long Term Nutrition Monitoring, Evaluation of Programs Impact, Timely Warning and Intervention Systems. d) Types of Nutritional Surveillance Appropriate to Different Situations, Indicators and Data Sources from Existing Macro and Micro Systems of Information in India (Origin, Objectives, Importance and Their Use in Community Nutrition) NNMB, NFHS, NSSO, ICDS, NSS, CENSUS, MICS CES, Etc. e) Nutrition Surveillance For Action –Cycle of Triple A. f) Critique Of Nutrition Surveillance Data Available in Sources Like NFHS (National Family Health Surveys), NNMB (National Nutrition Monitoring Bureau)	12
Reference / Text Books:		

- Textbook Of Community Medicine Preventive and Social Medicine with Recent Update by Lal, S. (2018), CBS Publishers & Distributors Private Limited.
- Public Health Nutrition in Developing Countries 2nd Edition (2 Volume Set) by Vir SC (2011), Wood head Publishing India Pvt. Ltd.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-100
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100

Prerequisites for the course:

- Basic Knowledge of Nutrition and Human Physiology and Anatomy.
- Knowledge of Food Safety and Hygiene.

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Explain public health nutrition concepts, roles, and key terms.

CO2: Describe health and nutrition systems in India and improvement strategies.

CO3: Link nutrition to population growth, development, and SDGs.

CO4: Recognize nutrition's role across life stages for disease prevention.

CO5: Use nutrition data for planning and evaluating community programs.

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: IV

Programme: B.Sc. in Food Science, Nutrition & Dietetics Class: II		Year: II Semester: IV
Credits: 3 Theory: 3 Practical: 0		Subject: FUNCTIONAL FOODS AND NUTRACEUTICALS
Course Code:FSND-243A		Title: FUNCTIONAL FOODS AND NUTRACEUTICALS
Course Objectives: 1. To introduce the concept, classification, and history of functional foods and nutraceuticals. 2. To understand the role of bioactive compounds in promoting health. 3. To categorize nutraceuticals based on source, action, and composition. 4. To explore formulation and development of functional food products.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 2 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Functional Foods and Nutraceuticals. a. Definition b. History c. Classification (Designer foods, Pharma foods) d. Nutritional Supplements e. Health effects of functional foods f. Stages in development of functional foods	12
II	Categorization of Nutraceuticals a. Classification based on: • Food source • Mechanism of action b. Chemical nature: • Isoprenoids • Phenolic substances • Fatty acids and structural lipids • Terpenoids (saponins, tocotrienols, simple terpenes) • Carbohydrates and amino acid derivatives • Isoflavones	12
III	Probiotics, Prebiotics and Synbiotics a. Probiotics: Concept, Human gastro intestinal tract and its microbiota,	10

	Classification of Probiotics, role of probiotics in health and diseases b. Prebiotics: Oligosaccharides, Dietary fiber, Resistant Starch, Gums, Spirulina as bioactive components.	
IV	Sources and Applications of Functional Ingredients a. Natural sources of nutraceuticals (plants, animals, microbes) b. Functional ingredients in fruits, vegetables, cereals, legumes, dairy, seafood c. Use in food products (beverages, snacks, supplements)	12
V	Recent Trends and Research in Functional Foods a. Current research developments b. Clinical trials and evidence-based claims c. Market potential and consumer acceptance d. Challenges in formulation, stability, labeling, and regulation	10
Reference / Text Books: - Shetty, K., & Sarkar, D. (2015). <i>Functional foods and biotechnology</i> (2nd ed.). CRC Press. - Ghosh, D. (Ed.). (2015). <i>Nutraceuticals and functional foods: Natural remedy</i>. Springer. - Srilakshmi, B. (2010). <i>Dietetics</i> (7th ed.). New Age International Publishers. - Mahan, L. K., & Raymond, J. L. (2016). <i>Krause's food & the nutrition care process</i> (14th ed.). Elsevier.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/ Sessional Examination		10
2) Presentations /Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course: - Basic knowledge of general terms of foods and nutrition. - Knowledge of basic food Science.		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Define and classify functional foods and nutraceuticals. CO2: Explain health benefits of bioactive compounds. CO3: Categorize nutraceuticals by source, action, and composition. CO4: Describe development and formulation stages of functional foods. CO5: Evaluate regulatory frameworks for functional foods and nutraceuticals.		

IIMTU-NEP IMPLEMENTATION
Year: II/ Semester: IV

Programme: B.Sc. in Food Science, Nutrition & Dietetics		Year: II
Class: II		Semester: IV
Credits: 3 Theory: 3 Practical: 0		Subject: Nutrition In Lifestyle Management
Course Code: FSND-243B		Title: Nutrition In Lifestyle Management
Course Objectives: 1. Analyze the relationship between nutrition and lifestyle factors in health promotion and disease prevention 2. Design evidence-based nutrition interventions for chronic disease prevention and management 3. Apply behavior change theories and counseling techniques to facilitate dietary modifications 4. Develop lifecycle-appropriate nutrition strategies for diverse populations 5. Evaluate community nutrition programs and their effectiveness in promoting public health 6. Demonstrate cultural competency in nutrition counseling and education 7. Integrate nutrition science with behavioral, social, and environmental factors affecting health		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Foundations of Lifestyle Nutrition A. Introduction To Lifestyle Medicine and Nutrition • Definition And Scope of Lifestyle Medicine in Healthcare • Role of Nutrition in Lifestyle Modification and Disease Prevention • Evolution of Lifestyle-Related Health Challenges in Modern Society • Integration of Nutrition with Other Lifestyle Factors (Physical Activity, Stress Management, Sleep) • Public Health Significance of Lifestyle Interventions B. Nutritional Foundations for Lifestyle Management • Macronutrients and Their Roles in Metabolic Health • Micronutrients (Vitamins and Minerals) and Their Impact on Chronic Disease Prevention • Energy Balance and Metabolism in Lifestyle Management • Bioactive Compounds and Functional Foods in Disease Prevention • Understanding Nutrient-Gene Interactions (Nutrigenomics) C. Assessment And Evaluation Methods • Nutritional Status Assessment Techniques for Lifestyle	12

	Interventions • Anthropometric Measurements and Body Composition Analysis • Biochemical Markers for Metabolic Health Evaluation • Dietary Assessment Methods: 24-Hour Recall, Food Diaries, and Food Frequency Questionnaires • Clinical Examination for Nutritional Deficiencies D. Principles of Lifestyle-Based Nutrition Planning • Evidence-Based Approach to Nutrition Recommendations • Individualized Nutrition Planning Based on Lifestyle Factors • Cultural Considerations in Lifestyle Nutrition Interventions • Integration of Nutrition with Behavioural Change Theories	
II	Nutrition for Chronic Disease Prevention and Management Duration A. Cardiovascular Health and Nutrition • Nutritional Factors in Cardiovascular Disease Prevention • Dietary Patterns for Heart Health: DASH Diet, Mediterranean Diet • Management of Hypertension through Dietary Interventions • Cholesterol Management and Lipid Profile Optimization • Role of Omega-3 Fatty Acids and Antioxidants in Cardiovascular Protection B. Diabetes Prevention and Management • Type 2 Diabetes Prevention through Lifestyle Modification • Nutritional Strategies for Blood Glucose Control • Glycemic Index and Glycemic Load in Meal Planning • Carbohydrate Counting and Portion Control • Insulin Resistance and Dietary Interventions C. Weight Management and Obesity Prevention • Etiology and Assessment of Obesity • Energy Balance and Weight Regulation Mechanisms • Evidence-Based Approaches to Weight Loss and Maintenance • Behavioral Strategies for Sustainable Weight Management • Metabolic Adaptation and Plateau Management D. Cancer Prevention Through Nutrition • Nutritional Factors in Cancer Etiology and Prevention • Antioxidants and Phytochemicals in Cancer Protection • Dietary Patterns Associated with Reduced Cancer Risk • Nutritional Support During Cancer Treatment E. Bone Health and Osteoporosis Prevention • Calcium, Vitamin D and Bone Health throughout the Lifespan • Nutritional Strategies for Osteoporosis Prevention • Exercise and Nutrition Interactions for Bone Health	12
III	Behavior Change and Nutrition Counseling A. Theoretical Foundations of Behavior Change • Transtheoretical Model and Stages of Change in Nutrition Counseling • Social Cognitive Theory Applications in Dietary Behavior Modification	12

	• Motivational Interviewing Techniques for Nutrition Counseling • Health Belief Model and its Application to Dietary Change B. Nutrition Counseling Skills and Techniques • Effective Communication Strategies for Nutrition Education • Client Assessment and Goal Setting for Behavior Change • Developing Personalized Nutrition Care Plans • Cultural Competency in Nutrition Counseling • Documentation and Follow-Up Strategies C. Group Education and Community Interventions • Planning and Implementing Group Nutrition Education Programs • Community-Based Nutrition Interventions • Health Promotion Strategies at the Population Level • Use of Technology and Social Media in Nutrition Education • Evaluation of Nutrition Education Program Effectiveness D. Addressing Barriers to Behavior Change • Identifying and Overcoming Barriers to Dietary Change • Stress Management and its Impact on Eating Behaviors • Sleep, Nutrition, And Lifestyle Interconnections • Social and Environmental Factors Affecting Dietary Choices	
IV	Lifecycle Nutrition and Lifestyle Management A. Maternal And Infant Nutrition • Preconception Nutrition and Lifestyle Factors • Nutritional Requirements During Pregnancy and Lactation • Lifestyle Modifications for Healthy Pregnancy Outcomes • Breastfeeding Support and Complementary Feeding Practices • Prevention of Childhood Obesity through Early Nutrition B. Child And Adolescent Nutrition • Growth and Development Considerations in Lifestyle Nutrition • School Nutrition Programs and Healthy Eating Environments • Preventing Childhood Obesity and Eating Disorders • Nutrition Education for Children and Families • Adolescent Nutrition Challenges and Intervention Strategies C. Adult Nutrition Across the Lifespan • Nutritional Needs of Active Adults and Athletes • Workplace Nutrition and Corporate Wellness Programs • Gender-Specific Nutrition Considerations • Nutrition for Mental Health and Cognitive Function • Stress Management through Nutritional Interventions D. Geriatric Nutrition and Healthy Aging • Nutritional Changes Associated with Aging • Prevention of Age-Related Diseases through Nutrition • Addressing Malnutrition in Older Adults • Medication-Nutrient Interactions in Elderly Populations • Promoting Independence through Optimal Nutrition	12
V	Public Health Nutrition and Community Interventions	12

	A. Population Health and Nutrition Policy • Role of Nutrition in Public Health Initiatives • Nutrition Policies and their Impact on Population Health • Food Security and its Relationship to Health Outcomes • Global Nutrition Challenges and Solutions B. Community Nutrition Assessment and Planning • Community Nutritional Needs Assessment Methods • Planning Community-Based Nutrition Interventions • Stakeholder Engagement and Partnership Development • Program Implementation and Evaluation Strategies C. Food Environment and Policy Interventions • Built Environment and its Impact on Food Choices • Food Marketing and its Influence on Dietary Behaviors • School and Workplace Food Policies • Community Gardens and Local Food Systems D. Special Populations and Vulnerable Groups • Nutrition Interventions for Low-Income Populations • Culturally Appropriate Nutrition Programs • Nutrition for Individuals with Special Needs • Emergency Nutrition and Disaster Response	
Reference / Text Books: • Nutrition Counseling and Education Skills: A Practical Guide • Krause's Food & The Nutrition Care Process • Community Nutrition in Action: An Entrepreneurial Approach • Current research articles from peer-reviewed nutrition journals • Government dietary guidelines and policy documents • Professional practice guidelines from nutrition and dietetics organizations • Online resources for behavior change tools and techniques • Nutritional Requirements for Indians by Indian Council of Medical Research – National Institute of Nutrition (NIN), Hyderabad (2020), ICMR-NIN Publications. • https://www.pmsd.org/cms/lib/PA01916596/Centricity/Domain/142/HealthyLifestyleManagementSyllabus.pdf • https://mu.ac.in/wp-content/uploads/2024/06/6.6-Sem.-I-8a-Nutrition-Life-style-diseases-and-their-management.pdf • https://sgtuniversity.ac.in/ahs/programmes/SYLLABUS-MSc-Nutrition-&-Dietetics-2024.pdf • https://www.medvarsity.com/courses/certificate-in-lifestyle-medicine • https://en.wikipedia.org/wiki/Preventive_nutrition • https://www.sriramachandra.edu.in/university/academics.php?did=104 • https://ncert.nic.in/textbook/pdf/lehe103.pdf • https://www.prehab121.com/lifestylenutrition • https://jnmc.edu/wp-content/uploads/2022/02/B.Sc-Nutrition-Dietetics.pdf • https://www.andhrauniversity.edu.in/img/syllabus/ugsyllabus/B.Sc_Food_sci_Nutrition_NewSYLLABUS_WEF_2020_21AY.pdf • https://www.rrgu.in/userfiles/file/Nutrition and Public Health RRGU 2021-2023 FOR WEBSITE.pdf		

- <https://iisd.in/product/advanced-certificate-in-nutrition-and-health-management/>
- https://cap.mgu.ac.in/SYLLABUS/FILEuofile22_06_24_11_11_14.pdf
- <https://www.medvarsity.com/courses/certificate-in-lifecycle-and-wellness-nutrition>
- <https://uou.ac.in/sites/default/files/syllabus/HSC-301.pdf>
- <https://www.scribd.com/document/488571723/NCM-105-5-3>
- <https://pubmed.ncbi.nlm.nih.gov/35975962/>
- <https://www.futurelearn.com/courses/nutrition-disease-prevention>
- <https://www.infs.com/course/ClinicalNutritionAdvancedCourse-16>
- <https://www.kdhe.ks.gov/DocumentCenter/View/25378/Behavioral-Change-Model-PDF>
- <https://pmc.ncbi.nlm.nih.gov/articles/PMC5006147/>
- <https://hu.edu.jo/facnew/dept/PDFDisplay.aspx?crs=140502351>
- <https://www.pvamu.edu/sites/hb2504/courses/Spring> 2024/HUNF 4347-P01.pdf?nocache=1709082657
- https://syllabus.up.edu.ps/course/NUTR_4327/PHS
- [https://sfc.ac.in/pdf/nutrition/bsc-Nutrition/4.CommunityNutritionSEMESTERIV\(2\).pdf](https://sfc.ac.in/pdf/nutrition/bsc-Nutrition/4.CommunityNutritionSEMESTERIV(2).pdf)
- <https://www.medvarsity.com/courses/nutrition-and-weight-management-essentials>
- <https://teresas.ac.in/wp-content/uploads/2022/05/B.Sc.-Nutrition-and-Dietetics-.pdf>
- <https://www.wcupa.edu/healthSciences/nutritionAndDietetics/lifestyleNutrition.aspx>

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-100
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100

Prerequisites for the course:

- Basic knowledge of Human Physiology, Chemistry and Biochemistry.
- Knowledge of basics of Food Science and Nutrition Science.

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Explain classification, sources, and functions of macronutrients.

CO2: Describe digestion, absorption, and metabolism of macronutrients.

CO3: Assess energy intake, expenditure, and balance.

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: IV

Programme: B.Sc. in Food Science, Nutrition & Dietetics		Year: II
Class: II		Semester: IV
Credits: 3 Theory: 3 Practical: 0		Subject: Micronutrients in Human Nutrition
Course Code: FSND-244		Title: Micronutrients in Human Nutrition
Course Objectives: 1. The Subject Will Focus on the Main Components of Food: Vitamins, Minerals, And Antioxidants. The Subject Deals in Depth with the Relationship Between the Chemical Structure of the Components and the Reactions and Function of the Components in Food 2. The students should have Acquired a Deeper Understanding of Selected Topics Within Food Chemistry of Micronutrients		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Food Flavors and Bioactive Compounds a) Introduction to Flavours: Definition, Classification, and Methods for Extracting, Purifying, and Analysing Flavour Compounds (HPLC, GC, GCMS). b) Flavour Chemistry: Study of Natural and Synthetic Flavour Compounds, Including the Structure and Occurrence of Terpenoids, Flavonoids, Polyphenols, And Sulphur Compounds in Plants and Animal Foods. c) Flavour Management: Concepts of Flavour Retention, Modification, and Enhancement. Discussion of Taste Modification and Enhancement. d) Fermentation Flavours: Examination of Flavour Compounds Produced During the Fermentation of Foods Like Wines, Fermented Milk, and Meat Products.	12
II	Food Pigments and Their Nutritional Significance a) Pigments In Animal Foods: Structure and Chemical Transformations of Haemoglobin and Myoglobin; Stability of Myoglobin in Cured Meats and The Role of Nitrates. b) Pigments In Plant Foods: Classification, Structure, And Chemical Properties of Chlorophylls, Carotenoids, Anthocyanins, And Betalains. c) Processing Effects: Understanding Pigment Behaviour and Colour	12

	Changes During Cooking and Processing, including the Effect of Acid and Alkali on Colour. d) Colourants & Safety: Techniques for Colour Extraction and Retention; Study of Synthetic Colourants (Permitted Vs. Non-Permitted, Dyes, And Lakes) And Their Safety Regulations.	
III	Fat-Soluble Vitamins a) General Vitamin Concepts: Classification, Dietary Requirements, Allowances, Toxicity, and Methods for Loss Reduction and Optimization. b) Vitamin A, D, E, And K: Structure, General Properties, and Stability. c) Degradation & Bioavailability: Mechanisms of Degradation and Factors Affecting the Absorption and Bioavailability of Fat-Soluble Vitamins.	12
IV	Water-Soluble Vitamins a) Thiamine, Riboflavin, Niacin, Ascorbic Acid, Pantothenic Acid, Vitamin B6, Folic Acid, Biotin, Vitamin B12: Structure and General Properties. b) Stability & Bioavailability: Stability and Degradation Mechanisms of Water-Soluble Vitamins. Factors Affecting Their Absorption and Bioavailability.	10
V	Minerals in Human Nutrition a) Macrominerals: Nutritional Aspects, Sources, Requirements, Allowances, Absorption, And Bioavailability of Calcium, Phosphorus, Magnesium, Sodium, Potassium, Chloride and Sulphur. b) Microminerals: Nutritional Aspects, Sources, Requirements, Allowances, Absorption, And Bioavailability of Iron, Zinc, Copper, Selenium, Iodine, And Chromium. c) Toxicity & Losses: Toxicity of Macro- and Microminerals. Factors Leading to Mineral Losses and Strategies for Retention. d) Antinutritional Factors: Chemistry and Effect of Antinutritional Compounds Like Saponins, Phytic Acid, Hemagglutinins and Lectins on Mineral Absorption and Bioavailability. e) Effect of Enzymes on Food in Processing: Types and Their Role in Processing	10
Reference / Text Books:		
- Manay, N.S. and Shadaksharswamy, M. (2001). Food facts and principles, II Ed. New Age International (P) Ltd. Publishers, New Delhi. - Aurand, L.W. and Woods A.E. (1973). Food chemistry. The AVI Publishing Company, Inc., Westport Connecticut. - Mondy, N.I. (1980). Experimental food chemistry. AVI Publishing Company, Inc. Westport Connecticut. - Owen r, Fennema, 1996. Food Chemistry, 3rd Edition, Marcel Dekker, Inc., New York, USA. - H.D. Belitz, 2009. Food Chemistry, 4th Edition. Springer		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
Max. Marks-50		

1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50
Prerequisites for the course: • General and Organic Chemistry& Physics • Human Physiology and Biochemistry • Principles of Food Science and Basic Nutrition	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Describe structures, properties, and analysis of flavors, pigments, vitamins, and minerals. CO2: Explain absorption and utilization of vitamins and minerals. CO3: Identify sources, needs, and effects of micronutrient deficiencies or excess. CO4: Analyze effects of processing, cooking, and ant nutrients on food value. CO5: Assess roles of micronutrients, flavors, and pigments in food quality.	

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: IV

Programme: B.Sc. in Food Science, Nutrition & Dietetics		Year: II
Class: II		Semester: IV
Credits: 2		Subject: Nutrition in Emergencies and Disaster
Theory: 2		
Practical: 0		
Course Code:FSND-245		Title: Nutrition in Emergencies and Disaster
Course Objectives:		
1. To Understand the Impact of Emergencies on Nutritional Status.		
2. To Learn Methods for Assessing and Monitoring Nutritional Needs in Crisis Situations.		
3. To Gain Knowledge of Emergency Nutrition Programs and Interventions.		
4. To Develop Skills for Managing Malnutrition and Food Insecurity in Emergencies		
5. To Familiarize with International Standards and Guidelines for Nutrition in Emergencies		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits THEORY+Sessional		
L: 2		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction To Nutrition in Emergencies a) Definition And Classification of Emergencies: - Natural Disasters (Earthquakes, Floods, Droughts, Cyclones) - Manmade Disasters (Conflicts, Wars, Civil Unrest) - Public Health Emergencies (Pandemics, Epidemics) b) Impact of Emergencies on: - Food Availability and Accessibility - Nutritional Status and Public Health Outcomes c) Rapid Nutrition Assessments and Surveys: - Methods for Data Collection in Emergency Contexts d) Indicators of Nutritional Status: - Anthropometric (E.G., MUAC, Weight-For-Height) - Biochemical - Clinical - Dietary Intake Assessments	12
II	Emergency Nutrition Programs and Interventions a) Nutritional Requirements of Emergency-Affected Populations b) Types of Nutrition Interventions: - General Food Distribution - Supplementary Feeding Programs (Blanket and Targeted)	12

	• Therapeutic Feeding (Inpatient and Outpatient) c) Micronutrient Interventions: • Supplementation and Fortification • Prevention and Control of Micronutrient Deficiencies d) Resource Mobilization and Distribution: • Use of Local and Regional Food Resources • Allocation of General and Social Funds for Food Aid	
III	Managing Malnutrition in Emergencies a) Classification And Diagnosis of Malnutrition: • Severe Acute Malnutrition (SAM) • Moderate Acute Malnutrition (MAM) b) Management Approaches: • Community-Based Management of Acute Malnutrition (CMAM) • Inpatient Care for Complicated Cases c) Therapeutic And Supplementary Feeding: • Role of Ready-To-Use Therapeutic Foods (RUTF) • Use of Supplementary Foods and Locally Available Options	10
IV	Food Security and Livelihoods in Emergencies a) Strategies for Ensuring Food Security in Emergencies: Short-Term Relief and Long-Term Recovery b) Supporting Livelihoods During and After Disasters c) Importance of WASH (Water, Sanitation, And Hygiene) in Emergency Nutrition d) Integration of Public Health and Nutrition Interventions e) Coordination and Collaboration with Humanitarian Organizations	12
V	International Guidelines, Ethical Considerations and Cultural Sensitivity a) Overview of Global Standards and Frameworks: • Sphere Standards • WHO Emergency Nutrition Guidelines • UNICEF Protocols for Child Nutrition b) Ethical Considerations in Emergency Response: • Equity in Resource Distribution • Respect for Human Dignity and Informed Consent c) Cultural Sensitivity in Designing and Implementing Nutrition Programs • Adapting Food Aid to Local Dietary Habits and Preferences • Engaging Community Participation in Emergency Planning	10
Reference / Text Books: 1. Watson, F., & Sandoz, Y. (Eds.). (2020). Emergency Nutrition: Principles and Practice in Humanitarian Response. Oxford University Press. 2. Wilkinson, C, & Whitehead, C. (2019). Nutrition in Emergencies. CABI Publishing 3. The Sphere Project. (2018). The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response. 4th Edition. Practical Action Publishing. 219 “Curriculum of Nutrition and Dietetics (Intellectual Property of the National Commission for Allied and Healthcare Professions, Ministry of Health and Family Welfare).”		

4. World Health Organization. (2013). Management of Severe Acute Malnutrition in Children: Working Towards Results at Scale. WHO.
5. World Food Programme & United Nations Children's Fund. (2017). Food and Nutrition in Emergencies: An Approach to Effective Interventions. WFP & UNICEF. A comprehensive guide to planning and implementing nutrition interventions in emergencies, including food aid, supplementary feeding, and micronutrient supplementation.
6. https://www.who.int/nutrition/topics/nut_emergencies/en/ (https://www.who.int/nutrition/topics/nut_emergencies/en/)
7. <https://www.unicef.org/nutrition/emergencies> (<https://www.unicef.org/nutrition/emergencies>)
8. <https://spherestandards.org/> (<https://spherestandards.org/>)
9. <http://www.fao.org/emergencies/resources/documents/emergency-prevention-system-for-food-safety/en/> (<http://www.fao.org/emergencies/resources/documents/emergency-prevention-system-for-food-safety/en/>)
10. <https://www.nutritioncluster.net/> (<https://www.nutritioncluster.net/>)
11. <https://www.wfp.org/emergencies> (<https://www.wfp.org/emergencies>)
12. <https://www.actionagainsthunger.org/nutrition> (<https://www.actionagainsthunger.org/nutrition>)
13. <https://reliefweb.int/topics/nutrition> (<https://reliefweb.int/topics/nutrition>)
14. <https://www.ifrc.org/nutrition> (<https://www.ifrc.org/nutrition>)
15. <https://www.usaid.gov/glob>

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Prerequisites for the Course:

- Understanding of Basic Nutrition and Dietetics
- Knowledge About Public Health Nutrition or Community Nutrition
- Knowledge About Food Security and Policy, Biostatistics and Epidemiology

Course Learning Outcomes:

By the end of this course, students will be able to:

1. Identify emergency types and their impact on food security.
2. Describe nutrition support and resource management in emergencies.
3. Explain identification and management of acute malnutrition.
4. Apply strategies for food security, livelihoods, and hygiene.
5. Use global guidelines and culturally sensitive practices in emergency nutrition.

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: IV

Programme: B.Sc. in Food Science, Nutrition & Dietetics	Year: II	
Class: II	Semester: IV	
Credits: 2 Theory: 0 Practical: 2	Subject: Sports and Fitness Nutrition	
Course Code: FSND-241P	Title: Sports and Fitness Nutrition Lab	
Course Objectives: 1. To develop practical competence in assessing athletes’ nutritional status and designing sport-specific diet plans, including dietary recall, supplement evaluation, and meal planning for strength, endurance, and clinical conditions, with appropriate timing of pre-game and post-game nutrition. 2. To enable students to critically analyze sports supplements and functional foods, interpret labels, understand nutrient composition and roles in athletic performance, and apply scientific principles in the development and standardization of sports bars or meal-replacement products.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS-	1. Athlete Dietary Recall & Diet Plan Formulation 2. Supplement Analysis & Label Interpretation 3. Nutritional Assessment for Sport-Specific Case Scenarios 4. Development and Standardization of a Sports Bars or Meal Replacement Bars. 5. Composition and Brand Names of Supplements (For Protein, Carbohydrate, Fats, Micronutrients and Metabolites) that Improve Muscle Mass Commonly Available in the Market and Role of Nutrients Listed in Athletic Performance. 6. Planning a Diet for Strength Athletes with Supplements for Muscle Building. 7. Planning a Diet for Endurance Athletes with Supplements for Energy and Micronutrients. 8. Providing Diet for Clinical Conditions with Supplement Usage (Planning the Type, Quantity, And Timing of Supplement Intake). 9. Planning And Preparation of Diets for Pre-Game and Post-Game Meal.	
Reference / Text Books: • Whitney E.N and Rolfes S.R. Understanding Nutrition. Wadsworth Publishing; 10 edition (May 25, 2004). • Ira Wolinsky. Nutrition in Exercise and Sports. 3 illustrated, revised publisher CRC press, 1997.		

- Parizkova. J. Nutrition, Physical activity and health in early life. Illustrated, revised publisher CRC press, 1996.
- Kang J and Barnett S R N (2022) Nutrition and Metabolism in Sports, Exercise and Health (2nd Edition). Routledge publishing company.
- Maughan R J and Burke L M (2023) Sports Nutrition: Enhancing Athletic Performance" (3rd Edition). CRC Press
- Dunford M J, Doyle A and Kalman D M (2021) Nutrition for Sport, Exercise, and Health (2nd Edition) Cengage Learning
- Burke L and Deakin V (2022) Clinical Sports Nutrition (6th Edition) McGraw-Hill Education 160 "Curriculum of Nutrition and Dietetics (Intellectual Property of the National Commission for Allied and Healthcare Professions, Ministry of Health and Family Welfare)."
- Ryan M (2020) Sports Nutrition for Endurance Athletes (3rd Edition). Velo Press
- William D. McArdle, F I K and Victor L K (2020) Sports and Exercise Nutrition (5th Edition). Wolters Kluwer
- Austin K G and Seebohar B (2021) Performance Nutrition for Athletes. Human Kinetics
- Heather Hedrick Fik and Alan E. Mikesky (2015) Practical Application in Sports and Nutrition. Fourth Edition. Jones & Bartlett Learning, Burlington, MA 01803.
- www.eatright.org/fitness
- www.nutritionist-resource.org
- www.sportsoracle.com
- www.nutritionaustralia.org
- www.acsm.org/nutrition
- www.sportsnutritionssociety.org
- www.sportsdietitians.com

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50

Prerequisites for the course:

1. Basic understanding of human nutrition and metabolism, including macronutrients, micronutrients, energy balance, and digestion, preferably through prior coursework in Nutrition or Physiology.
2. Fundamental knowledge of exercise physiology and sports science, including energy systems, muscle function, and physiological adaptations to physical activity.

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Assess the nutritional status of athletes using dietary recall methods and sport-specific case scenarios and formulate individualized diet plans for strength and endurance athletes.

CO2: Evaluate and interpret sports supplement labels and compositions, identify appropriate supplements for muscle mass, energy, and recovery, and justify their use based on scientific evidence and athletic performance needs.

CO3: Design, plan, and standardise functional sports foods and meal plans, including sports bars, pre-game and post-game meals, and therapeutic diets with appropriate supplement type, quantity, and timing.

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: IV

Programme: B.Sc. in Food Science, Nutrition & Dietetics		Year: II
Class: II		Semester: IV
Credits: 2 Theory: 0 Practical: 2		Subject: Public Health Nutrition
Course Code: FSND-242P		Title: Public Health Nutrition Lab
Course Objectives: 1. To develop an understanding of national nutrition and health programs and surveillance systems in India through field visits, situational analysis, and interpretation of large-scale datasets (ICDS, MDM, NFHS, NNMB, DLHS) across different population groups. 2. To build practical skills in community-based meal planning and nutritional assessment, including preparation of cost-effective diets for different income groups, comparison with current RDA (NIN, 2024), calculation of consumption units, and development of nutrition education and audio-visual aids.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits (PRACTICAL)		
L: 3 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS-	1. Understand the Situational Analysis of Ongoing National Nutrition Program with Visit at Govt. Aided Schools & Anganwadi ICDS MDM Urban Primary Health Center Rural Health Center and Sub Centres 2. Understand Local and National Surveillance Data Sets (NFHS, NNMB, DLHS) for Various Age Groups (Pregnant, Lactation, Children Under 5 years, Adult Man and Adult Women) 3. Prepare a Meal for Different Income Groups (LIG, MIG, HIG) as per their budgets with Nutritive Content 4. Analysis, Comparisons with RDA, Calculation of Consumption Units and Interpretation Using the RDA (NIN, 2024), 5. Create Nutritional Aids (AV Aids) for Awareness of Nutrition	
Reference / Text Books: • Textbook Of Community Medicine Preventive and Social Medicine with Recent Update by Lal, S. (2018), CBS Publishers & Distributors Private Limited. • Public Health Nutrition in Developing Countries 2nd Edition (2 Volume Set) by Vir SC (2011),		

Woodhead Publishing India Pvt. Ltd.	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50
Prerequisites for the course: 1. Basic knowledge of human nutrition and dietary principles, including nutrients, balanced diet concepts, Recommended Dietary Allowances (RDA), and nutritional needs across the life cycle. 2. Introductory understanding of community health and public health systems in India, including primary healthcare structure and national nutrition programs.	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Analyze the structure, implementation, and effectiveness of national nutrition programs (ICDS, MDM) and healthcare delivery systems through field visits to Anganwadis, schools, and urban/rural health centers. CO2: Interpret and utilize national and local nutrition surveillance data (NFHS, NNMB, DLHS) to assess nutritional status and identify nutrition-related problems among different population groups. CO3: Plan, evaluate, and communicate cost-effective diets and nutrition messages, including meal planning for different income groups, comparison with RDA (NIN, 2024), calculation of consumption units, and development of appropriate nutrition education and audiovisual aids.	

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: IV

Programme: B.Sc. in Food Science, Nutrition & Dietetics		Year: II
Class: II		Semester: IV
Credits: 2 Theory: 0 Practical: 2		Subject: FUNCTIONAL FOODS AND NUTRACEUTICALS LAB
Course Code: FSND-243AP		Title: FUNCTIONAL FOODS AND NUTRACEUTICALS LAB
Course Objectives: 1. To provide practical exposure to identification, formulation, and evaluation of functional foods and nutraceutical products, with emphasis on bioactive components, health claims, and food labeling. 2. To familiarize students with national and international regulatory frameworks governing functional foods and nutraceuticals, including FSSAI labeling requirements and Codex standards.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits (PRACTICAL)		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS-	a) Identification and classification of functional foods from food labels. b) Preparation of a functional beverage (e.g., probiotic yogurt, herbal tea). c) Formulation of a nutraceutical-rich product (e.g., energy bar or seed mix). d) Case study on regulatory guidelines (FSSAI label analysis or Codex standards).	
Reference / Text Books: • Shetty, K., & Sarkar, D. (2015). <i>Functional foods and biotechnology</i> (2nd ed.). CRC Press. • Ghosh, D. (Ed.). (2015). <i>Nutraceuticals and functional foods: Natural remedy</i>. Springer. • Srilakshmi, B. (2010). <i>Dietetics</i> (7th ed.). New Age International Publishers. • Mahan, L. K., & Raymond, J. L. (2016). <i>Krause's food & the nutrition care process</i> (14th ed.). Elsevier.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		5
3) Assignments		5

4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50
Prerequisites for the course: • Basic knowledge of food science and nutrition, including macronutrients, micronutrients, and bioactive food components. • Introductory understanding of food processing and food safety concepts, including hygiene, labeling, and quality control.	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Identify and classify functional foods and nutraceuticals based on food labels, ingredients, and permitted health claims. CO2: Formulate and prepare functional food products, such as probiotic beverages and nutraceutical-rich snacks, using appropriate ingredients and processing techniques. CO3: Analyze and interpret regulatory guidelines related to functional foods, including FSSAI label compliance and Codex standards, through case studies.	

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: IV

Programme: B.Sc. in Food Science, Nutrition & Dietetics Class: II		Year: II Semester: IV
Credits: 2 Theory: 0 Practical: 2		Subject: Nutrition In Lifestyle Management
Course Code: FSND-243BP		Title: Nutrition In Lifestyle Management Lab
Course Objectives: - To develop practical skills in nutritional assessment, counselling, and lifestyle modification, enabling students to design personalised meal plans and behavior change strategies for individuals and communities. - To train students in planning, implementing, and evaluating community-based nutrition interventions, with emphasis on lifecycle stages, health conditions, and evidence-based counselling approaches.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits (PRACTICAL)		
L: 0 T: 0 P: 2 (In Hours/Week)-2 Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS-	1. Nutritional Assessment and Counseling Practice Sessions 2. Development of Lifestyle-Based Meal Plans for Various Health Conditions 3. Community Nutrition Program Planning Exercises 4. Behavior Change Intervention Design and Implementation 5. Case Study Analyses for Different Lifecycle Stages and Health Conditions	
Reference / Text Books: - Nutrition Counseling and Education Skills: A Practical Guide - Krause's Food & The Nutrition Care Process - Community Nutrition in Action: An Entrepreneurial Approach - Current research articles from peer-reviewed nutrition journals - Government dietary guidelines and policy documents - Professional practice guidelines from nutrition and dietetics organizations - Online resources for behavior change tools and techniques - Nutritional Requirements for Indians by Indian Council of Medical Research – National Institute of Nutrition (NIN), Hyderabad (2020), ICMR-NIN Publications. https://www.pmsd.org/cms/lib/PA01916596/Centricity/Domain/142/HealthyLifestyleManagementSyllabus.pdf		

- <https://mu.ac.in/wp-content/uploads/2024/06/6.6-Sem.-I-8a-Nutrition-Life-style-diseases-and-their-management.pdf>
- <https://sgtuniversity.ac.in/ahs/programmes/SYLLABUS-MSc-Nutrition-&-Dietetics-2024.pdf>
- <https://www.medvarsity.com/courses/certificate-in-lifestyle-medicine>
- https://en.wikipedia.org/wiki/Preventive_nutrition
- <https://www.sriramachandra.edu.in/university/academics.php?did=104>
- <https://ncert.nic.in/textbook/pdf/lehe103.pdf>

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50

Prerequisites for the course:

1. Basic understanding of human nutrition and dietetics, including nutrient requirements, balanced diets, and therapeutic nutrition.
2. Introductory knowledge of public health and community nutrition, including health promotion, disease prevention, and lifestyle-related risk factors.

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Conduct nutritional assessment and provide appropriate counseling using dietary, anthropometric, and lifestyle data for individuals across different life stages and health conditions.

CO2: Develop and implement lifestyle-based meal plans and behavior change interventions, addressing dietary habits, physical activity, and other modifiable risk factors.

CO3: Plan and analyze community nutrition programs and case studies, applying nutrition principles to real-life public health and clinical scenarios.

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: IV

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: II
Class: II		Semester: IV
Credits: 1		Subject: SPORTS
Theory: 0		
Practical: 1		
Course Code: SPWC-241		Title: SPORTS
Course Objectives: 1. To build essential interpersonal skills, including collaborative strategy, ethical sportsmanship, and disciplined goal setting within a team environment.		
Nature of Paper: SEC-6		
Minimum Passing Marks/Credits: 50% Marks / 1 Credit (PRACTICAL)		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 1 Hrs.=1Credit (2Hrs./Week=2 Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are encouraged to engage in a diverse range of indoor and outdoor recreational activities, such as carrom, chess, and various team sports, to promote physical well-being and strategic thinking.	-
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		25
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Execute specialized skills, techniques, and tactical strategies in at least two selected indoor or outdoor sports.		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: IV

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: II
Class: II		Semester: IV
Credits: 2		Subject: MOOC/NPTEL, E/IPR
Theory: 2		
Practical: 0		
Course Code: FSND-VAC-246		Title: MOOC/NPTEL, E/IPR
Course Objectives: 1. To familiarize students with online learning platforms and fundamentals of Intellectual Property Rights for academic and professional advancement..		
Nature of Paper: VAC-2		
Minimum Passing Marks/Credits: 40% Marks / 2 Credit (NPTEL Certificate)		
L: 2 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	MOOC/NPTEL and E/IPR courses enhance value addition by offering flexible, industry-relevant learning, enabling students to strategically select subjects aligned with career goals.	-
If the course is available as Generic Elective then the students of following departments may opt it. --		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/ Sessional Examination		50
2) Presentations /Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		50
Course Learning Outcomes: CO1: To utilize MOOC/NPTEL platforms and apply basic IPR concepts in research, innovation, and career planning.		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: IV

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: II
Class: II		Semester: IV
Credits: 4 Theory: 4 Practical: 0		Subject: APPLIED DIETETICS AND INTERNSHIP PROJECTS
Course Code: FSND-247		Title: APPLIED DIETETICS AND INTERNSHIP PROJECTS
Course Objectives: 1. Develop skills to observe, record, and analyze industrial processes effectively.		
Nature of Paper: Internship		
Minimum Passing Marks/Credits: 40% Marks / 4 Credit (PRACTICAL)		
L: 0 T: 0 P: 4 In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are required to deliver a formal report detailing their key observations, technical insights, and professional assessments gathered during the industrial visit.	-
Evaluation/Assessment Methodology		
Max. Marks-100		
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		40
5) ETE		60
Total:		100
Course Learning Outcomes: CO1: Identify community needs and explore university–community partnership opportunities. CO2: Participate in volunteer activities and document experiences for reflection		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: IV

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: II
Class: II Year		Semester: IV
Credits: NC		Subject: INDUSTRIAL VISIT
Theory: NC		
Practical: NC		
Course Code: FSND-248		Title: INDUSTRIAL VISIT
Course Objectives:		
1. Develop skills to observe, record, and analyze industrial processes effectively.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 0		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are required to deliver a formal report detailing their key observations, technical insights, and professional assessments gathered during the industrial visit.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes:		
CO1: Identify community needs and explore university–community partnership opportunities.		
CO2: Participate in volunteer activities and document experiences for reflection		

IIMTU-NEP IMPLEMENTATION
Year: II/ Semester: IV

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: II
Class: II Year		Semester: IV
Credits: NC		Subject: UNIVERSITY SOCIAL RESPONSIBILITY
Theory: NC		
Practical: NC		
Course Code: FSND-249		Title: UNIVERSITY SOCIAL RESPONSIBILITY
Course Objectives:		
1. To generate awareness of social, ethical, and environmental responsibilities.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 1		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Community Engagement University–community partnerships. Basics of volunteering and service learning. Identifying local community needs. Activity: Field visit to NGOs or schools.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes:		
CO1: Analyze environmental challenges and promote sustainable campus practices.		
CO2: Implement eco-friendly initiatives like waste management and tree plantation.		

IIMTU-NEP IMPLEMENTATION

Year: III / Semester: V

Programme: B.Sc.(Food Science, Nutrition & Dietetics)		Year: III
Class: III		Semester: V
Credits: 3		Subject: Entrepreneurship in Nutrition and Dietetics
Theory: 3		
Practical: 0		
Course Code: FSND-351		Title: Entrepreneurship in Nutrition and Dietetics
Course Objectives: 1. To introduce basic concepts of entrepreneurship and business planning. 2. To explore opportunities in the nutrition and health industry. 3. To enable students to develop entrepreneurial skills with a focus on nutrition-based ventures. 4. To equip students with knowledge about legal, marketing, and financial aspects of nutrition entrepreneurship.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Entrepreneurship a) Definition, scope, and types of entrepreneurship b) Characteristics and qualities of an entrepreneur c) Role of entrepreneurship in public health and nutrition d) Success stories of entrepreneurs in nutrition/health sector	7
II	Business Opportunities in Nutrition a) Identification of emerging trends and opportunities b) Health foods, functional foods, and dietary supplements c) Nutrition counselling and digital health platforms d) Start-ups in personalized nutrition, wellness coaching, meal planning, etc.	7
III	Business Planning and Development a) Idea generation and feasibility analysis b) Business model canvas c) Components of a business plan (mission, vision, goals, SWOT) d) Legal structure: proprietorship, partnership, LLP, company	8
IV	Marketing and Branding a) Basics of marketing: 4Ps in nutrition business b) Digital marketing: social media, SEO, influencer marketing c) Packaging and labelling regulations (FSSAI)	8

	d) Building brand identity in wellness and nutrition	
V	Financial and Legal Aspects a) Cost estimation and pricing strategies b) Basics of funding and investment (angel investors, crowd funding) c) Record keeping and financial management d) Regulatory frameworks: FSSAI registration, licensing, food safety, consumer protection laws.	11
Reference / Text Books: • Hisrich, R., & Peters, M. (2020). <i>Entrepreneurship</i>. McGraw-Hill Education. • Paul, J. (2020). <i>Entrepreneurship Development and Small Business Enterprises</i>. Pearson Education. • FSSAI Manuals and Guidelines • Harvard Business Review articles on food start-ups and nutrition innovation • Journals: <i>Trends in Food Science & Technology</i>, <i>Nutrition Business Journal</i>		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course: • Basic knowledge of general terms of foods and nutrition. • Knowledge of basic food groups.		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Explain key concepts and processes involved in entrepreneurship. CO2: Identify and assess business opportunities in the nutrition sector. CO3: Develop a business model and marketing plan for a nutrition-related venture. CO4: Analyse financial and regulatory aspects of setting up a nutrition-based enterprise. CO5: Demonstrate practical skills in designing, testing, and pitching a nutrition-based product or service.		

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: V

Programme: B.Sc. (Food Science, Nutrition & Dietetics)		Year: III
Class: III		Semester: V
Credits: 3		Subject: Nutritional Epidemiology and Anthropology
Theory: 3		
Practical: 0		Title: Nutritional Epidemiology And Anthropology
Course Code: FSND-352		
Course Objectives:		
1. To Understand the Epidemiology of Important Nutrition Deficiency Disorders in India		
2. To Develop Skills on Various Study Designs to Assess, Understand and Treat Various Health and Nutritional Deficiency Disorders		
3. To Understand Anthropology and its Importance for Interpreting Dietary Intakes, Nutritional Status, Food Choices and Cultural Environment.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Epidemiology and Public Health Nutrition a) Introduction to Epidemiology b) Definition, Uses and Branches of Epidemiology c) Epidemiology and Public Health Nutrition • Causation of Diseases Based on Nutritional Deficiencies • Natural History of Disease Based on Nutritional Deficiencies • Health Status of Populations • Evaluating Interventions	12
II	Measurement of Health and Disease in Nutrition a) Measurements In Health and Disease (with a Focus on Nutrition) b) Definitions of Diagnostic Criteria: • Measuring Disease Frequency • Population at Risk • Incidence and Prevalence • Case Fatality c) Interrelationships of Different Measures d) Mortality Indicators: • Death Rates • Infant Mortality	12

	• Child Mortality Rate • Maternal Mortality Rate • Adult Mortality Rate • Life Expectancy • Age-Standardized Rates e) Morbidity: • Disability • Health Determinants • Indicators and Risk Factors	
III	Epidemiological Study Designs and Common Errors a) Types of Studies: • Observational Epidemiology: Descriptive studies, Ecological studies, Cross-sectional studies, Case-control studies, Cohort studies, Examples related to health and nutrition • Experimental Epidemiology: Randomized controlled trials, Field trials, Community trials b) Potential Errors in Epidemiological Studies: • Random error, Sample size, Systematic error, Selection bias, Measurement bias, Confounding c) Other Key Concepts: • Control of confounding, Validity, Ethical issues	12
IV	Prevention of Diseases and Screening a) Epidemiology and Prevention of Chronic Diet-Related Non-Communicable Diseases (DRNCs) • Preventive potential • Causation framework • Levels of prevention: Primordial prevention, Primary prevention: Population strategy, High-risk individual strategy, Secondary prevention, Tertiary prevention b) Screening: • Types of screening • Criteria for screening c) Epidemiology of Communicable Diseases: • Burden of communicable disease • Epidemics and endemic diseases • Emerging and re-emerging infections • Chain of infection: The infectious agent, Transmission, Host, Environment • Investigation and Control of Epidemics: Investigation, Identifying cases, Management and control, Surveillance and response	12
V	Environmental Epidemiology and Nutritional Anthropology • Environmental and Occupational Epidemiology: • Environment and health • Impact of exposure to environmental factors • Evaluation of preventive measures • Exposure and Dose: General concepts, biological monitoring,	12

	Interpreting biological data, Individual vs group measurements, Population dose, Dose–effect relationships, Dose–response relationships - Assessing Risk: Risk assessment, Health impact assessment, Risk management, Environmental health impact assessment, Measuring past exposure, Healthy worker effect in occupational studies - Epidemiology of Main Foodborne Diseases - Relevance of public health and nutritional epidemiology in the context of foodborne diseases - Nutritional Anthropology: - Types of Anthropology: Physical, Sociocultural, Psychological, Linguistic, Cultural anthropology - Role in Prevention and Treatment of Disease - Methods of Assessing Anthropology in Food and Nutrition: ✓ Ethnographic Research Methods: Mixed methods, Observations, In-depth interviews, Transect Walk ✓ Critical Medical Anthropology: Medical ecological approach, Micro level, Intermediate level, Macrosocial level - Indian Food and Nutrition Anthropology for Combating Health and Disease	
Reference / Text Books: - Bonita, R., Beaglehole, R., & Kjellström, T. (2006). Basic epidemiology. World Health Organization. - Norell, S. E. (1995). Workbook of epidemiology. Oxford University Press, USA. Moon, G., & Gould, M. (2000). Epidemiology: an introduction. McGraw-Hill Education (UK). - Chrzan, J., & Brett, J. (Eds.). (2017). Research Methods for Anthropological Studies of Food and Nutrition: Volumes I-III (Vol. 1). Berghahn Books. - Nambiar, V. (Ed.). (2021). Indian Food Anthropology and the Eat Right Movement- Volume 1. Selective & Scientific Books. ISBN: 978-81-951492-2-3. - Nambiar, V. (Ed.). (2021). Indian Food Anthropology and the Eat Right Movement- Volume 2. Selective & Scientific Books. ISBN: 978-81-951492-4-7. - Bernard, H. R. (2012). Research methods in anthropology. Alta Mira.		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/ Sessional Examination		10
2) Presentations /Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course: - Fundamentals of Nutrition - Human Physiology - Basics of Public Health - Introduction to Biostatistics or Research Methods.		

Course Learning Outcomes:

By the end of this course, students will be able to:

Here's the concise version:

CO1: Explain epidemiology and its role in nutrition and health.

CO2: Calculate key health indicators for nutrition-related issues.

CO3: Describe nutrition study types and identify research biases.

CO4: Explain disease prevention through nutrition and screening methods.

CO5: Assess environmental, cultural, and dietary impacts using anthropological methods.

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: V

Programme: B.Sc. (Food Science, Nutrition & Dietetics)		Year: III
Class: III		Semester: V
Credits: 3		Subject: National Health and Nutrition Programs and Policies
Theory: 3		
Practical: 0		Title: National Health and Nutrition Programs and Policies
Course Code: FSND-353A		
Course Objectives:		
1. To understand the history, development and current state of health and nutrition policies.		
2. To identify the key health and nutrition programmes, goals, strategies, outcomes and framework.		
3. To explain the evaluation of effectiveness and Health Economics of the health and nutrition programmes.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3		
T: 0		
P: 0 (In Hours/Week)-2		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.= 1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Universal Health Coverage (a) World Health Organization (b) Universal Health Coverage Policies by GOI -National Health (c) Mission Goals and Objectives ; National Rural Health Mission (NRHM) (d) National Urban Health Mission (NUHM) (e) National Health and Nutrition Programs and Policies by the Ministry of Health and Family Welfare: Overview, Organograms, programs and their objectives (MAA, JSY, JSSK and others)	10
II	Understanding the Principles Health and Nutrition Programme Management (a) Design (b) Plan (c) Implementation (d) Operation monitoring (e) Surveillance (f) Evaluation	8
III	Health Economics (a) Macroeconomics (b) Microeconomics (c) Understand the effectiveness and cost efficiency of Health	10

	(d) Nutrition budgets of the past 5 years compared to the burden of disease, Overnutrition, undernutrition and micronutrient malnutrition (e) Cost-benefit, Cost-effectiveness and cost efficiency	
IV	National Nutrition Mission of India (a) POSHAN 2.0 (b) National Health and Nutrition Programs and Policies by the Ministry of Women and Child Development: Overview, Organograms, programs and their objectives (c) Integrated Child Development Services Scheme-Universalization of ICDS with quality, ICDS in Mission mode, Objectives, target groups, Monitoring system, Mode of implementation, administrative setup, Coverage, compliance, Impact (d) PM POSHAN- Mid-Day/ Nutritious Meal Program	12
V	National Programs to Combat Micronutrient Malnutrition (a) Anemia Mukt Bharat (Nutritional Anemia Control Program) (b) National Iron Plus Initiative (NIPI, I-NIPI) (c) National Deworming Campaign (d) Vitamin A: Vitamin A Prophylaxis Program (VAPP) (e) Iodine: National Iodine Deficiency Disorders Control (f) Program (NIDDCP), 4 140 “Curriculum of Nutrition and Dietetics (Intellectual Property of the National Commission for Allied and Healthcare Professions, Ministry of Health and Family Welfare).” (g) Universal Salt Iodization (USI), Double Fortified Salt (DFS) (h) Diarrhea Control Program: Role of Zinc, ORS (i) Fluorosis Control Program (j) National Program for Prevention and Control of Cancer (k) National Program for Prevention and Control of Diabetes (l) National Program for Prevention and Control of Cardiovascular Diseases (m) National Program for Prevention and Control of Stroke (NPCDCS) (n) Rising Burden of Non-Communicable Diseases-Public Health strategies to control NCDs	20

Reference / Text Books:

- Park, K. (2023). Park's textbook of preventive and social medicine. 27th Edition. Banarsidas Bhanot Publishers. Jabalpur. ISBN: 9789382219194.
- Vir, S.C. (Ed.) (2011). Public Health Nutrition in Developing Countries 2nd Edition (2 Volume Set). Woodhead Publishing India Pvt Ltd. ISBN: 9789388320351.
- Vir, S.C. (Ed.) (2023) Child Adolescent and Women Nutrition in India, Public Policies, Programmes, and Progress. Taylor and Francis. Kindle Edition.

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-100
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	--
5) ESE	75
Total	100

Prerequisites for the course: The fourth semester of Bachelor of Nutrition and Dietetics in Honors

Course Learning Outcomes:

By the end of this course, students will be able to:

Here's the concise version:

CO1: Explain key health organizations and national health missions.

CO2: Describe steps in health and nutrition program management.

CO3: Apply health economics to analyze nutrition program costs.

CO4: Identify objectives and impacts of major national nutrition programs.

CO5: Evaluate strategies for controlling anemia, deficiencies, and NCDs.

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: V

Programme: B.Sc.(Food Science, Nutrition & Dietetics)		Year: III
Class: III		Semester: V
Credits: 3		Subject: Management and Administration in Dietetics
Theory: 3		
Practical: 0		
Course Code:FSND-353B		Title: Management and Administration in Dietetics
Course Objectives: 1. Understand the food production process 2. Comprehend different kitchen objectives 3. Analyze different methods of food production 4. Describe the planning process in food production unit 5. Discuss food production in hospital		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.= 1 Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Hospital Food Service Management (a) Principles and Techniques of Effective Management (b) Leadership and Managerial Abilities. (c) Tools of Food Management - Organizational Chart of the Food Service Team in Hospital. (d) Human Resource Management - Recruitment & Selection, Induction, Training, Performance Appraisal, Leadership, Communication, Employee Benefits (e) Laws Governing Food Service Establishment.	10
II	Physical Facilities and Layout (a) Size and Type of Kitchen (b) Design of Kitchen (c) Ventilation (d) Lighting (e) Flooring (f) Carpets (g) Wall Covering (h) Sample Layout of Kitchen. Storage Area and Equipment Required	10
III	Food Materials Management	08

	(a) Purchasing of Food Materials (b) Receiving & Storing (c) Importance of Receiving Raw Materials	
IV	Hospital Food Production (a) Menu Planning for Patients (b) Process of Food Production (c) Different Methods of Holding Foods for Service.	12
V	Sanitation and Hygiene (a) Environmental Hygiene & Sanitation (b) Safe Food Handling Practices (c) Personal Hygiene.	20

PRACTICALS-

- Analyze on-site and off-site catering management in a hospital
- Classify the patients in a hospital as per their dietary requirements
- Analyze different types of food production procedures in hospitals
- Give a brief outline of an organizational chart for a food service team in hospitals.
- Describe the important types of commercial food production equipment.
- Plan and prepare type of menu is generally followed in schools and hospitals

Reference / Text Books:

- Drummond, Karen E. and Lisa M. Brefere. 2013. Nutrition for Foodservice and Culinary Professionals. New Jersey: Wiley.
- Sethi, Mohini and Surjeet Malhan. 2018. Catering Management: An Integrated Approach. New Delhi: New Age International Private Limited.
- Puckett, Ruby Parker. 2012. Foodservice Manual for Health Care Institutions. San Francisco: Jossey Bass Publishers.

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-100
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100

Prerequisites for the course: The fourth semester of Bachelor of Nutrition and Dietetics in Honors

Course Learning Outcomes:

By the end of this course, students will be able to:

Here's the concise version:

- CO1: Explain hospital food service management roles.
CO2: Identify key features of hospital kitchen design.
CO3: Manage procurement, receiving, and storage of food.
CO4: Plan patient-friendly menus and food service.
CO5: Apply hygiene and safety rules in hospital food services.

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: V

Programme: B.Sc. (Food Science, Nutrition & Dietetics)		Year: III
Class: III		Semester: V
Credits: 3		Subject: Tools and Techniques for Nutrition Counseling
Theory: 3		
Practical: 0		Title: Tools and Techniques for Nutrition Counseling
Course Code:FSND-354		
Course Objectives:		
1. To enable the students to learn about diet counseling skills		
2. To provide practical learning experiences with patients through case studies.		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Dietary Counseling (a) Definition, Expectations, goals, scope and limits (b) Counseling Responsibilities and Role of Nutrition Counselor (c) Ethical code and responsibility. (d) Characteristics of an effective counselor Skills and attributes of the nutrition educator or counselor-Cultural Competency, Client's Perspective, Informed Negotiation, Empathy and Rapport (e) Stages of Diet Counseling- Stage I: problem exploration and clarification, Stage II: Developing new perspectives and setting goals, Stage III: Implementation follow up and evolution (f) Stages of Change: Precontemplation, Contemplation, Preparation, Action, Maintenance, Relapse	7
II	Behaviour Change Models (a) Behaviour change and factors affecting the ability to change (b) Models for behaviour change – 1. Health Belief Model 2. Social Cognitive Theory 3. Theory of Planned Behaviour 4. Transtheoretical Model of Change (c) Models for educational program development 1. Cognitive behavioral therapy (CBT) 2. Acceptance and commitment therapy (ACT)	8

	3. Motivational interviewing (MI) (d) Different approaches of counselling- 1. Psychoanalytical approach 2. Cognitive- Behavioural approach 3. Humanistic approach (Client centred therapy and Gestalt therapy)	
III	Facilitating Change (a) Expressing empathy (b) Understanding cultural factors (c) Developing discrepancy (d) Avoiding arguments and defensiveness (e) Rolling with resistance (f) Supporting self-efficacy	6
IV	Different types of counselling methods (a) Types of Counselling- 1. Multicultural counseling 2. Motivational counseling 3. Directive counseling 4. Guided counseling (b) Conditions during diet counselling sessions, components of first session and follow-up visits, Group counseling (c) Not ready to change Vs. Unsure about change counselling Sessions	8
V	Resistance Behaviour and Strategies to modify them a. Reflecting b. Shifting Focus c. Agreeing with a twist d. Reframing e. Ending the Sessions f. Ready to change Counselling Sessions-Setting Goals, Action Plan	6
Reference / Text Books: - Mahan, L.K. and Escott-Stump, S. (2021): Krause's Food Nutrition and Nutrition Care Process, 16th Edition, Elsevier Pvt. Ltd. ISBN 032381025X - Wardlaw GM, Hampi JS, Di Silvestro RA (2004). Perspectives in Nutrition, 6th edition. McGraw Hill. ISBN 0072921633, - Anita Jatana. Daphne JK, Harita Shyam, Priyanka Rohtagi, Kajal Pandya Reptho Apollo Clinical Nutrition Handbook. (2022). Jaypee Brothers ISBN 978-9354650895 - Bamji MS, Krishnaswamy K, Brahman GNV (2009). Textbook of Human Nutrition, 3rd edition. Oxford and IBH Publishing Co. Pvt. Ltd. - Srilakshmi B. 9th Edition (2023). Dietetics. New Age Publishers. ISBN 939516184.		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/ Sessional Examination		5
2) Presentations /Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35

Total	50
Prerequisites for the course: Understanding of Basics of medical nutrition therapy and advanced dietetics	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Explain the concepts, goals, ethics, and stages of dietary counselling. CO2: Apply behaviour change models and counselling approaches in nutrition care. CO3: Demonstrate skills for facilitating change with empathy, cultural sensitivity, and client engagement. CO4: Differentiate types of counselling methods and design effective diet counselling sessions. CO5: Manage resistance behaviours and develop actionable nutrition counselling plans.	

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: V

Programme: B.Sc. (Food Science, Nutrition & Dietetics)		Year: III
Class: III		Semester: V
Credits: 2		Subject: Food Analysis
Theory: 2		
Practical: 0		
Course Code: FSND-355		Title: Food Analysis
Course Objectives: 1. Understand the principles and methods used in food analysis. 2. Perform qualitative and quantitative analysis of food components. 3. Analyse food samples using both classical and instrumental methods. 4. Interpret sensory and functional properties of foods. 5. Understand national and international food quality standards.		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits THEORY+Sessional		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Food Analysis • Importance and objectives of food analysis • Types of analytical methods: qualitative vs. quantitative • Official methods: AOAC, ISO, FSSAI, BIS, Codex • Sampling techniques and sample preservation • Errors in analysis: types, sources, and control	7
II	Proximate Composition Analysis • Moisture content – oven drying, vacuum oven, Karl Fischer method • Ash content – dry and wet ashing methods • Protein estimation – Kjeldahl and Dumas methods • Fat estimation – Soxhlet extraction, acid hydrolysis • Crude fiber determination • Carbohydrate estimation – by difference and specific methods (e.g., DNSA)	7
III	Instrumental Techniques in Food Analysis • Spectroscopic Methods – UV-Vis, IR, NMR, AAS • Chromatography – TLC, HPLC, GC, GC-MS • Other Techniques – Refractometry, Polarimetry, texture analysers • Colour Analysis – Lovibond, Hunter Lab, Spectropolarimeter	8

IV	Analysis of Specific Food Components • Vitamins – Estimation using HPLC, bioassays • Minerals – Using AAS, ICP-OES • Additives and Preservatives – Benzoates, Sulfites, Nitrites • Food Contaminants – Pesticide residues, heavy Metals, Aflatoxins • Enzymes and Antinutritional Factors	8
V	Sensory Analysis of Food • Introduction to sensory science: importance in food quality • Types of sensory tests: a) Discrimination tests (Triangle, Duo-Trio, Paired Comparison). b) Descriptive tests (Flavor profile, Texture profile). c) Affective/Preference tests (Hedonic rating, ranking tests). • Sensory attributes – appearance, aroma, taste, texture, aftertaste. • Sensory panel – selection, training, and evaluation • Testing environment – sensory booths, sample preparation • Statistical interpretation of sensory data.	11
Reference / Text Books: • Nielsen, S. S. (2017). <i>Food Analysis</i> (5th ed.). Springer. • Ranganna, S. (2016). <i>Handbook of Analysis and Quality Control for Fruit and Vegetable Products</i>. Tata McGraw-Hill. • FSSAI Manuals – Laboratory Manual Series by FSSAI • AOAC International. <i>Official Methods of Analysis</i>. • Mehrotra, K. N. (2015). <i>Analytical Chemistry</i>. New Age International. • Pomeranz, Y., & Meloan, C. E. (2000). <i>Food Analysis: Theory and Practice</i>. CBS Publishers. • Indian Standards (ISI/BIS) – Food Product Specifications		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/ Sessional Examination		5
2) Presentations /Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total		50
Prerequisites for the course:		
• Basic knowledge of general terms of foods and nutrition. • Knowledge of basic food groups.		
Course Learning Outcomes:		
By the end of the course, students will be able to:		
1. Explain the principles of food analysis and the importance of food standards. 2. Conduct proximate and component analysis of food samples. 3. Use appropriate analytical and instrumental methods to evaluate food quality. 4. Apply sensory evaluation techniques for food quality and consumer acceptance. 5. Describe regulatory requirements and food safety standards in analysis.		

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: V

Programme: B.Sc.(Food Science, Nutrition & Dietetics)		Year: III
Class: III		Semester: V
Credits: 2 Theory: 0 Practical: 2		Subject: Entrepreneurship in Nutrition Lab
Course Code: FSND-351P		Title: Entrepreneurship in Nutrition Lab
Course Objectives:		
1. To develop practical skills in planning, formulating, and costing nutrition-based food products based on consumer health and nutrition preferences.		
2. To enhance analytical understanding of nutrition entrepreneurship through product development, pricing strategies, and case study analysis of successful nutrition-based start-ups.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS-	1. Designing and conducting a basic consumer survey on health/nutrition preferences. 2. Calculate raw material costs, overheads, profit margins, and final price of the developed product. 3. Plan and develop a prototype (e.g., healthy snack, detox drink, herbal tea, etc.) 4. Case study analysis of successful nutrition-based startups	
Reference / Text Books:		
a) Davis, B., Lockwood, A., Pantelidis, I., & Alcott, P. Food and Beverage Cost Control. Routledge, New York.		
b) Malhotra, N. K.Marketing Research: An Applied Orientation. Pearson Education, New Delhi.		
c) Hair, J. F., Bush, R. P., & Ortinau, D. J. Marketing Research: A Practical Approach for the New Millennium. McGraw-Hill, New York.		
d) Mudgil, D., & Barak, S. Beverages: Processing and Technology. Scientific Publishers, Jodhpur.		
e) Ries, E. The Lean Startup. Crown Business, New York.		
f) Dyson, R. G.Innovation and Entrepreneurship in the Food Industry. Academic Press, London.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		5

3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50
Prerequisites for the course: • Basic knowledge of Food Science and Nutrition concepts, including food composition, processing, and health aspects. • Fundamental understanding of food preparation methods and food safety practices.	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Design and develop basic nutrition-based food products by applying principles of food science, nutrition, and consumer preference analysis. CO2: Analyze consumer survey data and calculate product cost, pricing, and profit margins for nutrition-focused food products. CO3: Evaluate nutrition-based start-ups and food products through case study analysis to understand practical applications of nutrition entrepreneurship.	

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: V

Programme: B.Sc. (Food Science, Nutrition & Dietetics) Class: III		Year: III
Credits: 2 Theory: 0 Practical: 2		Semester: V
Course Code: FSND-352P		Subject: Nutritional Epidemiology and Anthropology Lab
Course Objectives:		Title: Nutritional Epidemiology And Anthropology Lab
1. To develop skills in dietary assessment, anthropometric interpretation, and community nutrition assessment using standard tools and guidelines. 2. To enhance understanding of community-based nutrition program planning by comparing traditional diets with modern processed foods in terms of nutrient content and cultural relevance.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS	1. Create a 24-hour recall format or Food Frequency Questionnaire (FFQ) tailored for rural or urban populations. 2. Interpret data using WHO growth standards and BMI classifications. 3. Conduct RANS in a slum, Anganwadi, or school that is, Community Nutrition Program Planning Exercises 4. Compare nutrient content and cultural significance with modern processed alternatives.	
Reference / Text Books:		
a) Bonita, R., Beaglehole, R., & Kjellström, T. (2006). Basic epidemiology. World Health Organization. b) Norell, S. E. (1995). Workbook of epidemiology. Oxford University Press, USA. Moon, G., & Gould, M. (2000). Epidemiology: an introduction. McGraw-Hill Education (UK). c) Chrzan, J., & Brett, J. (Eds.). (2017). Research Methods for Anthropological Studies of Food and Nutrition: Volumes I-III (Vol. 1). Berghahn Books. d) Nambiar, V. (Ed.). (2021). Indian Food Anthropology and the Eat Right Movement- Volume 1. Selective & Scientific Books. ISBN: 978-81-951492-2-3. e) Nambiar, V. (Ed.). (2021). Indian Food Anthropology and the Eat Right Movement- Volume 2. Selective & Scientific Books. ISBN: 978-81-951492-4-7. f) Bernard, H. R. (2012). Research methods in anthropology. Alta Mira.		

If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50
Prerequisites for the course:	
• Basic knowledge of nutrition, dietetics, and human growth and development. • Fundamental understanding of community health, food habits, and dietary assessment methods.	
Course Learning Outcomes:	
By the end of this course, students will be able to:	
CO1: Design and administer dietary assessment tools such as 24-hour recall and Food Frequency Questionnaires for rural and urban populations.	
CO2: Interpret nutritional status using anthropometric indicators, WHO growth standards, and BMI classifications.	
CO3: Conduct community-based nutrition assessments and plan appropriate nutrition interventions in settings such as schools, Anganwadi centers, and slum areas.	

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: V

Programme: B.Sc.(Food Science, Nutrition & Dietetics) Class: III	Year: III Semester: V	
Credits: 2 Theory: 0 Practical: 2	Subject: National Health and Nutrition Programs and Policies	
Course Code: FSND-353AP	Title: National Health and Nutrition Programs and Policies Lab	
Course Objectives: 1. To develop the ability to critically evaluate public nutrition interventions and government programmes through field exposure and evidence-based analysis. 2. To build competence in budgeting, cost analysis, and resource planning for effective implementation of nutrition programmes.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.= 1 Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS-	1. Critical appraisal of existing interventions and government programs and suggestions for improving the same 2. Field exposure in the operational public nutrition programs, Nutrition rehabilitation centers 3. Budget and cost analysis of nutrition programmes.	
Reference / Text Books: a) Park, K. (2023). Park's textbook of preventive and social medicine. 27 th Edition. Banarsidas Bhanot Publishers. Jabalpur. ISBN: 9789382219194. b) Vir, S.C. (Ed.) (2011). Public Health Nutrition in Developing Countries 2 nd Edition (2 Volume Set). Wood head Publishing India Pvt. Ltd. ISBN: 9789388320351. c) Vir, S.C. (Ed.) (2023) Child Adolescent and Women Nutrition in India, Public Policies, Programmes, and Progress. Taylor and Francis. Kindle Edition.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		--
5) ETE		35

Total	50
Prerequisites for the course: 1. Basic understanding of public health nutrition and community nutrition concepts. 2. Fundamental knowledge of nutrition programmes, policies, and health systems.	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Critically appraise existing public nutrition interventions and government programmes using evidence-based approaches. CO2: Analyze the implementation and functioning of public nutrition programmes through field exposure in community and institutional settings. CO3: Perform basic budgeting and cost analysis for planning and evaluation of nutrition programmes.	

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: V

Programme: B.Sc. (Food Science, Nutrition & Dietetics)	Year: III	
Class: III	Semester: V	
Credits: 2	Subject: Management and Administration in Dietetics	
Theory: 0		
Practical:2		
Course Code: FSND-353BP	Title: Management and Administration in Dietetics Lab	
Course Objectives: 1. To develop understanding of hospital and institutional food service management, including catering systems, food production procedures, and organizational structure. 2. To build skills in menu planning, patient diet classification, and selection of appropriate food production equipment for schools and hospitals.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit(4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS-	1. Analyze on-site and off-site catering management in a hospital 2. Classify the patients in a hospital as per their dietary requirements 3. Analyze different types of food production procedures in hospitals 4. Give a brief outline of an organizational chart for a food service team in hospitals. 5. Describe the important types of commercial food production equipment. 6. Plan and prepare type of menu is generally followed in schools and hospitals	
Reference / Text Books: a) Drummond, Karen E. and Lisa M. Brefere. 2013. Nutrition for Foodservice and Culinary Professionals. New Jersey: Wiley. b) Sethi, Mohini and Surjeet Malhan. 2018. Catering Management: An Integrated Approach. New Delhi: New Age International Private Limited. c) Puckett, Ruby Parker. 2012. Foodservice Manual for Health Care Institutions. San Francisco: Jossey Bass Publishers.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		

Max. Marks-50	
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50
Prerequisites for the course:	
1. Basic knowledge of nutrition, dietetics, and meal planning principles.	
2. Fundamental understanding of food service operations and food safety practices.	
Course Learning Outcomes:	
By the end of this course, students will be able to:	
CO1: Analyze on-site and off-site catering systems and food production procedures in hospital and institutional settings.	
CO2: Classify patients according to their dietary requirements and plan appropriate menus for hospitals and schools.	
CO3: Describe organizational structure and food service equipment used in commercial and institutional food production units.	

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: V

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: III
Class: III		Semester: V
Credits: NC		Subject: SPORTS
Theory: NC		
Practical: NC		
Course Code: SPNC-351		Title: SPORTS
Course Objectives: 1. To build essential interpersonal skills, including collaborative strategy, ethical sportsmanship, and disciplined goal setting within a team environment.		
Nature of Paper: SEC-6		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 1 Hrs.=1Credit (2 Hrs./Week= 1 Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are encouraged to engage in a diverse range of indoor and outdoor recreational activities, such as carrom, chess, and various team sports, to promote physical well-being and strategic thinking.	-
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		25
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Execute specialized skills, techniques, and tactical strategies in at least two selected indoor or outdoor sports.		

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: V

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: II
Class: II		Semester: V
Credits: NC Theory: NC Practical: NC		Subject: INDUSTRIAL VISIT
Course Code: FSND-357		Title: INDUSTRIAL VISIT
Course Objectives: 1. Develop skills to observe, record, and analyze industrial processes effectively.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 0 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are required to deliver a formal report detailing their key observations, technical insights, and professional assessments gathered during the industrial visit.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Identify community needs and explore university–community partnership opportunities. CO2: Participate in volunteer activities and document experiences for reflection.		

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: V

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: III
Class: III		Semester: V
Credits: NC	Subject: UNIVERSITY SOCIAL RESPONSIBILITY	
Theory: NC		
Practical: NC		
Course Code: FSND-358	Title: UNIVERSITY SOCIAL RESPONSIBILITY	
Course Objectives:		
1. To generate awareness of social, ethical, and environmental responsibilities.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 0		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Community Engagement University–community partnerships. Basics of volunteering and service learning. Identifying local community needs. Activity: Field visit to NGOs or schools.	-
Evaluation/Assessment Methodology		
Max. Marks-25		
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes:		
CO1: Analyze environmental challenges and promote sustainable campus practices.		
CO2: Implement eco-friendly initiatives like waste management and tree plantation.		

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: B.Sc.(Food Science, Nutrition & Dietetics)		Year: III
Class: III		Semester: VI
Credits: 3	Subject: Social Behavior Change	
Theory: 3	Communication / Nutrition Health Promotion	
Practical: 0		
Course Code:FSND-361		Title: Social Behavior Change Communication / Nutrition Health Promotion
Course Objectives: 1. To understand the basics of SBCC and how it helps in improving nutrition and health behaviours. 2. To learn how to create and share effective nutrition messages using different communication methods like posters, media, or counselling. 3. To know how to plan, monitor, and improve nutrition awareness programs using simple tools and modern technologies.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Foundations of SBCC and Health Promotion • Definition and scope of SBCC • Evolution from IEC to BCC to SBCC • Role of SBCC in nutrition and health programs • Key behaviour changes theories: Health Belief Model, Theory of Planned Behaviour, Social Cognitive Theory • Audience analysis and segmentation • Communication planning and goal setting	10
II	Formative Research and Message Development (12 Hours) • Formative research methods: interviews, focus groups, KAP surveys • Understanding cultural context and community participation • Message design principles • Developing and pre-testing communication materials	10
III	Communication Channels and Implementation • Mass media: TV, radio, print • Digital and social media, Health apps • Interpersonal communication and counselling • Community mobilization strategies • Integrated, multi-channel communication	13

IV	Monitoring, Evaluation, and Sustainability - Implementation planning and resource mobilization - Monitoring tools and process evaluation - Outcome evaluation: measuring behaviour change - Sustainability and scaling successful programs	12
V	Advanced Applications and Innovation - Use of AI, chatbots, gamification in health communication - Communication in emergencies and crisis response - Cross-cultural and global communication - Behavioural economics, nudging, future trends	12
Reference / Text Books: - Social and Behavior Change Communication for Health by USAID / SPRING Project - Communication for Development in Nutrition: A Guide for Nutritionists and Other Field Workers by FAO - Behavior Change in Public Health: Evidence and Implications by David R. Buchanan - Health Promotion: Planning and Strategies by Jackie Green, Keith Tones - Nutrition Education: Linking Research, Theory, and Practice by Isobel Contento - Health Promotion and Education Research Methods: Using the Five-Chapter Thesis/Dissertation Model by Randy Cottrell - Health Promotion: Theories and Models by Renata Schiavo - Formative Research Methods for Health Programs - The Compass for Social and Behavior Change - SBCC Implementation Kits - Global health communication case studies UNICEF C4D Toolkit:https://www.unicef.org/communicationfordevelopment/ SBCC Implementation Kit (IK):https://sbccimplementationkits.org/ CDC Health Communication Tools:https://www.cdc.gov/healthcommunication/ WHO Health Promotion Resources:https://www.who.int/health-topics/health-promotion		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course: - Basic knowledge of human nutrition and public health. - Familiarity with common nutrition problems and dietary guidelines. - Understanding of health education and community nutrition programs. - Introductory understanding of research methods (qualitative and quantitative).		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Explain SBCC concepts, evolution, and role in behaviour change. CO2: Gather audience insights and design culturally appropriate messages.		

CO3: Apply communication methods and channels for healthy eating promotion.
CO4: Develop tools to monitor and evaluate nutrition communication programs.
CO5: Use digital tools and innovative strategies for nutrition communication.

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: B.Sc. (Food Science, Nutrition & Dietetics)		Year: III
Class: III		Semester: VI
Credits: 3		Subject: Nutrition Through Life Cycle
Theory: 3		
Practical: 0		
Course Code: FSND-362		Title: Nutrition Through Life Cycle
Course Objectives: 1. To Understand the Concept of meal Planning and Dietary Guidelines. 2. To learn about the nutritional concerns and its management during various stages of Life. 3. To learn about the Dietary Management during various Stages of Life. 4. To Understand the concept and use of food exchange list and to Learn Planning and Preparation of Meals for Various Stages of Life.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	a) Basic concepts of meal planning: EAR and RDA, Concept of Dietary Reference Intakes, Dietary Guidelines for Indians, b) Meal planning: objectives and principles, Factors affecting meal planning - Nutritional, socio-cultural, religious, geographic, economic, availability of time, energy and resources, c) Indian meal patterns: Vegetarian & non-vegetarian. Food faddism, unhealthy food habits.	16
II	Nutrition during Adulthood a) Reference women and man Nutritional requirements, recommendations, nutrition-related problems and concerns, and Meal planning with emphasis on healthy diet and lifestyle to prevent chronic diseases	10
III	Nutrition in Pregnancy and Lactation a) Physiological stages of pregnancy, Physiology of lactation, Nutritional requirements. recommendations, nutrition-related problems, and concerns Meal planning with emphasis on maternal and child health	16
IV	Nutrition for Infancy a) Importance of breastfeeding, Exclusive breastfeeding, early initiation, colostrum, Nutritional requirements. recommendations, nutrition-related problems, and concerns.	12

	b) Complementary Feeding – timely introduction of appropriate foods, adequacy, consistency, frequency, utilization and safety, Meal planning with emphasis on exclusive breastfeeding	
V	Nutrition during growing years: a) Nutritional requirements, nutritional guidelines and healthy food choices: Preschool children, School children. Adolescents, Meal planning with emphasis on growth and development and establishment of healthy food habits and physical activity, General Diets for Athletes Geriatric Nutrition: a) Physiological changes during old age, Nutritional requirements, nutritional guidelines, nutritional concerns, and healthy food choices, Meal planning with emphasis on maintenance of good health	12
Reference / Text Books: - Chadha R and Mathur P (eds) (2015). <i>Nutrition: A Lifecycle Approach</i>. Hyderabad: Orient Black Swan. - Rekhi T and Yadav H (2014). <i>Fundamentals of Food and Nutrition</i>. New Delhi: Elite Publishing House Pvt. Ltd. - Srilakshmi B (2014). <i>Food Science</i>, 6th Edition. Delhi: New Age International Ltd. - Seth V and Singh K (2006). <i>Diet Planning through the Life Cycle: Part 1 Normal Nutrition. A Practical Manual</i>. Elite Publishing House Pvt. Ltd. New Delhi. ISBN 8193599624. - Indian Food Composition Tables (2023), NIN, Hyderabad ISBN 9352676777. - Dietary Guidelines for Indians A Manual, Revised Edition 2024. ICMR NIN, Hyderabad.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/ Sessional Examination		10
2) Presentations /Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course: - Basic knowledge of general terms of foods and nutrition. - Knowledge of basic food groups.		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Understand the basic concepts and guidelines of meal planning. CO2: Assess nutritional needs and develop balanced meal plans for adults. CO3: Explain the nutritional needs of infants and recommend appropriate feeding practices. CO4: Formulate meal plans for children and adolescents to support healthy growth and lifestyle. CO5: Evaluate the nutritional needs of the elderly and create appropriate meal plans.		

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: B.Sc. (Food Science, Nutrition & Dietetics) Class: III		Year: III Semester: VI
Credits: 3 Theory: 3 Practical: 0		Subject: Sustainable Food Management
Course Code: FSND-363A		Title: Sustainable Food Management
Course Objectives: 1. Provide an understanding of the structure, functioning, and challenges of global, national, and local food systems. 2. Develop the ability to integrate sustainability, biodiversity, cultural heritage, and climate considerations into dietary planning. 3. Introduce principles of nutrition-sensitive agriculture and innovative practices for improving food quality and security. 4. Equip students with knowledge of climate-smart agriculture strategies to enhance resilience, productivity, and environmental sustainability.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Food Systems Overview (a) Defining Food Systems (production to consumption including food waste) (b) Food system development paradigm (c) Global and National Food Systems (d) Industrial Food System (e) Local Food System and nutrition anthropology (Tailoring food systems investments to specific context). (f) Overview of food value chains in India for various food groups. (g) Spatial typology for food system analysis- GIS mapping for food vulnerability	7
II	Sustainable diets (a) Importance of food systems approach for meeting SDG goals and improving diet quality and health (b) Sustainable diets for all: A key to meeting the SDGs (c) Impact of Biodiversity, Environment and Climate on Sustainable diets (d) Impact of Equity and fair trade on Sustainable diets	12

	(e) Eco-friendly local and seasonal foods (f) Cultural heritage, skills (Food Anthropology) (g) Food and Nutrient needs, Food security – (availability, accessibility, affordability, utilization and stability). (h) Healthy Diets- Understanding dietary diversity Guidelines for measuring household and individual dietary diversity (i) Household Dietary diversity score (HDDS), (j) Women's Dietary diversity score (WDDS), (k) Minimum acceptable diets (MAD), (l) Minimum Dietary diversity (MDD).	
III	Promoting Nutrition Sensitive Agriculture (a) Overview of nutrition sensitive agriculture (b) Horticulture and healthy diets (c) Shift incentives toward the foods that are most lacking in diets globally (fruits, vegetables, legumes) (d) Innovations in bio fortification, newer technologies for producing nutritious foods including grow your own food (Terrace/kitchen gardening, hydroponics etc.) (e) Implement environmentally sound production practices (f) Future of food Shaping a climate smart global food system	10
IV	Climate smart agriculture(CSA) and agriculture produce certification (a) Overview climate change and Food and Nutrition Security (b) Principles of CSA Mitigation of GHG from agriculture (c) Adaptation of agricultural practices to climate change (d) Sustainable maintenance (e) Achieving the triple win of CSA (f) Increased productivity (g) Enhanced resilience (h) Reduce emissions (i) CSA and the world bank group Livable planet – achieving net zero emissions in agri-food systems (j) Role of government: public sector leveraging its investment to incentivize private sector to include improved nutrition amongst its goals and its alignment with other social goal. (k) Identifying the gaps that exist and need to be closed in the knowledge available to countries in selection of investment choices and priorities for food systems in the national nutrition context	8
V	Food environments (a) Understanding physical, economic, political and socio-cultural contexts in which consumers engage with the food system to make their decisions about acquiring, preparing and consuming food. (b) Urban diets and food systems: Trends, challenges and opportunities for policy action. (c) Rural diets and food systems: Trends, challenges and opportunities for policy action (d) Animal Husbandry/livestock/fisheries- for sustainable diets (e) Extension approaches for climate resilient livestock farming (f) Livestock, fisheries and and sustainable food systems – a complex	12

	relationship (g) Trade & Taxation Policies to Promote nutritious, sustainable and healthy diets	
Reference / Text Books: • Lang, T., & Heasman, M. (2015). <i>Food Wars: The Global Battle for Mouths, Minds and Markets</i> (2nd ed.). Routledge. • Nestle, M. (2013). <i>Food Politics: How the Food Industry Influences Nutrition and Health</i> (10th Anniversary ed.). University of California Press. • Ericksen, P., Ingram, J., & Liverman, D. (2010). <i>Food Security and Global Environmental Change</i>. Routledge. • Fanzo, J., & Mattei, F. (2020). <i>Advancing Food Systems for Sustainable Diets in the United States</i>. Springer. • Garnett, T., & Godfray, H. C. J. (2012). <i>Sustainable Intensification in Agriculture</i>. Oxford University Press.		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/ Sessional Examination		10
2) Presentations /Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course:		
• Basic knowledge of general terms of foods and nutrition. • Knowledge of basic food groups.		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Explain global, national, and local food systems. CO2: Assess sustainability, biodiversity, and cultural impacts on diets. CO3: Apply nutrition-sensitive agriculture to improve food quality and security. CO4: Evaluate climate-smart agriculture for resilient food production. CO5: Analyze food environments and suggest policy interventions.		

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: B.Sc. (Food Science, Nutrition & Dietetics)	Year: III	
Class: III	Semester: VI	
Credits: 3 Theory: 3 Practical: 0	Subject: Community Nutrition	
Course Code: FSND-363B	Title: Community Nutrition	
Course Objectives: 1. To understand the foundational concepts of Public Health Nutrition (PHN) and its relevance to population health and well-being. 2. To examine the role of nutrition across the life cycle and its critical contribution to achieving global targets such as the Sustainable Development Goals (SDGs). 3. To evaluate the influence of public policies and nutrition interventions on community health outcomes at national and global levels. 4. To develop skills in utilizing nutritional surveillance and epidemiological data for the monitoring, evaluation, and improvement of public health nutrition programs. 5. To explore community-based nutrition and health promotion strategies aimed at addressing specific health challenges in diverse populations.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Community Nutrition a) What Is Community Nutrition (CN)? b) Roles and Responsibilities of Public Health Nutritionists. c) Definitions of Important Concepts: Positive Health, Malnutrition (Under Nutrition, Overweight, Obesity, Micronutrient Malnutrition), d) Nutritional Status, Nutrition Intervention, e) Food And Nutrient Supplements, Food Substitutes, Nutrition Education	12
II	Sectors In Public Health Nutrition a) Primary Health Care of the Community and Health Systems of India. National Health Care Delivery System. Determinants of Health Status, Indicators of Health. b) Food and Nutrition Security: Food Production, Access, Distribution Availability, Losses, Consumption, Dietary Patterns and their Implications on Nutrition and Health c) Nutritional Status: Determinants of Nutritional Status of Individuals	12

	and Populations d) Nutrition and Non-Nutritional Indicators: Sociocultural Biological, Environmental and Economic e) Approaches and Strategies for Improving Nutritional Status and Health: Health-Based Intervention, Food-Based Intervention, Nutrition Education for Behavior Change f) Supplementation and Food Fortification	
III	Nutrition and Population Dynamics in Sustainable Development a) Nutrition – A Developmental Priority, Population Dynamics (Local, National, Global), Demographic Transition, Population Structure, Fertility, Behavior, b) Quality of Life, Burden of Death and Disease (Local, National, Global), United Nations (UN) Decade of Action on Nutrition (2016 - 2025), Nutrition at Center Stage of Sustainable Development Goals (SDGs), 12 of the 17 Goals Require Good Nutrition to be met – An Overview.	12
IV	Life Cycle Nutrition and Global Health: Priorities and Interventions a) Importance of Nutrition Throughout the Life Cycle: Role of Nutrition in Achieving Global Targets, b) Optimal Infant and Young Child Feeding: Significance of the First 1000 Days of Life, c) Improving Maternal, Infant and Young Child Nutrition – WHO Global Targets, d) Role of Dietary Risk Factors in Achieving Global Targets Related to Non-Communicable Diseases (NCDs), e) Maternal and Child Health, f) Addressing Micronutrient Deficiencies.	12
V	Nutritional Surveillance and Surveillance Systems a) Understanding Nutritional Surveillance and its Purpose in Programme Design Planning, Implementation, Operation Monitoring, Surveillance, and Evaluation b) Surveillance/Reporting System Used in ICDS Program, Strength & Weaknesses, Newer Initiatives Taken by Government to Improve ICDS Surveillance System. c) Monthly Program Report and Its Uses in Surveillance, Definitions of Terms Used in Nutritional Surveillance, Long Term Nutrition Monitoring, Evaluation of Programs Impact, Timely Warning and Intervention Systems d) Types of Nutritional Surveillance Appropriate to Different Situations, Indicators and Data Sources from Existing Macro and Micro Systems of Information in India (Origin, Objectives, Importance and Their Use in Community Nutrition) NNMB, NFHS, NSSO, ICDS, NSS, CENSUS, MICS CES, Etc. e) Nutrition Surveillance For Action –Cycle of Triple A. f) Critique Of Nutrition Surveillance Data Available in Sources Like NFHS (National Family Health Surveys), NNMB (National Nutrition Monitoring Bureau)	12

Reference / Text Books:

- Textbook Of Community Medicine Preventive and Social Medicine with Recent Update by Lal, S. (2018), CBS Publishers & Distributors Private Limited.
- Public Health Nutrition in Developing Countries 2nd Edition (2 Volume Set) by Vir SC (2011), Woodhead Publishing India Pvt Ltd.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

Max. Marks-100	
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100

Prerequisites for the course:

- Basic Knowledge of Nutrition and Human Physiology and Anatomy.
- Knowledge of Food Safety and Hygiene.

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Define public health nutrition, roles, and key terms.

CO2: Analyze health systems, socio-economic factors, and improvement strategies.

CO3: Explain links between nutrition, development, and SDGs.

CO4: Assess nutrition's role across life stages in disease prevention.

CO5: Use nutrition data to plan and evaluate community programs.

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: B.Sc.(Food Science, Nutrition & Dietetics) Class: III		Year: III
Credits: 3 Theory: 3 Practical: 0		Semester: VI
Course Code: FSND-364		Subject: FUNDAMENTALS OF RESEARCH METHODS
Course Objectives: 1. Understand the basic concepts and importance of research in science and academics. 2. Learn simple research methods and data collection techniques. 3. Develop basic skills to plan, conduct, and report a small research study.		Title: FUNDAMENTALS OF RESEARCH METHODS
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Research • Meaning and definition of research • Importance of research in science and society • Types of research: basic, applied, qualitative, quantitative • Steps in the research process	3
II	Research Design and Methods • Research problem and objectives • Research design: descriptive, experimental, survey • Variables and hypotheses (simple explanation) • Ethical issues in research	7
III	Data Collection and Sampling • Sources of data: primary and secondary • Methods of data collection: questionnaire, interview, observation • Sampling methods: random, purposive, simple sampling • Introduction to tools for data collection	5
IV	Data Analysis and Research Report • Basics of data classification and tabulation • Simple data presentation: tables, graphs, charts • Introduction to basic statistics (mean, percentage) • Structure of a research report • Referencing and plagiarism awareness	7

V	Activity: - Students identify a simple research problem from daily life and write one problem statement with two objectives. - Students prepare a short questionnaire (5–8 questions) on a chosen topic to understand basic data collection. - Using sample or collected data (primary/secondary), students create a simple table and graph to present results clearly. - Make a case study/ research paper mandatory for publications	8
Reference / Text Books: - Kothari, C. R., & Garg, G. (2019). <i>Research methodology: Methods and techniques</i> (4th ed.). New Age International. - Thomas, C. G. (2021). <i>Research methodology and scientific writing</i> (2nd ed.). Springer Cham. - King, G., Keohane, R. O., & Verba, S. (1994). <i>Designing social inquiry: Scientific inference in qualitative research</i>. Princeton University Press. - Creswell, J. W., & Creswell, J. D. (latest ed.). <i>Research design: Qualitative, quantitative, and mixed methods approaches</i>. SAGE Publications. - Pruzan, P. (2016). <i>Research methodology</i>. Springer International Publishing. - Best, J. W., & Kahn, J. V. (2006). <i>Research in education</i> (10th ed.). Pearson/Allyn & Bacon.		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total		50
Prerequisites for the course: - Fundamentals of Research - Research Methodology - Research concepts		
Course Learning Outcomes: By the end of this course, students will be able to: - Explain the basic concepts and purpose of research. - Identify and formulate simple research problems and objectives. - Use basic data collection methods for small studies. - Present data using simple tables and graphs. - Prepare a basic research report following ethical guidelines.		

IIMTU-NEP IMPLEMENTATION
Year: III / Semester- VI

Programme: B.Sc. (Food Science, Nutrition & Dietetics)		Year: III
Class: III		Semester: VI
Credits: 2		Subject: AI-Nutrition Integration
Theory: 2		
Practical: 0		
Course Code: FSND-365		Title: AI-Nutrition Integration
Course Objectives: 1. To provide foundational knowledge of Artificial Intelligence concepts and explore their applications in the field of nutrition science. 2. To develop skills in handling, analyzing, and interpreting nutrition-related datasets using AI tools for dietary planning and public health improvement. 3. To examine ethical, social, and regulatory considerations in the integration of AI technologies within nutrition and dietetics practices.		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits THEORY+Sessional		
L: 2 T: 0 P: 0 (In Hours/Week)-00 Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (2Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Fundamentals of Artificial Intelligence • Definition and Scope of AI • Historical evolution of AI • Core concepts: machine learning, deep learning, natural language processing • AI algorithms relevant to data analysis • Overview of AI applications in various fields • Relevance of AI in health sciences and nutrition	5
II	Fundamentals of Nutrition Science • Basic concepts of nutrition and dietetics • Macro- and micronutrients: sources, functions, and daily requirements • Nutritional assessment methods • Dietary guidelines and recommended dietary allowances (RDA) • Malnutrition: undernutrition, overnutrition, and micronutrient deficiencies • Role of nutrition in disease prevention and health promotion	8
III	AI Applications in Nutrition • AI for dietary assessment and planning • Machine learning for nutrient pattern recognition • AI-driven personalized diet recommendations • Predictive analytics for nutritional deficiencies and health risks	8

	- AI in food product development and reformulation - Case studies of AI tools used in nutrition research	
IV	Data Management and Tools for AI-Nutrition Integration - Types and sources of nutrition-related data - Data collection: wearables, mobile apps, and IoT devices - Data preprocessing and cleaning for AI models - AI tools and software for nutrition analysis - Data visualization for nutrition trends - Introduction to databases and nutrition datasets (e.g., USDA, Indian Food Composition Tables)	5
V	Ethical, Social, and Future Perspectives - Ethical considerations in AI and nutrition (data privacy, bias, consent) - Challenges of AI adoption in nutrition practice - Socioeconomic and cultural barriers - Future trends: AI-powered nutrition coaching, virtual dietitians, precision nutrition - Policy implications for integrating AI in public health nutrition - Skill development and career opportunities in AI-Nutrition	4

Reference / Text Books:

- Patnaik, S., Jena, B., Mishra, B. S. P., & Sinha, P. (Eds.). (2024). Artificial intelligence for dietary management: Transforming nutrition through intelligent systems. IGI Global. <https://doi.org/10.4018/978-1-6684-9343-2>
- Sarkar, T., & Haldorai, A. (Eds.). (2025). Artificial intelligence in food science: Transforming food and bioprocess development. Elsevier.
- Adetunji, C. O. (Ed.). (2025). AI applications in food processing and packaging. Royal Society of Chemistry.

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

Max. Marks-50	
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Prerequisites for the course:

- Basic Nutrition & Dietetics
- Human Physiology & Biochemistry
- Food Chemistry
- Introduction to Public Health / Food Safety
- Basics of Computer Applications / Statistics & Research Methods

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Explain fundamentals of AI and its integration with nutrition in health sciences.

CO2: Analyse nutrition science areas where AI improves assessment, planning, and interventions.

CO3: Use AI tools to collect, process, and interpret nutrition-related datasets.

CO4: Apply AI techniques for dietary analysis, personalised nutrition, and public health decisions.

CO5: Assess ethical, legal, and social issues of AI in nutrition and propose responsible solutions.

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: B.Sc. (Food Science, Nutrition & Dietetics)		Year: III
Class: III		Semester: VI
Credits: 2		Subject: Social Behavior Change Communication / Nutrition Health Promotion
Theory: 0		
Practical: 2		
Course Code:FSND-361P		Title: Social Behavior Change Communication / Nutrition Health Promotion Lab
Course Objectives: 1. To develop students’ skills in planning, designing, and evaluating nutrition education and communication strategies using culturally appropriate materials, digital tools, campaigns, and behavior change approaches. 2. To enable students to apply theoretical concepts of nutrition intervention and public health programs through case study analysis, use of KAP surveys, technology-based tools, and assessment of national nutrition initiatives.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L:2 T:0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS-	1. Design a simple poster or leaflet using culturally appropriate visuals and develop a health message (e.g., for anemia prevention or healthy snacking) 2. Choose a theme (e.g., "Eat More Fruits", "Reduce Salt Intake"), Select suitable channels (posters, peer talks, social media) and draft a simple campaign plan (who, what, where, when) 3. Choose a nutrition intervention (e.g., iron-rich recipe demo) and create a checklist or KAP (Knowledge, Attitude, Practice) survey 4. Explore any nutrition-related app, chatbot, or health game 5. Analyze one case study (e.g., Swachh Bharat, Poshan Abhiyaan)	
Reference / Text Books: • Social and Behavior Change Communication for Health by USAID / SPRING Project • Communication for Development in Nutrition: A Guide for Nutritionists and Other Field Workers by FAO • Behavior Change in Public Health: Evidence and Implications by David R. Buchanan • Health Promotion: Planning and Strategies by Jackie Green, Keith Tones • Nutrition Education: Linking Research, Theory, and Practice by Isobel Contento		

- Health Promotion and Education Research Methods: Using the Five-Chapter Thesis/Dissertation Model by Randy Cottrell
- Health Promotion: Theories and Models by Renata Schiavo
- Formative Research Methods for Health Programs
- The Compass for Social and Behavior Change
- SBCC Implementation Kits
- Global health communication case studies
- **UNICEF C4D Toolkit:**<https://www.unicef.org/communicationfordevelopment/>
- **SBCC Implementation Kit (IK):**<https://sbccimplementationkits.org/>
- **CDC Health Communication Tools:**<https://www.cdc.gov/healthcommunication/>
- **WHO Health Promotion Resources:**<https://www.who.int/health-topics/health-promotion>

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50
Prerequisites for the course:	
• Basic understanding of human nutrition and nutrient functions, including common nutritional deficiencies and their prevention. • Introductory knowledge of public health and health education concepts, including community nutrition programs and behavior change communication.	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Design and develop culturally appropriate nutrition education materials and campaigns using print, interpersonal, and digital communication channels. CO2: Apply nutrition intervention strategies and assessment tools such as KAP surveys, checklists, and recipe demonstrations to address common public health nutrition issues. CO3: Analyze and evaluate nutrition-related digital tools and national health programs to assess their effectiveness in promoting healthy dietary behaviors.	

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: B.Sc. (Food Science, Nutrition & Dietetics)		Year: III
Class: III		Semester: VI
Credits: 2		Subject: Nutrition Through Life Cycle Lab
Theory: 0		
Practical: 2		
Course Code: FSND-362P		Title: Nutrition Through Life Cycle Lab
Course Objectives: 1. To equip students with practical skills in meal planning and recipe standardization using food exchange lists to meet the age-specific and physiological nutritional requirements of different population groups. 2. To enable students to plan, prepare, and evaluate balanced meals, snacks, and beverages for pregnant women, preschool children, adolescents, and the general population, with a focus on health promotion and dietary adequacy.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS-	1. Introduction to meal planning, Use of food exchange list, Recipe standardization. 2. Meal Planning (as per nutritional requirements) and preparation of healthy diets and dishes for pregnant woman 3. Meal planning (as per nutritional requirements) and preparation of healthy diet and lunch box dishes for Preschool child. 4. Meal planning (as per nutritional requirements) and preparation of healthy diet and lunch box for adolescents. 5. Planning healthy snacks and beverages for all age groups.	
Reference / Text Books: • Chadha R and Mathur P (eds) (2015). <i>Nutrition: A Lifecycle Approach</i>. Hyderabad: Orient Black Swan. • Rekhi T and Yadav H (2014). <i>Fundamentals of Food and Nutrition</i>. New Delhi: Elite Publishing House Pvt. Ltd. • Srilakshmi B (2014). <i>Food Science</i>, 6th Edition. Delhi: New Age International Ltd. • Seth V and Singh K (2006). <i>Diet Planning through the Life Cycle: Part 1 Normal Nutrition. A Practical Manual</i>. Elite Publishing House Pvt. Ltd. New Delhi. ISBN 8193599624. • Indian Food Composition Tables (2023). NIN, Hyderabad ISBN 9352676777.		

- Dietary Guidelines for Indians A Manual, Revised Edition 2024. ICMR NIN, Hyderabad

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50

Prerequisites for the course:

- Basic knowledge of nutrients, food groups, and recommended dietary allowances.
- Understanding of fundamental cooking methods and principles of balanced diets.

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Apply principles of meal planning, food exchange lists, and recipe standardization to design nutritionally adequate diets for different age groups.

CO2: Plan and prepare balanced meals, snacks, and beverages according to the nutritional requirements of pregnant women, preschool children, and adolescents.

CO3: Evaluate prepared diets and lunch box meals for nutritional adequacy, variety, portion control, and suitability for specific life stages.

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: B.Sc. (Food Science, Nutrition & Dietetics)		Year: III
Class: III		Semester: VI
Credits: 2		Subject: Sustainable Food Management Lab
Theory: 0		
Practical: 2		
Course Code: FSND-363AP		Title: Sustainable Food Management Lab
Course Objectives: 1. To develop students’ understanding of food systems, food value chains, and local food vulnerability by conducting field visits and using tools such as GIS maps and food environment assessments in urban and rural settings. 2. To enable students to design, apply, and analyze food security and dietary diversity assessment tools, including HDDS, WDDS, MDD, and MAD, for interpreting household, women’s, and child nutrition status.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS-	1. Visit farms, markets and food processing units to prepare food value chains in India for various food groups. 2. Understand local food vulnerability using available GIS maps. 3. Prepare a tool and assess Food security–(availability, accessibility, affordability, utilization and stability)- in urban and rural households-data analysis and interpretation. 4. Assess household and individual dietary diversity Household Dietary diversity score (HDDS) in urban and rural households-data analysis and interpretation. 5. Assess Women’s‘ Dietary diversity score - in urban and rural households- data analysis and interpretation (WDDS) 6. Assess Minimum acceptable diets (MAD), Minimum Dietary diversity (MDD) for children - data analysis and interpretation (WDDS) 7. Develop a tool and assess food environment in urban and rural households- data analysis and interpretation.	
Reference / Text Books: • Lang, T., & Heasman, M. (2015). <i>Food Wars: The Global Battle for Mouths, Minds and Markets</i> (2 nd ed.). Routledge.		

- Nestle, M. (2013). *Food Politics: How the Food Industry Influences Nutrition and Health* (10th Anniversary ed.). University of California Press.
- Ericksen, P., Ingram, J., & Liverman, D. (2010). *Food Security and Global Environmental Change*. Routledge.
- Fanzo, J., & Mattei, F. (2020). *Advancing Food Systems for Sustainable Diets in the United States*. Springer.
- Garnett, T., & Godfray, H. C. J. (2012). *Sustainable Intensification in Agriculture*. Oxford University Press.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

Max. Marks-50	
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50

Prerequisites for the course:

- ☐ Basic understanding of nutrition, food groups, and dietary assessment concepts.
- ☐ Introductory knowledge of public health nutrition and community-based data collection methods.

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Analyze food value chains and local food systems in urban and rural India using field visits, GIS-based information, and food environment assessment tools.

CO2: Apply standardized tools to assess food security, household, women's, and child dietary diversity, and interpret the findings using appropriate data analysis methods.

CO3: Evaluate food vulnerability and nutrition outcomes to generate evidence-based insights for improving food security and dietary adequacy at the community level.

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: B.Sc. (Food Science, Nutrition & Dietetics)		Year: III
Class: III		Semester: VI
Credits: 2		Subject: Community Nutrition lab
Theory: 0		
Practical: 2		
Course Code: FSND-363BP		Title: Community Nutrition Lab
Course Objectives: 1. To provide practical exposure to on-going national nutrition programs and surveillance systems through field visits and analysis of large-scale data sets for assessing the nutritional status of different population groups. 2. To develop students' competencies in meal planning, nutrient analysis, and creation of nutrition education aids by applying RDA guidelines to different income groups and interpreting dietary adequacy.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS-	1. Understand the Situational Analysis of Ongoing National Nutrition Program with Visit at Govt. Aided Schools & Anganwadi ICDS MDM Urban Primary Health Center Rural Health Center and Sub Centres 2. Understand Local and National Surveillance Data Sets (NFHS, NNMB, DLHS) for Various Age Groups (Pregnant, Lactation, Children Under 5years, Adult Man and Adult Women) 3. Prepare a Meal for Different Income Groups (LIG, MIG, HIG) as per their budgets with Nutritive Content 4. Analysis, Comparisons with RDA, Calculation of Consumption Units and Interpretation Using the RDA (NIN, 2024), 5. Create Nutritional Aids (AV Aids) for Awareness of Nutrition	
Reference / Text Books: • Textbook Of Community Medicine Preventive and Social Medicine with Recent Update by Lal, S. (2018), CBS Publishers & Distributors Private Limited. • Public Health Nutrition in Developing Countries 2nd Edition (2 Volume Set) by Vir SC (2011),		

Wood head Publishing India Pvt. Ltd.	
If the course is available as Generic Elective then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ETE	35
Total	50
Prerequisites for the course:	
1. Basic knowledge of human nutrition, nutrients, and recommended dietary allowances.	
2. Introductory understanding of public health nutrition programs and community nutrition concepts.	
Course Learning Outcomes:	
By the end of this course, students will be able to:	
CO1: Analyze ongoing national nutrition programs and surveillance data sets to assess the nutritional status of different population groups across life stages.	
CO2: Plan and evaluate cost-effective meals for different income groups using RDA guidelines and nutrient calculation methods.	
CO3: Design and utilize audio-visual nutrition education aids to promote nutrition awareness and support behavior change at the community level.	

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: III
Class: III		Semester: VI
Credits: 1		Subject: SPORTS
Theory: 0		
Practical: 1		
Course Code: SPWC-361		Title: SPORTS
Course Objectives: 1. To build essential interpersonal skills, including collaborative strategy, ethical sportsmanship, and disciplined goal setting within a team environment.		
Nature of Paper: SEC-6		
Minimum Passing Marks/Credits: 50% Marks / 1 Credit (PRACTICAL)		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are encouraged to engage in a diverse range of indoor and outdoor recreational activities, such as carrom, chess, and various team sports, to promote physical well-being and strategic thinking.	-
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		25
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Execute specialized skills, techniques, and tactical strategies in at least two selected indoor or outdoor sports.		

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: III
Class: III		Semester: VI
Credits: 2		Subject: MOOC/NPTEL, E/IPR
Theory: 2		
Practical: 0		
Course Code: FSND-VAC-366		Title: MOOC/NPTEL, E/IPR
Course Objectives: 1. To familiarize students with online learning platforms and fundamentals of Intellectual Property Rights for academic and professional advancement..		
Nature of Paper: VAC-3		
Minimum Passing Marks/Credits: 40% Marks / 2 Credit (NPTEL Certificate)		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
	MOOC/NPTEL and E/IPR courses enhance value addition by offering flexible, industry-relevant learning, enabling students to strategically select subjects aligned with career goals.	-
If the course is available as Generic Elective then the students of following departments may opt it. --		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/Sessional Examination		50
2) Presentations/Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		50
Course Learning Outcomes: CO1: To utilize MOOC/NPTEL platforms and apply basic IPR concepts in research, innovation, and career planning.		

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: B.Sc. (Food Science, Nutrition and Dietetics)		Year: III
Class: III		Semester: VI
Credits: 4 Theory: 0 Practical: 4		Subject: Case Study/Review Study
Course Code: FSND-367		Title: Case Study/Review Study
Course Objectives: 1. To develop students’ ability to critically analyze existing research and real-life cases within their chosen discipline		
Nature of Paper: NC		
Minimum Passing Marks/Credits: 50% Marks / 4 Credit (PRACTICAL)		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
	The principles and methods of case study and review study approaches, including identification of research problems, data sources, and analytical frameworks.	-
If the course is available as Generic Elective then the students of following departments may opt it. --		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/ Sessional Examination		5
2) Presentations /Seminar		10
3) Assignments		10
4) Research Project Report Seminar On Research Project Report		-
5) ETE		75
Total:		50
Course Learning Outcomes: CO1: To evaluate case scenarios or literature systematically and apply insights to academic, research, or professional contexts.		

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: III
Class: III		Semester: VI
Credits: NC		Subject: INDUSTRIAL VISIT/SEMINAR PRESENTATION ON THE REPORT
Theory: NC		
Practical: NC		
Course Code: FSND-368		Title: INDUSTRIAL VISIT/SEMINAR PRESENTATION ON THE REPORT
Course Objectives: 1. Develop skills to observe, record, and analyze industrial processes effectively.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 0 T: 0 P: (In Hours/Week)- 0 Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are required to deliver a formal report detailing their key observations, technical insights, and professional assessments gathered during the industrial visit.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/ Sessional Examination		25
2) Presentations /Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Identify community needs and explore university–community partnership opportunities. CO2: Participate in volunteer activities and document experiences for reflection		

IIMTU-NEP IMPLEMENTATION
Year: III / Semester: VI

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: III
Class: III		Semester: VI
Credits: NC		Subject: UNIVERSITY SOCIAL RESPONSIBILITY
Theory: NC		
Practical: NC		
Course Code: FSND-369		Title: UNIVERSITY SOCIAL RESPONSIBILITY
Course Objectives:		
1) To generate awareness of social, ethical, and environmental responsibilities.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 1 T: 0 P: (In Hours/Week)- 0 Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Community Engagement University–community partnerships. Basics of volunteering and service learning. Identifying local community needs. Activity: Field visit to NGOs or schools.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/ Sessional Examination		25
2) Presentations /Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes:		
CO1: Analyze environmental challenges and promote sustainable campus practices.		
CO2: Implement eco-friendly initiatives like waste management and tree plantation.		

OPTIONAL SEMESTER-VII (B.Sc. FSND Honours with Research)

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: B.Sc. Honors in Food Science & Dietetics Class: IV		Year: IV Semester: VII
Credits: 3 Theory: 3 Practical: 0		Subject: Advanced Human Nutrition and Metabolism
Course Code: FSND-471		Title: Advanced Human Nutrition and Metabolism
Course Objectives: 1. Understand How the Body Digests and Uses Carbohydrates, Fats, Proteins, Vitamins, Minerals and Water to Stay Healthy. 2. Compare Student Diets to Recommended Daily Intakes (Like RDA/EAR) and Identify if Nutrient Levels are Inadequate or Excessive. 3. Recognize Common Signs of Nutrient Deficiencies or Metabolic Issues and Suggest Simple Dietary Changes to Fix Them.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Carbohydrates a) Structural Features, Types, Functions, Sources, Requirements of Carbohydrates b) Chemistry And Characteristics of Dietary and Functional Fibers c) Role of Dietary Fiber, Resistant Starch and Fructo-oligosaccharides in various Physiological Disorders d) Glycemic Response to Carbohydrates e) Digestion, Absorption, Transport and Distribution of Carbohydrates.	12
II	Fats Or Lipids a) Structure and Biological Importance b) Digestion, Absorption, Transport and Storage c) Lipids, Lipoproteins and Cardiovascular Disease Risk d) Integrated Metabolism in Tissues e) Regulation of Lipid Metabolism f) Brown Fat Thermogenesis g) Deficiency Disorders of Lipids and Essential Fatty Acids h) Role of Omega-3 and Omega 6 Fatty Acids in Physiological Disorders.	12
III	Proteins	12

	a) Functional Categories b) Protein Structure and Organization c) Digestion, Absorption and Amino Acid Metabolism d) Protein Turnover e) Synthesis and Catabolism of Tissue Proteins f) Evaluation of Protein Quality g) Protein Deficiency/ Malnutrition h) Body Composition, Energy Balance.	
IV	Regulatory Nutrients and Water a) Functions, Absorption, Requirement, Sources, Deficiency, Toxicity, Metabolism and Excretion of Fat-Soluble Vitamins - A, D, E And K And Water-Soluble Vitamins- Thiamine, Riboflavin, Niacin, Pyridoxine, Folate, B12, Ascorbic Acid, Pantothenic Acid and Biotin b) Functions And Mechanisms of Action, Digestion, Absorption, Transport, Excretion, Adequate Intake, Requirements, Deficiency, Toxicity of Macro Minerals - Calcium and Phosphorus and Micro Minerals – Iron, Zinc, Sodium, Copper, Cobalt, Selenium and Chromium c) Water And Electrolyte Balance - Functions and Distribution of Water in Body d) Electrolyte Composition of Body Fluids and Electrolyte Balance.	12
V	Energy Balance and Recommended Dietary Allowances c) Energy Balance Fundamentals • Units, Direct and Indirect Calorimetry • Determination of Energy Value of Food • Total Energy Requirement (TEE), Resting Energy Expenditure (REE) • Factors Affecting Physical Activity, BMR and Thermic Effect of Food (TEF) d) Recommended Dietary Allowances (RDA) • RDA and Estimated Average Requirements (EAR) • Factors Affecting RDA • General Principles of Deriving RDA e) Nutrient Specific RDA and Procedures • Determination of RDA of Different Nutrients • Requirements and RDA f) Indian Context: Standards and Application • Indian Standards for Heights & Weights • Reference Man & Woman and Other Terminologies g) Practical Application and Tools • Practical Applications of RDA; My Healthy Plate	12
Practical- 1. RDA Chart Construction & Application: Create RDA Charts for ICMR - Indian Standards for Adults (Man/Woman, Sedentary / Moderate / Heavy Activity), Vitamins or Minerals. 2. Individual Diet vs RDA Assessment: Evaluate a 3-Day Typical Diet (E.g. Indian Plate Model) Against RDA for Macro- and Micro-Nutrients. 3. Metabolic Pathway Mapping & Enzyme Activity Assays Clinical Markers of Nutritional		

Deficiencies: Identify Biochemical Markers and Signs for Actual or Simulated Deficiency of Different Macro & Micro Nutrients.

Reference / Text Books:

- Wildman REC and Medeiros DM (2000) Advanced Human Nutrition. CRC Press, Boca Raton, Florida.
- Bamji MS, Rao NP and Reddy V (2003) Textbook of Human Nutrition. 2nd Edition, Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi.
- Eastwood MA (1997) Principles of Human Nutrition. London; Chapman & Hall. 248 “Curriculum of Nutrition and Dietetics (Intellectual Property of the National Commission for Allied and Healthcare Professions, Ministry of Health and Family Welfare).”
- FAO (2004) Human Energy Requirements-Report of a Joint FAO/WHO/UNU Expert Consultation. Technical Report Series 1. Food and Agriculture Organization, Geneva.
- FAO (2007) Protein and Amino Acid Requirements - Report of a Joint FAO/WHO/UNU Expert Consultation. Technical Report Series 1. Food and Agriculture Organization, Rome.
- Berdanier, CD and Zempleni, J (2009) Advanced Nutrition: Macronutrients, Micronutrients and Metabolism. CRC Press, New York.
- Groff J L and Gropper S (2012) Advanced Nutrition and Human Metabolism. 7th Edition, Yolanda Cossio, New York.
- Summathi S (2017) Food Chemistry and Nutrition. BS Publication, Hyderabad.
- Ross A C, Caballero B, Cousins RJ, Tucker KL and Ziegler TR (2012) Modern Nutrition in Health and Disease. 11th Edition, LWW, Philadelphia.
- Whitney EN & Rolfels CR (2019) Understanding Nutrition. 15th Ed., West Publishing Company, USA.
- Stipanuk MH and Caudill MA (2013) Biochemical, Physiological and Molecular Aspects of Human Nutrition. 3rd Edition, Elsevier Pub.
- <https://www.nutritionintl.org>
- <https://www.who.int>
- <https://www.hsph.harvard.edu/nutritionsource>
- <http://www.nin.res.in>

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

Max. Marks-100	
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100

Prerequisites for the course:

- Basic Human Nutrition
- Fundamentals of Biochemistry
- Human Physiology

Course Learning Outcomes:

By the end of this course, students will be able to:

1. Describe structure, classification, roles, digestion, absorption, metabolism, and disorders of carbs, proteins, and lipids.

2. Evaluate effects of fiber, resistant starch, and functional carbs on glycemia and disorder management.
3. Assess lipid–protein metabolic integration and regulation in relation to CVD, thermogenesis, and PEM.
4. Analyze roles, requirements, metabolism, toxicity, and balance of vitamins, minerals, and water.
5. Apply energy balance and RDA using assessment tools, Indian standards, and case studies.

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: B.Sc. Honors in Food Science & Dietetics Class: IV		Year: IV Semester: VII
Credits: 3 Theory: 3 Practical: 0		Subject: Advanced Pathophysiology
Course Code: FSND-472		Title: Advanced Pathophysiology
Course Objectives: 1. To Comprehend Normal Biochemistry, Disease Pathogenesis, Etiology, Clinical Signs & Symptoms, Diagnostic Tests and Complications of the Healthy & Diseased Conditions. 2. To Identify and Understand the Importance and Use of Diagnostic Tests in the Prognosis of Disease Processes.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L:3 T:0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Cardiovascular, Respiratory, And Neoplastic Disorders A. Cardiovascular System • Disorders Of Rhythm: Bradyarrhythmia (SA/AV Node Dysfunction), Tachyarrhythmias • Disorders of the Heart: Congestive Heart Failure, Ischemic Heart Disease (MI, Angina, Sudden Cardiac Death), Valvular Heart Disease (Including Rheumatic HD), Myocardial Diseases, Cardiomyopathies, Congenital Heart Diseases • Hypertension: Primary and Secondary Hypertension, Pathogenesis and Risk Factors, Effects on Heart, Kidneys, and Brain • Vascular Pathology: Atherosclerosis and Arteriosclerosis – Pathogenesis and Risk Factors • Disorders of Lipoprotein Metabolism • Cardiac Function Tests B. Respiratory System • General Characteristics and Classification • Infectious Disorders: Common Cold, Influenza, Pneumonia • Obstructive Disorders: Asthma, Chronic Bronchitis, Emphysema • Restrictive Disorders: Pneumothorax, Atelectasis • Others: COPD, ARDS, Respiratory Failure, Bronchiectasis, Cystic Fibrosis, Disorders of Pleura and Diaphragm	12

	• Pulmonary Function Tests C. Neoplasia (Cancer Pathophysiology) • Definition And Classification (Benign Vs. Malignant) • Molecular Basis: Oncogenes, Tumor Suppressor Genes • Carcinogenesis: Chemical (Initiation, Promotion, Progression), Radiation, Viral • Clinical Features, Host Defences • Grading And Diagnosis (Histologic, Molecular, Tumor Markers)	
II	Renal And Urinary Tract Disorders a) Clinical Manifestations Overview b) Glomerular Disorders: Glomerulonephritis, Nephrotic and Nephritic Syndrome c) Tubulointerstitial Diseases: Pyelonephritis d) Vascular Renal Disorders: Nephrosclerosis e) Other Renal Disorders: Urolithiasis, Acute and Chronic Renal Failure f) Voiding Dysfunction, Incontinence g) Fluid And Electrolyte Imbalances h) Renal Function Tests	12
III	Gastrointestinal Tract Disorders a) Esophageal And Gastric Disorders: Gerd And Bile Reflux, Hiatal Hernia, Esophagitis, Gastritis And Peptic Ulcers b) Intestinal And Colonic Disorders: Ischemic Bowel Disease, Hemorrhoids, Enterocolitis (Diarrhea, Dysentery), Constipation c) Malabsorption Syndromes: Celiac Sprue, Bacterial Overgrowth, Iibd d) Colonic Diverticulosis e) Functional Assessment: Gastric Function Tests	12
IV	Hepatobiliary And Pancreatic Disorders a) Jaundice and Bilirubin Metabolism b) Hepatic Injury Patterns: Necrosis, Inflammation, Fibrosis c) Hepatitis (Viral) d) Cirrhosis: Etiology (Alcohol, Etc.), Portal Hypertension, Ascites, Splenomegaly e) Hepatic Failure and Encephalopathy f) Gallbladder Disorders: Cholelithiasis (Cholesterol and Pigment Stones), Cholecystitis g) Cholestasis h) Pancreatitis (Acute and Chronic) i) Liver Function Tests	12
V	Endocrine And Reproductive System Disorders A. Endocrine System • Thyroid Disorders: Hypothyroidism and Hyperthyroidism and Diagnostic Tests • Diabetes Mellitus (DM): Types and Pathogenesis, Metabolic Derangements, Complications (Microangiopathy, Macroangiopathy, Neuropathy, Nephropathy, Retinopathy, Diabetic Foot), Diagnostic Tests B. Reproductive System	12

	- Female Reproductive Disorders: Endometriosis, Polycystic Ovarian Syndrome (PCOS) - Sexually Transmitted Diseases (STDs): Etiology, Clinical Features, Diagnosis, And Treatment	
Reference / Text Books: - Baynes, J., and Dominiczak. M. (2002). Medical Biochemistry. London: Mosby - Thabrew, I. and Ayling. R.M. (2001). Biochemistry for Clinical Medicine. New Delhi: Replika Press Pvt Ltd. - Guyton, A.C., and Hall. J.E. (1996). Textbook of Medical Physiology (9th ed.). Bangalore: Prism Books Pvt. Ltd. - Cotran, R.S., Kumar, V., Robbins, S.L., and Schoen. F.J. (Ed.). (1994). Robbins Pathologic Basis of Disease (5th ed.). Bangalore: Prism Books Pvt Ltd. - Devlin, T.M. (2002). (Ed.). Textbook of Biochemistry with Clinical Correlations. (5th ed.). New York: Wiley-Liss.		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/ Sessional Examination		10
2) Presentations /Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		--
5) ESE		75
Total		100
Prerequisites for the course: - Basics of Biochemistry and Metabolism - Human Anatomy and Physiology - Disease Processes (Basic Pathology & Immunology)		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Interpret test data for heart, lung, and cancer to guide nutrition. CO2: Use kidney tests to plan diets for renal and urinary issues. CO3: Advise diets for gut disorders to aid digestion and absorption. CO4: Apply liver/pancreas tests to design condition-specific diets. CO5: Plan diets for hormonal and reproductive disorders.		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: B.Sc. Honors in Food Science & Dietetics Class: IV		Year: IV Semester: VII
Credits: 3 Theory: 3 Practical: 0		Subject: Research Trends in Nutrition and Dietetics
Course Code: FSND-473A		Title: Research Trends in Nutrition and Dietetics
Course Objectives: 1. To develop understanding regarding the principles of research design, methodology, and analysis 2. To develop responsible conduct in research, including ethical considerations and plagiarism avoidance 3. To developing critical thinking and problem-solving skills to approach complex nutrition-related issues 4. To communicate scientific information to various audiences		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Research Process and Responsible Conduct • Principles of Research: This section will cover the fundamental principles of research design, methodology, and analysis as they apply to nutrition and dietetics. • Ethical Considerations: A deep dive into ethical considerations for research studies, including informed consent, data privacy, and the responsible use of human and animal subjects. • Plagiarism: Examination of the concept, factors, and solutions related to plagiarism in academic and professional writing. • Problem Identification: The process of identifying and defining complex, relevant nutrition-related issues suitable for research.	12
II	Study Design and Evaluating Evidence in Nutrition • Study Designs: An overview of different types of study designs, such as observational studies (cohort, case-control), experimental studies (randomized controlled trials), and quasi-experiments. • Strengths and Limitations: Critical analysis of the strengths and limitations inherent to each research design. • Quality Evaluation: Methods for evaluating the quality and validity of research studies.	12

	• Literature Review: Practical skills for reviewing the existing literature on nutrition-related topics to build a foundation for new research. • Data Analysis and Interpretation: Techniques for analyzing and interpreting the findings of research studies.	
III	Literacy Skills to Search Relevant and Reliable Sources • Source Identification: A guide to identifying and utilizing reliable databases (e.g., PubMed, Scopus), peer-reviewed journals, and other scientific sources to locate evidence-based information. • Source Evaluation: Practical skills for evaluating the credibility and reliability of various information sources, including distinguishing between scientific and popular media.	12
IV	Knowledge Translation to Various Audiences • Principles of Knowledge Translation: Introduction to the principles and frameworks of knowledge translation, focusing on how to effectively communicate research findings to different audiences. • Group Discussion: A forum for group discussions on various perspectives related to current nutrition-related issues with peers, fostering critical thinking and communication skills.	12
V	Emerging Trends and Future Directions in Nutrition Research • Technology in Research: Exploration of modern technological trends in nutrition research, including the use of artificial intelligence, big data analytics, mobile health apps, and wearable technologies. • Personalized Nutrition: Discussion of the growing field of personalized nutrition, covering nutrigenomics, and how genetic and individual factors influence dietary recommendations. • Translating Research into Policy and Practice: The role of research in shaping public health policy and clinical practice. This includes understanding the process of creating evidence-based guidelines and recommendations. • Professional Development: Examination of career paths in nutrition research and the importance of lifelong learning to stay current with new trends and methodologies.	12

Reference / Text Books:

- Vegrove JA., Hodson L., Sharma S. and Lanham-New SA. (2015). Nutrition Research Methodologies (The Nutrition Society Textbook).
- Wiley-Blackwell; 1st edition. Starks TP. (2006). Trends in Nutrition Research. Nova Science Publishers Inc 1st edition. Pounis G. (2018).
- Analysis in Nutrition Research: Principles of Statistical Methodology and Interpretation of the Results. Academic Press Inc. Nelson M. (2020).
- Statistics in Nutrition and Dietetics. Wiley-Blackwell Chrzan J. and Brett J. (2017).
- Research methods for anthropological studies of food and nutrition. Berghahn Books Sreelathak NT. and Sreelatha K. (2021) Research ethics and plagiarism. Ess Ess Pubns. Guyton, A.C., and Hall. J.E. (1996).
- Textbook of Medical Physiology (9thed.). Bangalore: Prism Books Pvt. Ltd.

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

Max. Marks-100

1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100
Prerequisites for the course:	
• Introduction to Nutrition Science • Statistics for Health Sciences	
Course Learning Outcomes:	
By the end of this course, students will be able to:	
1. Explain research design principles, ethics, problem identification, and plagiarism avoidance. 2. Evaluate study designs, assess research quality, and synthesize literature. 3. Search and assess credible scientific evidence effectively. 4. Communicate research findings clearly and discuss current nutrition issues. 5. Explore trends, technologies, careers, and the role of research in public health policy.	

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: B.Sc. Honors in Food Science & Dietetics		Year: IV
Class: IV		Semester: VII
Credits: 3	Subject: Innovation in Food Product Development	
Theory: 3		
Practical: 0		
Course Code: FSND-473B		Title: Innovation in Food Product Development
Course Objectives: 1. To develop understanding of the structured process of food product development with a focus on Indian markets. 2. To provide knowledge of emerging food trends, regional cuisines, and functional foods using indigenous ingredients. 3. To build competencies in prototype development, sensory analysis, and food regulatory compliance specific to India. 4. To inspire innovation and entrepreneurship aligned with national initiatives like <i>Start-up India</i>, <i>Make in India</i>, and <i>Eat Right India</i>.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Food Product Development • Scope and need for new food products in Indian markets • Current trends: ready-to-eat, organic, millet-based, plant-based, immunity boosters • Types of food product innovations: traditional, value-added, convenience, fortified • Consumer behaviour and cultural preferences in India	8
II	Innovation and Idea Generation • Sources of ideas: Indian dietary habits, Ayurveda, functional foods • Design thinking, market survey, SWOT analysis • Use of AI and data in identifying consumer trends (Zomato, Swiggy, etc.) • Role of women entrepreneurs and SHGs in rural innovation	8
III	Product Design and Development • Ingredient sourcing from Indian agro-based industries (millets, pulses, spices) • Product formulation for nutrition and taste	10

	- Fortification with iron, folic acid, vitamin A – aligning with national nutrition goals - Indigenous and sustainable packaging practices - Pilot-scale production for small businesses	
IV	Sensory Evaluation, Quality & Shelf-Life (Global Perspective) - Sensory testing: discrimination, descriptive, affective methods - Cross-cultural flavour preferences & consumer segmentation - Instrumental vs. sensory correlation - Packaging for global climates: MAP, biodegradable, smart systems - Shelf-life prediction: ASLT, modelling tools - Global labelling standards: FDA, EFSA, Codex - Case studies: product adaptation across regions	9
V	Regulations, Labeling, and Entrepreneurship in Indian Context - FSSAI regulations: - Licensing and registration - Labeling rules (allergens, nutrition facts, vegetarian/non-veg symbol) - Health and nutrition claims (e.g., “low GI”, “iron-fortified”). - Nutrition labeling using Indian Packaged Foods Regulations (2020) - Packaging and labeling for export (APEDA, Spices Board, Organic India certification) - Business model development: - Incubation centers (NIFTEM, CFTRI, IIMR, IITs) - Financial support from NABARD, MSME, Atal Innovation Mission - Direct-to-consumer channels: farmers’ markets, ONDC, WhatsApp commerce	11

PRACTICALS:-

- Market Survey: Identify 5 trending food products in Indian supermarkets and analyze ingredients.
- Prototype Development: Formulate and develop a nutrition-based food product.
- Conduct sensory tests (triangle, hedonic, QDA) for product development
- Evaluate global case studies (e.g., adapting snacks or dairy for export)

Reference / Text Books:

- FSSAI Manuals & Guidelines (www.fssai.gov.in)
- National Institute of Nutrition (NIN) – *Indian Food Composition Tables*
- Fuller, G.W. (2016). *New Food Product Development*. CRC Press
- Earle & Earle (2000). *Developing New Food Products for a Changing Marketplace*
- Websites: *Start-up India, Eat Right India, NIFTEM, CFTRI, SIDBI*

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology	
Max. Marks-100	
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: B.Sc. Honors in Food Science & Dietetics		Year: IV
Class: IV		Semester: VII
Credits: 3		Subject: Research Methodology and Statistics
Theory: 3		
Practical: 0		
Course Code: FSND-474		Title: Research Methodology and Statistics
Course Objectives: 1. Underline the significance of research Methodology in research. 2. Develop ability to construct data gathering, instruments appropriate to the research design. 3. Develop ability present and interpret data in a research report or thesis. 4. Understand the role of statistics in research. 5. Apply statistical techniques to research data for analyzing and interpreting data meaningfully.		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Research in Food & Nutrition a) Meaning, objectives, and significance of research in food, nutrition, and dietetics b) Types of research: Basic, applied, clinical, epidemiological, community-based c) Scientific approach, research process, steps in research d) Identification, definition, and formulation of research problems e) Literature review: Sources, critical analysis, referencing, and citation styles f) Research ethics: Plagiarism, ethical clearance, informed consent, research integrity g) Research in food science: Example case studies	8
II	Research Design & Data Collection a) Research approaches: Qualitative, quantitative, and mixed methods b) Research designs: Descriptive, analytical, experimental, and observational; case studies and surveys c) Sampling: Population and sample, types of sampling methods (probability & non-probability), determining sample size d) Data types: Primary vs. secondary data, tools for data collection (questionnaire, interview, dietary assessment, lab methods)	8

	e) Reliability and validity of tools f) Pilot studies and protocol development in nutrition research	
III	Data Presentation & Descriptive Statistics a) Classification and tabulation of data for food & nutrition studies b) Graphical presentation: Tables, charts (bar, pie, histograms, frequency polygons, scatter plots) c) Measures of central tendency: Mean, median, mode (with nutritional data examples) d) Measures of dispersion: Range, standard deviation, variance, coefficient of variation e) Concepts of skewness and kurtosis	8
IV	Inferential Statistics & Hypothesis Testing a) Introduction to probability in nutrition research b) Hypothesis: Types, formulation, null and alternative hypotheses c) Errors in hypothesis testing: Type I & II errors, significance level, p-value d) Parametric tests: t-test (paired, unpaired), ANOVA; relevance to group comparisons in diet trials e) Non-parametric tests: Chi-square, Mann-Whitney, Wilcoxon f) Tests of association: Correlation, regression analysis (application to dietary intake and health outcomes) g) Interpretation of results and drawing valid conclusions	8
V	Statistical Software, Research Communication & Application a) Introduction to statistical software (e.g., MS Excel, SPSS, R) for basic analysis in nutrition studies b) Data entry, cleaning, and processing c) Reporting and presentation: Elements of a scientific report/thesis, abstract, tables, graphs d) Interpretation and discussion of nutrition research findings e) Writing research articles, preparing presentations, and communicating results to scientific and public health audiences f) Application and review: Critical evaluation of published research in food, nutrition, and dietetics	8

Reference / Text Books:

- Introduction of statistical Methods - C.B. Gupta
- Fundamentals of statistics vol. I & II - Goon, Gupta, Dasgupta
- Hand book of Research Methodology - Devdas R.P. & Kulandaivel K
- Research Methods - S.P. Gupta
- Statistical concepts and applications - Harry Franxk and Steven C. Althoen
- Fundamentals of statistics - S.C. Gupta
- Probability theory and Mathematical - V.K. Rahatgi Statistics
- Mathematics, statistics and systems for - Bailey Health
- Basic statistics – Dunn
- Survival models and data Analysis - Elandt Johnson
- Theory and Analysis of sample survey - Darogasdingh- F.S. Choudhary Designs
- Methods of Research - Good C.V. and Scafes D.E.
- Research in Education - Best J.W.

- Statistics in Education and Psychology - Garret H.
- Bell, J. (1997): Doing Your Research Project: A Guide for First-time Researchers in Education and Social Science, Viva Books, New Delhi
- Bell, J. (1997): How to Complete Your Research Project Successfully: A Guide for First-time Researchers, UBSPD, New Delhi.
- Bulmer, M.C. (1984): Sociological Research Methods: An Introduction, Macmillan, Hong Kong.
- Festinger, L. and Katz, D. (ed.) (1977): Research Methods in the Behavioral Sciences, Amerind Publishing, New Delhi.
- Holloway, I. (1997): Basic Concepts of Qualitative Research, Blackwell Science, London.
- Jain, G. (1998): Research Methodology: Methods and Techniques, Mangal Statistics 1. Gupta, S. (2001) "Research Methodology and Statistical Techniques", Deep and Deep, New Delhi,
- Hooda, R.P. (2003) "Statistics for Business and Economics", 3rd ed., Macmillan India Ltd., Delhi.
- Dey, B.R. (2005) "Textbook of Managerial Statistics", Macmillan India Ltd., Delhi,
- Fleming, M.C. & Nellis, Joseph G. (1997) "The Essence of Statistics for Business", Prentice-Hall of India, New Delhi,
- Sarma, K.V.S. (2001) "Statistics made Simple: Do it yourself on PC", Prentice-Hall, New Delhi.
- Kothari, C.R; Research Methodology, 2nd edition, New Age International Publishers, 2004.
- Gupta, S.P; Statistical Methods, 31st revised edition, Sultana Chand and Sons, 2002.
- Devadas, R.P; A Handbook on Methodology of Research, Sri Ramakrishna Vidhyalaya, Coimbatore, 1989.
- Donald, H.M.C. Burney; Research Methods, fifth edition, Thomson and Wadsworth Publications, 2002.
- Pillai, R.S.N and Bagavathi, V , Statistics, Chand and company limited, 2001 .
- Web Resources:
- <https://explorable.com/research-methodology>
- <https://www.mbaknol.com/research-methodology/the-basic-types-of-research>

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Prerequisites for the course:

- A Fundamental Understanding of Nutrition
- Basic Mathematical Skills

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Understand the research process and ethics in food and nutrition.

CO2: Choose and justify suitable research methods and data collection tools.

CO3: Present research data using statistics and graphs.

CO4: Conduct hypothesis testing and interpret results.

CO5: Analyze data with statistical software and present findings professionally.

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VI

Programme: B.Sc. Honors in Food Science & Dietetics		Year: IV
Class: IV		Semester: VII
Credits: 2		Subject: Advanced Nutritional Counseling Skills
Theory: 2		
Practical: 0		
Course Code: FSND-475		Title: Advanced Nutritional Counseling Skills
Course Objectives: 1. To Learn What Diet Counselling is and Why it Matters. 2. To Improve Talking and Listening Skills for Helping People to Eat Better. 3. To Know How to Give Food Advice for Different Ages and Health Needs. 4. To Get Ready to Work in Hospitals and Communities.		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits THEORY+Sessional		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Basics Of Diet Counseling a) Diet Counseling – Meaning, Significance, Process, Types b) Goals of Counseling, Individuals, Group and Family Counseling, Ethical Principles of Counseling. c) Basic Sequence in Counseling. d) Materials Needed for Counseling–Models, Charts, Posters, AV Aids, Hand Outs Etc. e) Communication Process in Counseling and Linguistics in Clinical Dietary Practices, Problems in Communication f) Role Of Counselor & Counselee g) Techniques Of Obtaining Relevant Information – 24-Hour Dietary Recall, List of Food Likes and Dislikes, Lifestyle h) Dietician as a Part of Medical Team and Research Team i) Impact Of Counseling on Health and Disease of Individuals – Discussion of Hospital Case Studies	5
II	Diet Counseling at Hospital and Community Level a) Role of Counseling in Hospital b) Role of Counseling in Community c) Organizing Health Camps and Patient Feedback – At Hospital Level d) Organizing Health Camps and Patient Feedback – At Community Level e) Patient Follow Up / Home Visits	5

	f) Evaluation of Counselor Progress & Client's Progress g) Strategies to Maintain Dietary Adherence h) Reinstitution of Intervention or Treatment i) The Termination Process.	
III	Introducing to Psychology and Counseling Introduction To Psychology – Definition, Nature and Scope Attention And Perception – Types of Attention and Factors Influencing Attention, Principles of Perceptual Organization and Abnormalities in Perception Learning And Memory- Types of Learning, Types of Memory, Forgetting and its Causes Motivation And Emotion- Types of Motives, Types of Emotions, Emotional Expression Personality- Nature and Definition, Factors Influencing Personality, Psycho Analytic Theory of Personality Nature And Goals of Counseling Principles of Counseling Characteristics of a Good Counselor Ethical Principles of Counseling Special Areas of Counseling: Educational, Family, Health, Community and Counseling of Alcoholic and Drug Addicts	5
IV	Counseling Skills a) Approaches to Counseling – • Psycho Analytic Approach, • Behaviorist • Humanistic Approach b) Pre – Helping Phase: • Rapport Building Skills, • Attending And Listening Skills. c) Stage I Skills: • Empathy, Respect • Genuineness and Concreteness. d) Stage II Skills: • Advanced Empathy, Self-Disclosure • Immediacy and Confrontation. e) Stage III Skills: • Goal Setting, Action Plan Programme and Brainstorming	5
V	Dietary Counseling Through the Life Span a) Considerations For Counseling Plans For: • Antenatal And Pregnant Women • Lactating Women • Child Care and Childhood Nutrition Problems • SAM, Weight Management, Vitamin and Mineral Deficiencies • School Children, Adolescents, Young Adults • Fitness, Weight Management, Eating Disorders b) Managing Diet Related Chronic Diseases in Adults	5

	• Obesity • Diabetes • Dyslipidemia • Hypertension • CVD • Cancer Risk Prevention • Renal Disease • Liver Disorders • Geriatric Counseling	

Reference / Text Books:

- Mahan, L. K. and Escott Stump. S. (2016) Krause's Food & Nutrition Therapy 14th ed. Saunders-Elsevier
- Snetselaar L. (2009). Nutrition Counselling Skills for the Nutrition Care Process. Fourth Ed. Sudbury, Massachusetts: Jones Bartlett Publishers.
- Holli B Betsy and Beto a Judith. (2014). Nutrition Counselling and Education Skills for Dietetics Professionals. Sixth edition. USA: Lippincot Williams and Wilkins; Wolters Kluwer.
- Gibson, R.L., Mitchell, M.H. (2005). Introduction to counselling and guidance (6th Ed) Gelso, C.J., Fretz, B.R. (1995). Counselling Psychology, Bangalore, Prism Books Pvt Ltd.
- Sharma, T.C. (2002). Modern Methods of Guidance and Counseling, New Delhi, sarup & sons.
- Beena and Parweshwaran- Invitation to Psychology, Neel Kamal Publications.
- Gable J. (2016). Counselling Skills for dietitians. Florida, USA: JohnWiley and Sons.
- Midwinter R and Dickson J. (2015). Embedding Counselling and Communication Skills. A Relational Skills Model. Routledge 2015
- De Vito Joseph A. (2015) Human Communication: The Basic Course. New York: Pearson
- King K and Klawiter B. (2007). Nutrition Therapy. Advanced Counselling Skills. Third Edition. Philadelphia, USA: Lippincot Williams and Wilkins; Wolters Kluwer. 2007
- Curry, R.K. and Jaffe, A. (1998): Nutrition Counseling and Communication Skills, W.B. Saunders Co. London.
- Hosking, G. and Powell, R. (1985): Chronic Childhood Disorders; Wright, Bristol.
- <http://www.fao.org/docrep/X2550E/X2550e04.html>
- Ravi M (2016) Counselling what why and how, New Delhi, Viva Books
- McClave, S.A., Taylor, B.E., Martindale, R.G., Warren, M.M., Johnson, D.R., Braunschweig, C., McCarthy, M.S., Davanos, E., Rice, T.W., Cresci, G.A. and Gervasio, J.M. (2016). Guidelines for the provision and assessment of nutrition support therapy in the adult critically ill patient: Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition (ASPEN). Journal of Parenteral and Enteral Nutrition, 40(2), pp.159-211.
- WHO 2016, Antenatal guidelines

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Prerequisites for the course:

- Basic knowledge of human nutrition and diet planning.
- Understanding of nutrition-related diseases (e.g., diabetes, obesity).
- Good communication skills in English and local language.

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Understand principles, processes, and ethics of diet counselling for individuals, families, and groups.

CO2: Apply communication and behavioural counselling techniques in clinical and community settings.

CO3: Use counselling aids and materials to improve client understanding and participation.

CO4: Develop evidence-based nutrition plans for various life stages and clinical conditions.

CO5: Evaluate client progress, counselling outcomes, and coordinate with healthcare teams.

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: B.Sc. Honors in Food Science & Dietetics		Year: IV
Class: IV		Semester: VII
Credits: 2 Theory: 0 Practical: 2		Subject: Advanced Human Nutrition and Metabolism Lab
Course Code: FSND-471P		Title: Advanced Human Nutrition and Metabolism Lab
Course Objectives: 1. Understand How the Body Digests and Uses Carbohydrates, Fats, Proteins, Vitamins, and Water to Stay Healthy. 2. Compare Student Diets to Recommended Daily Intakes (Like RDA/EAR) and Identify if Nutrient Levels are Inadequate or Excessive.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L:0 T:0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
Practical-	1. RDA Chart Construction & Application: Create RDA Charts for ICMR - Indian Standards for Adults (Man / Woman, Sedentary / Moderate / Heavy Activity), Vitamins or Minerals. 2. Individual Diet vs RDA Assessment: Evaluate a 3-Day Typical Diet (E.g. Indian Plate Model) Against RDA for Macro- and Micro-Nutrients. 3. Metabolic Pathway Mapping & Enzyme Activity Assays 4. Clinical Markers of Nutritional Deficiencies: Identify Biochemical Markers and Signs for Actual or Simulated Deficiency of Different Macro & Micro Nutrients.	
Reference / Text Books: • Wildman REC and Medeiros DM (2000) Advanced Human Nutrition. CRC Press, Boca Raton, Florida. • Bamji MS, Rao NP and Reddy V (2003) Textbook of Human Nutrition. 2nd Edition, Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi. • Eastwood MA (1997) Principles of Human Nutrition. London; Chapman & Hall. 248 "Curriculum of Nutrition and Dietetics (Intellectual Property of the National Commission for Allied and Healthcare Professions, Ministry of Health and Family Welfare)." • FAO (2004) Human Energy Requirements-Report of a Joint FAO/WHO/UNU Expert Consultation. Technical Report Series 1. Food and Agriculture Organization, Geneva.		

- FAO (2007) Protein and Amino Acid Requirements - Report of a Joint FAO/WHO/UNU Expert Consultation. Technical Report Series 1. Food and Agriculture Organization, Rome.
- Berdanier, CD and Zemleni, J (2009) Advanced Nutrition: Macronutrients, Micronutrients and Metabolism. CRC Press, New York.
- Groff J L and Gropper S (2012) Advanced Nutrition and Human Metabolism. 7th Edition, Yolanda Cossio, New York.
- Summathi S (2017) Food Chemistry and Nutrition. BS Publication, Hyderabad.
- Ross A C, Caballero B, Cousins RJ, Tucker KL and Ziegler TR (2012) Modern Nutrition in Health and Disease. 11th Edition, LWW, Philadelphia.
- Whitney EN & Rolfels CR (2019) Understanding Nutrition. 15th Ed., West Publishing Company, USA.
- Stipanuk MH and Caudill MA (2013) Biochemical, Physiological and Molecular Aspects of Human Nutrition. 3rd Edition, Elsevier Pub.
- <https://www.nutritionintl.org>
- <https://www.who.int>
- <https://www.hsph.harvard.edu/nutritionsource>
- <http://www.nin.res.in>

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50
Prerequisites for the course:	
• Basic Human Nutrition • Fundamentals of Biochemistry • Human Physiology	
Course Learning Outcomes:	
By the end of this course, students will be able to:	
CO1: Describe structure, classification, roles, digestion, absorption, metabolism, and disorders of carbs, proteins, and lipids.	
CO2: Evaluate effects of fiber, resistant starch, and functional carbs on glycemia and disorder management.	
CO3: Assess lipidprotein metabolic integration and regulation in relation to CVD, thermogenesis, and PEM.	
CO4: Analyze roles, requirements, metabolism, toxicity, and balance of vitamins, minerals, and water.	
CO5: Apply energy balance and RDA using assessment tools, Indian standards, and case studies.	

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: B.Sc. Honors in Food Science & Dietetics / M.Sc. in Food Science & Dietetics Class IV		Year: IV
Credits: 2 Theory: 0 Practical: 2		Semester: VII
Course Code: FSND-472P		Subject: Advanced Pathophysiology Lab
Course Objectives: 1. Perform and interpret laboratory diagnostic tests related to altered physiological functions. 2. Correlate clinical signs, symptoms, and laboratory findings with disease pathology.		Title: Advanced Pathophysiology Lab
Nature of Paper: Core Lab		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
Practical-	1. Cardiovascular Disease Risk Assessment: Interpret Patient Reports Including Lipid Profiles (Total, HDL, LDL, Triglycerides, VLDL), Blood Pressure, And Blood Glucose (HbA1c, Fasting Glucose) To Assess CVD Risk and Understand Atherosclerosis. 2. Cardiac Disorders: Heart Failure & MI: Interpret Cardiac Markers (Troponin, CK-MB, BNP) And Conceptual ECG/Echocardiogram Reports to Understand Congestive Heart Failure (CHF) And Myocardial Infarction (MI). Simulated Patient Reports, Case Studies. 3. Respiratory Disorders: PFTs & Lung Diseases: Interpret Pulmonary Function Tests (FVC, FEV1, FEV1/FVC, TLC, RV, DLCO) To Analyse Obstructive (Asthma, COPD) And Restrictive (Pneumonia, Pneumothorax) lung diseases. Simulated PFT Reports, Case Studies. 4. Cancer Pathophysiology & Tumor Markers: Understand Tumor Markers (PSA, CEA, CA-125, AFP, CA 19-9) And Genetic Concepts (Oncogenes, Tumor Suppressor Genes) In Cancer Diagnosis and Host Defence. Simulated Patient Reports, Case Studies. 5. Renal Disorders: CKD & Function Tests: Interpret Renal Function Tests (Creatinine, BUN, eGFR, Electrolytes, Urinalysis) To Stage Chronic Kidney Disease (CKD). Simulated Patient Reports, Case Studies (CKD, Acute Renal Failure).	

	6. Oesophageal & Gastric Disorders: Understand GERD, Hiatal Hernia, Gastritis, And Peptic Ulcers, And the Role of Functional Assessments (E.G., Ph Monitoring, Endoscopy Concepts). Case Studies, Conceptual Test Findings. 7. Liver Disorders: LFTs & Hepatic Injury: Interpret Liver Function Tests (Bilirubin, AST, ALT, ALP, GGT, Albumin, PT/INR) To Understand Jaundice and Patterns of Hepatic Injury. Simulated Patient Reports, Case Studies (Hepatitis, Cirrhosis). 8. Advanced Liver, Gallbladder & Pancreatic Disorders: Understand Advanced Pathophysiology of Cirrhosis (With Complications), Gallbladder (Cholelithiasis, Cholecystitis), And Pancreatic (Pancreatitis) Disorders and Their Nutritional Management. Case Studies, Simulated Imaging Reports (Ultrasound). 9. Thyroid Disorders & TFTs: Interpret Thyroid Function Tests (TSH, FT3, FT4, Autoantibodies Concepts) To Understand Hyper- and Hypothyroidism and Their Nutritional Implications. Simulated Patient Reports, Case Studies (Hashimoto's, Graves'). 10. Diabetes Mellitus: Diagnosis & Management: Diagnose DM Types, Understand Metabolic Derangements and Complications, And Apply Nutritional Principles. Simulated Patient Reports (FPG, OGTT, Hba1c, C-Peptide, Antibodies, Microalbumin, Lipid Profile, Retinal Exam Concepts), Case Studies (Type 1, Type 2, Gestational DM, Complications).
Reference / Text Books: • Baynes, J., and Dominiczak. M. (2002). Medical Biochemistry. London: Mosby • Thabrew, I. and Ayling. R.M. (2001). Biochemistry for Clinical Medicine. New Delhi: Replika Press Pvt Ltd. • Guyton, A.C., and Hall. J.E. (1996). Textbook of Medical Physiology (9th ed.). Bangalore: Prism Books Pvt. Ltd. • Cotran, R.S., Kumar, V., Robbins, S.L., and Schoen. F.J. (Ed.). (1994). Robbins Pathologic Basis of Disease (5th ed.). Bangalore: Prism Books Pvt. Ltd. • Devlin, T.M. (2002). (Ed.). Textbook of Biochemistry with Clinical Correlations. (5th ed.). New York: Wiley-Liss.	
If the course is available as Generic Elective, then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50
Prerequisites for the course: • Basics of Biochemistry and Metabolism • Disease Processes (Basic Pathology & Immunology)	
Course Learning Outcomes:	

By the end of this course, students will be able to:

CO1: Explain the pathophysiological basis of major diseases affecting different organ systems.

CO2: Demonstrate proficiency in performing advanced laboratory techniques used in pathophysiological assessment.

CO3: Interpret biochemical, hematological, and physiological parameters associated with disease states.

CO4: Analyze laboratory data to identify deviations from normal physiological functions.

CO5: Correlate experimental findings with clinical case scenarios for better diagnostic understanding.

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: B.Sc. Honors in Food Science & Dietetics		Year: IV
Class: IV		Semester: VII
Credits: 2		Subject: Research Trends in Nutrition and Dietetics Lab
Theory: 0		
Practical: 2		
Course Code: FSND-473AP		Title: Research Trends in Nutrition and Dietetics Lab
Course Objectives: 1. Understand and apply research processes relevant to nutrition and dietetics. 2. Develop competencies in scientific observation, experimentation, data collection, and analysis in nutrition research. 3. Familiarise with contemporary tools, methods, and emerging technologies used in nutrition/dietetics research.		
Nature of Paper: DSE Lab		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS	1. Identify a current nutrition issue, form a research question, and outline an approach. 2. Detect plagiarism in a given text, paraphrase, and cite correctly. 3. Design a hypothetical nutrition research study, justify design, address bias, and plan data collection. 4. Conduct a systematic database search, document strategy, and report relevant results. 5. Compare a peer-reviewed article with a popular source for credibility and rigor. 6. Present a recent impactful research finding, explaining its significance and implications. 7. Write a short report on a nutrition research technology, covering pros, cons, and future potential.	
Reference / Text Books: • Vegrove JA., Hodson L., Sharma S. and Lanham-New SA. (2015). Nutrition Research Methodologies (The Nutrition Society Textbook). • Wiley-Blackwell; 1 st edition. Starks TP. (2006). Trends in Nutrition Research. Nova Science Publishers Inc 1 st edition. Pounis G. (2018). • Analysis in Nutrition Research: Principles of Statistical Methodology and Interpretation of the		

Results. Academic Press Inc. Nelson M. (2020).

- Statistics in Nutrition and Dietetics. Wiley-Blackwell Chrzan J. and Brett J. (2017).
- Research methods for anthropological studies of food and nutrition. Berghahn Books Sreelathak NT. and Sreelatha K. (2021) Research ethics and plagiarism. Ess Ess Pubns. Guyton, A.C., and Hall. J.E. (1996).
- Textbook of Medical Physiology (9th ed.). Bangalore: Prism Books Pvt. Ltd.

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Prerequisites for the course:

- Introduction to Nutrition Science
- Statistics for Health Sciences

Course Learning Outcomes:

By the end of this course, students will be able to:

- CO1: Conduct literature searches, summarize scientific articles, and identify current research trends
- CO2: Design and implement simple experimental protocols using appropriate methodologies (anthropometry, dietary analysis, biochemical assays, etc.).
- CO3: Collect, record, analyze, and interpret quantitative and qualitative data using statistical tools.
- CO4: Evaluate nutritional research studies critically for validity, reliability, strengths, and limitations.

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: B.Sc. Honors in Food Science & Dietetics	Year: IV	
Class: IV	Semester: VII	
Credits: 2	Subject: Innovation in Food Product Development Lab	
Theory: 0		
Practical: 2		
Course Code: FSND-473BP	Title: Innovation in Food Product Development Lab	
Course Objectives: 1. To enhance students’ ability to formulate, standardize, and modify food products to meet nutritional, sensory, and consumer needs. 2. To familiarize students with the use of novel ingredients, functional foods, and value-added food concepts. 3. To develop skills in sensory evaluation, quality assessment, and shelf-life studies of newly developed food products.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 3 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS	1. Market Survey: Identify 5 trending food products in Indian supermarkets and analyze ingredients. 2. Prototype Development: Formulate and develop a nutrition-based food product. 3. Conduct sensory tests (triangle, hedonic, QDA) for product development 4. Evaluate global case studies (e.g., adapting snacks or dairy for export)	
Reference / Text Books: • FSSAI Manuals & Guidelines (www.fssai.gov.in) • National Institute of Nutrition (NIN) – <i>Indian Food Composition Tables</i> • Fuller, G.W. (2016). <i>New Food Product Development</i>. CRC Press • Earle & Earle (2000). <i>Developing New Food Products for a Changing Marketplace</i> • Websites: <i>Start-up India, Eat Right India, NIFTEM, CFTRI, SIDBI</i>		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
Max. Marks-100		

1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50
Prerequisites for the course:	
• Basic knowledge of general terms of foods and nutrition. • Knowledge of basic food groups.	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Apply principles of food science and nutrition in the development of innovative and value-added food products. CO2: Formulate and standardize food products using traditional and novel ingredients while ensuring nutritional adequacy. CO3: Conduct sensory evaluation and quality analysis to assess acceptability of newly developed food products. CO4: Evaluate shelf life, safety, and basic packaging requirements for developed food products. CO5: Demonstrate creativity, teamwork, and documentation skills in food product development and presentation.	

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: IV
Class: IV		Semester: VII
Credits: NC		Subject: SPORTS
Theory: NC		
Practical: NC		
Course Code: SPNC-476		Title: SPORTS
Course Objectives: 1. To build essential interpersonal skills, including collaborative strategy, ethical sportsmanship, and disciplined goal setting within a team environment.		
Nature of Paper: SEC-6		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are encouraged to engage in a diverse range of indoor and outdoor recreational activities, such as carom, chess, and various team sports, to promote physical well-being and strategic thinking.	-
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		50
5) ETE		-
Total:		50
Course Learning Outcomes: CO1: Execute specialized skills, techniques, and tactical strategies in at least two selected indoor or outdoor sports.		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: IV
Class: IV		Semester: VII
Credits: NC		Subject: PROFESSIONAL SKILLS
Theory: NC		
Practical: NC		
Course Code: FSND-477		Title: PROFESSIONAL SKILLS
Course Objectives: 1. Students will learn basic communication, interpersonal skills, and positive personality development.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 1 Hrs.=1Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
	• Introduction, meaning, and importance of soft skills in academic and professional life. • Communication skills, interpersonal skills, and personality development for effective behavior. Presentation skills, time management, and stress management. • Leadership skills, teamwork, problem-solving, and decision-making Career readiness, professional ethics, work values, and workplace etiquette.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: 1. Exhibit professional behavior, ethical values, and confidence required for career development and lifelong learning.		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: IV
Class: IV		Semester: VII
Credits: NC		Subject: INDUSTRIAL VISIT/SEMINAR PRESENTATION ON THE REPORT
Theory: NC		
Practical: NC		
Course Code: FSND-478		Title: INDUSTRIAL VISIT/SEMINAR PRESENTATION ON THE REPORT
Course Objectives: 1. Develop skills to observe, record, and analyze industrial processes effectively.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 0 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are required to deliver a formal report detailing their key observations, technical insights, and professional assessments gathered during the industrial visit.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Identify community needs and explore university–community partnership opportunities. CO2: Participate in volunteer activities and document experiences for reflection.		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VII

Programme: B.Sc (Food Science, Nutrition and Dietetics)		Year: IV
Class: IV		Semester: VII
Credits: NC	Subject: UNIVERSITY	SOCIAL
Theory: NC	RESPONSIBILITY	
Practical: NC		
Course Code: FSND-479	Title: UNIVERSITY	SOCIAL
RESPONSIBILITY		
Course Objectives:		
1) To generate awareness of social, ethical, and environmental responsibilities.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 0		
T: 0		
P: 01 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 1 Hrs.=1 Credit (1Hrs./Week=1Credits)		
Unit	Contents	No. of Lectures Allotted
	Community Engagement University–community partnerships. Basics of volunteering and service learning. Identifying local community needs. Activity: Field visit to NGOs or schools.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes:		
CO1: Analyze environmental challenges and promote sustainable campus practices.		
CO2: Implement eco-friendly initiatives like waste management and tree plantation.		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VIII

Programme: B.Sc. Honors with Research in Food Science & Dietetics		Year: IV
Class: IV		Semester: VIII
Credits: 3 Theory: 3 Practical: 0		Subject: Food Toxicology and Safety
Course Code: FSND-481		Title: Food Toxicology and Safety
Course Objectives: 1. To understand how harmful substances in food affect human health. 2. To identify and evaluate food toxins from natural, chemical, and microbial sources. 3. To learn food safety practices and regulations to ensure safe food consumption.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: (In Hours/Week)-0 Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Food Toxicology and Principles • Definition, scope, and history of food toxicology • Types of food toxicants (natural vs. synthetic) • Dose-response concepts (LD50, NOAEL, etc.) • Exposure types: acute vs. chronic • ADME (Absorption, Distribution, Metabolism, Excretion) • Risk assessment, toxicity testing, and safety evaluation methods	12
II	Natural Toxins and Biological Contaminants • Plant toxins: alkaloids, glycosides, lectins, phytates, oxalates • Animal toxins: shellfish, pufferfish, scombroid toxins • Microbial toxins: mycotoxins (aflatoxins, ochratoxin, etc.), bacterial toxins • Sources, detection methods, and control strategies	12
III	Chemical Contaminants and Environmental Pollutants • Pesticide and veterinary drug residues in food • Heavy metals: lead, mercury, arsenic • Industrial pollutants: POPs, PCBs, PAHs • Processing contaminants: acrylamide, AGEs, benzene • Control measures and safety regulations	12
IV	Food Additives and Packaging Contaminants • Toxicology of food additives: preservatives, colours, sweeteners, flavour enhancers	12

	- Acceptable Daily Intake (ADI) and safety limits - Packaging materials and chemical migration (e.g. BPA, phthalates) - Indirect additives: cleaning agents, processing aids - Regulations and safety evaluation of food contact materials	
V	Food Safety Management and Risk Communication - HACCP principles and food safety systems - ISO 22000 and prerequisite programs (GMP, GHP) - Genetically modified foods and novel food safety - Food fraud, nanotechnology, and climate-related food risks - Risk assessment, regulatory bodies (FSSAI, Codex), and public communication	12
Reference / Text Books: - Helferich, W.G. & Winter, C.K. (2001). <i>Food Toxicology</i>. CRC Press - Omaye, S.T. (2004). <i>Food and Nutritional Toxicology</i>. CRC Press - Schmidt, R.H. & Rodrick, G.E. (2002). <i>Food Safety Handbook</i>. Wiley - WHO/FAO publications on food safety and mycotoxins - FSSAI manuals on pesticide residues and mycotoxin analysis - Current research articles from journals like <i>Food and Chemical Toxicology</i> and <i>Journal of Food Protection</i>		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/ Sessional Examination		10
2) Presentations /Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course: - Basic knowledge of human physiology and metabolism - Understanding of food chemistry and composition - Familiarity with microbiology and food processing principles		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Identify and analyse food toxicants and their health effects. CO2: Assess safety of foods with natural or chemical contaminants. CO3: Apply sampling and testing methods for toxicant detection. CO4: Implement HACCP and other systems to prevent contamination. CO5: Understand regulations and communicate toxicology risks effectively.		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VIII

Programme: B.Sc. Honors in Food Science & Dietetics		Year: IV
Class: IV		Semester: VIII
Credits: 3 Theory: 3 Practical: 0		Subject: Institutional Food Service Management
Course Code: FSND-482		Title: Institutional Food Service Management
Course Objectives: 1. Understand the principles of food service management and operational control in institutions. 2. Gain skills in large-scale food production and quality assurance. 3. Learn planning, organizing, staffing, budgeting, and evaluating food service operations. 4. Develop proficiency in menu planning, food purchasing, cost control, and waste management.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Institutional Food Services a) Definition and scope of food service b) Types of institutional food services (hospital, school, hostel, etc.) c) Types of food service systems (conventional, commissary, ready-prepared, assembly-serve) d) Roles and responsibilities of food service managers and dietitians	7
II	Kitchen Planning and Equipment a) Kitchen layout and work area design b) Equipment: types, use, and maintenance c) Workflow, work simplification d) Sanitation and hygiene practices	7
III	Menu Planning and Standardization a) Types of menus (cyclic, selective, a la carte, table d'hôte) b) Nutritional, economic, and cultural considerations c) Principles of menu planning d) Recipe standardization e) Portion control and food acceptability	8
IV	Quantity Food Production and Service a) Bulk cooking methods and techniques b) Reheating, holding, and food transport c) Styles of food service: cafeteria, buffet, tray, etc.	8

	d) Factors affecting food quality and safety in large-scale cooking	
V	Food Costing and Budgeting and Human Resource and Legal Aspects a) Components of food cost b) Budgeting principles for food service Cost control methods c) Purchasing methods and vendor selection d) Inventory and waste management e) Organizational structure and staffing in food services f) Training, motivation, leadership g) Ethics and labor laws in food service h) Food laws and standards: FSSAI, HACCP, ISO, Codex	11
Reference / Text Books: - Sethi, M. (2011). <i>Institutional food management</i>. New Age International. - West, B. B., Wood, L., Harger, V. F., & Shugart, G. S. (2013). <i>Food service in institutions</i>. PHI Learning Pvt. Ltd. - Payne-Palacio, J., & Theis, M. (2015). <i>Foodservice management: Principles and practices</i> (13th ed.). Pearson. - Mudambi, S. R., & Rajagopal, M. V. (2015). <i>Fundamentals of foods, nutrition and diet therapy</i>. New Age International. - Gisslen, W. (2018). <i>Professional cooking for Canadian chefs</i> (9th ed.). Wiley.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course:		
- Basic knowledge of general terms of foods and nutrition. - Knowledge of basic food groups.		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Explain various food service systems and their operations in institutional settings. CO2: Design a functional kitchen layout with appropriate equipment and safety standards. CO3: Plan, standardize, and cost menus for diverse institutional needs. CO4: Demonstrate skills in large-scale food preparation, service, and hygiene management. CO5: Manage human and financial resources effectively in a food service institution.		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VIII

Programme: B.Sc. Honors in Food Science & Dietetics		Year: IV
Class: IV		Semester: VIII
Credits: 3		Subject: Advanced Biochemistry
Theory: 3		
Practical: 0		
Course Code: FSND-483A		Title: Advanced Biochemistry
Course Objectives: 1. Provide an in-depth understanding of bio molecular structure, function, and regulation. 2. Explain advanced metabolic pathways and their integration in health and disease. 3. Explore the biochemical basis of nutrient–gene interactions and nutrigenomics. 4. Apply biochemical principles in clinical and food science research contexts. 5. Develop proficiency in modern biochemical techniques and instrumentation.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Advanced Carbohydrate Biochemistry • Structural diversity and functional roles of complex carbohydrates. • Glycoproteins, proteoglycans, and glycolipids in cell recognition. • Advanced glycation end-products (AGEs) and their nutritional implications. • Regulation of carbohydrate metabolism – hormonal control (insulin, glucagon, epinephrine). • Integration of glycolysis, gluconeogenesis, pentose phosphate pathway, and TCA cycle.	11
II	Lipid Metabolism & Signaling • Lipidomics: classification, structure, and functional lipids in membranes. • Eicosanoids, prostaglandins, and leukotrienes – synthesis and roles. • β-oxidation, ketogenesis, and regulation of lipid metabolism. • Lipid-mediated signaling pathways in nutrition-related disorders. • Nutritional modulation of lipid profiles and cardiovascular health.	9
III	Protein & Enzyme Biochemistry • Protein structure–function relationships; folding and misfolding (amyloids, prions). • Post-translational modifications and their nutritional regulation. • Proteolysis in health and disease (ubiquitin–proteasome system,	12

	autophagy). - Enzyme kinetics (single- and multi-substrate reactions) and regulation. - Enzyme inhibition in drug design and nutraceutical development.	
IV	Vitamins, Minerals & Cofactor Biochemistry - Molecular roles of vitamins and minerals as enzyme cofactors. - Vitamin–gene interactions and epigenetic regulation. - Mineral metabolism disorders – biochemical and clinical implications. - Antioxidant defence mechanisms – role of micronutrients. - Nutritional modulation of oxidative stress pathways.	12
V	Molecular & Clinical Biochemistry Applications - Nutrigenomics and nutriproteomics – tools and case studies. - Signal transduction pathways relevant to nutrition (MAPK, PI3K/Akt, NF-κB). - Clinical biochemistry of metabolic diseases (diabetes, metabolic syndrome, CVD). - Metabolomics in nutrition research – data analysis and interpretation. - Advanced biochemical markers for nutritional assessment.	12

Reference / Text Books:

- Nelson, D. L., & Cox, M. M. (2021). *Lehninger Principles of Biochemistry* (8th ed.). W. H. Freeman.
- Voet, D., Voet, J. G., & Pratt, C. W. (2018). *Fundamentals of Biochemistry* (5th ed.). Wiley.
- Devlin, T. M. (2011). *Textbook of Biochemistry with Clinical Correlations* (7th ed.). Wiley.
- Campbell, M. K., & Farrell, S. O. (2020). *Biochemistry* (9th ed.). Cengage Learning.
- Gropper, S. S., & Smith, J. L. (2020). *Advanced Nutrition and Human Metabolism* (8th ed.). Cengage Learning.
- Gibney, M. J., et al. (2021). *Nutrition and Metabolism* (3rd ed.). Wiley-Blackwell.

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-100
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100

Prerequisites for the course:

- Fundamentals of Nutrition
- Human Biology/Physiology
- Biochemistry
- Research Methods

Course Learning Outcomes:

By the end of this course, students will be able to:

- CO1: Analyze biochemical pathways and their integration in metabolic regulation.
 CO2: Interpret advanced biochemical data in clinical and nutritional contexts.
 CO3: Apply molecular biochemistry concepts to food and health research.
 CO4: Use advanced biochemical techniques for nutrient and metabolite analysis.
 CO5: Critically evaluate current research in biochemistry and nutrition science.

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VIII

Programme: B.Sc. Honors with Research in Food Science & Dietetics		Year: IV
Class: IV		Semester: VIII
Credits: 3 Theory: 3 Practical: 0		Subject: Nutrition Assessment Methods and Applications
Course Code: FSND-483B		Title: Nutrition Assessment Methods and Applications
Course Objectives: 1. Understand the basics of nutritional assessment and its ethical principles. 2. Learn how to collect and analyse a person's dietary information. 3. Accurately measure body size and composition and interpret growth charts. 4. Interpret lab results to check for nutrient deficiencies. 5. Combine different assessment methods to evaluate a person's nutritional health.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Foundations of Nutritional Assessment a) Introduction to Assessment: Definition, importance, and historical context of nutritional assessment. b) Assessment Principles: The Nutrition Care Process (NCP), direct vs. indirect methods, and ethical considerations. c) Planning & Quality: Study design, data management, and quality control.	12
II	Dietary Assessment Methods a) Dietary Intake: Principles and challenges of assessing food intake. b) Assessment Methods: Retrospective (24-hour recall, FFQ) and prospective (food records) techniques. c) Modern Tools: Use of digital apps, web platforms, and food composition databases.	12
III	Anthropometric Assessment & Body Composition a) Basic Measurements: Techniques for height, weight, BMI, and circumferences. b) Body Composition: Theory of fat mass and fat-free mass. c) Advanced Methods: Principles of Bioelectrical Impedance Analysis (BIA) and DXA.	12

	d) Applications: Interpreting growth charts and assessing different populations.	
IV	Biochemical Assessment a) Lab Principles: Role of biochemical markers and types of lab specimens. b) Biomarkers: Assessing protein, energy, and micronutrient status (vitamins, minerals). c) Advanced Techniques: An overview of metabolomics and point-of-care testing.	12
V	Clinical & Integrated Assessment a) Clinical Methods: Physical examinations for signs of malnutrition and functional assessments. b) Integrated Approach: Combining different methods and using screening tools (e.g., MUST, SGA). c) Practical Applications: Assessment for children, the elderly, and specific disease states.	12
Reference / Text Books: 1. Principles of Nutritional Assessment (3rd Edition) - Gibson 2. Nutritional Assessment (6th Edition) - Lee & Nieman 3. Research Methods in Nutrition and Dietetics - Palermo & Wilson 4. FAO Dietary Assessment Guidelines 5. WHO Anthropometric Reference Standards 6. National dietary assessment tools and databases 7. Professional assessment software and applications		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course: • Fundamentals of Nutrition • Human Biology/Physiology • Biochemistry • Research Methods		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Evaluate principles, benefits, and limitations of nutritional assessment methods. CO2: Choose suitable assessment techniques for specific populations, settings, and research goals. CO3: Perform dietary, anthropometric, biochemical, and clinical assessments accurately. CO4: Interpret assessment data using relevant standards and cut-off points. CO5: Combine multiple assessment methods for a comprehensive nutritional evaluation.		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VIII

Programme: B.Sc. Honors with Research in Food Science & Dietetics		Year: IV
Class: IV		Semester: VIII
Credits: 3 Theory: 3 Practical: 0		Subject: Research Publication And Ethics
Course Code: FSND-484		Title: Research Publication And Ethics
Course Objectives: 1. Understand Ethical Foundations 2. Develop Academic Writing Skills 3. Analyze Ethical Violations 4. Prevent and Detect Plagiarism		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	PHILOSOPHY, ETHICS AND SCIENTIFIC CONDUCT • Introduction to Philosophy • Origin of Philosophy • Characteristics of Philosophy • Common sense and Philosophy • Relationship between Philosophy& Science • Ethics with respect to science and research • Intellectual honesty and research integrity • Scientific misconducts: Falsification, Fabrication and Plagiarism (FFP) • Redundant publications: duplicate and overlapping publications, salami slicing • Selective reporting and misrepresentation of data	7
II	Publication Ethics • Publication ethics: definition, introduction and importance • Best practices/standards setting initiatives and guidelines: COPE, WAME etc. • Conflicts of interest • Publication misconduct: Definition, concept, problems that lead to unethical behavior and vice versa, types	7

	• Violation of publication ethics, authorship and contributor ship • Identification of publication misconduct, complaints and appeals • Predatory publishers and journals	
III	Open Access Publishing • Open access publications and initiatives • SHERPA/RoMEO online resource to check publisher copyright & self-archiving policies • Software tool to identify predatory publications developed by SPPU: UGC-CARE list of journals • Journal finder/journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc.	8
IV	Publication Misconduct Group discussions • Subject specific ethical issues, FFP, authorship • Conflicts of interest • Complaints and appeals: examples and fraud from India and abroad Software tools • Use of reference management software like Mendeley, Zotero etc. and anti-plagiarism software like Turnitin, Urkund	8
V	Databases and research metrics • Databases • Indexing databases • Citation databases: Web of Science, Scopus etc. • Research Metrics • Impact factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score • Metrics: h-index, g-index, i-10 index, altmetrics	11

Reference / Text Books:

- Bailey, S. (2015). *The essentials of academic writing for international students*. Routledge.
- Beall, J. (2012). Predatory publishers are corrupting open access. *Nature*, 489 (7415), 179-179. <https://doi.org/10.1038/489179a>
- Belcher, W.L. (2019). *Writing your journal article in twelve weeks* (2nd ed.). The University of Chicago Press.
- Bird, A. (2006). *Philosophy of Science*. Routledge.
- Macintyre, A. (1967). *A short history of ethics*. Routledge and Kegan Paul.
- Chaddah, P. (2018) *Ethics in competitive research: Do not get scooped; Do not get plagiarized*. [This is based on a talk at the UGC Workshop on Academic Integrity]
- Awareness at the M.S. University of Baroda, 2019. It will form a chapter in the book to be published. A video of the actual talk is available at <https://drive.google.com/file/d/1wdltgNIZpW9F7ZT6yj2DjBGj0ZYyVrD1/viewchaddah.praveen@gmail.com>
- National Academy of Sciences, National Academy of Engineering and Institute of Medicine. (2009). *On being a scientist: a guide to responsible conduct in research* (3rd ed.). National Academies Press.
- Osmond, A. (2015). *Academic writing and grammar for students*. Sage.
- Resnik, D. B. (2011). *What is ethics in research and why is it important*. National

- Institute of Environmental Health Sciences, pp. 1-10. Retrieved from <https://www.niehs.nih.gov/research/resources/bioethics/whatis/index.cfm>
- Indian National Science Academy (INSA). *Ethics in science education, research and governance* (2019), ISBN:978-81-939482-1-7. [http://www.insaindia.res.in/pdf/Ethics Book.pdf](http://www.insaindia.res.in/pdf/Ethics%20Book.pdf)
- Strunk, W., Jr., & White, E.B. (1959). *The elements of style*. Macmillan.
- Wolcott, H.F. (1990). *Writing up qualitative research. Qualitative research methods series* (Vol. 20). Sage.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-100
1) Class tasks/Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Prerequisites for the course:

- Students should have a foundational understanding of basic research methodologies and principles of ethics.

Course Learning Outcomes:

By the end of this course, students will be able to:

1. Understand research ethics and identify scientific misconduct (FFP).
2. Apply publishing ethics and avoid predatory journals.
3. Use tools for open access and credible journal selection.
4. Employ reference managers and anti-plagiarism software.
5. Evaluate journals using databases and Impact Factor.

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VIII

Programme: B.Sc. Honors with Research in Food Science & Dietetics		Year: IV
Class: IV		Semester: VIII
Credits: 2		Subject: Emerging Concepts in Nutrition
Theory: 2		
Practical: 0		
Course Code: FSND-485		Title: Emerging Concepts In Nutrition
Course Objectives: • To orient students with current concepts in Human Nutrition • To Know about the Emerging trends in Nutrition		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits THEORY+Sessional		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Artificial Intelligence applications in Nutrition and Dietetics a) Merits and Demerits of the applications of AI nutrition and dietetics b) AI sources related to nutrition c) Career opportunities by using AI in Dietetics	6
II	Nutrigenomics a) Nutrigenomics- Definition of nutrigenomics, gene expression – transcription, translation, post translational modification, nutrition in the omics era- elementary concepts on epigenetics, transcriptomics, proteomics, metabolomics; genetic variation and nutritional implications. b) Nutrition and Gene Expression and Nutrigenomics and Complex Diseases : Nutrient control of gene expression – amino acids, nucleotides, basic concepts of nutrigenomics and complex diseases – diabetes, cancer and obesity c) Personalized Nutrition and Precision Nutrition	12
III	Microbiome and Nutrition a) Human gastrointestinal tract and its microbiota, functions b) concept of probiotic, prebiotics and symbiotics c) Applications of probiotics in human nutrition	10
IV	Emerging trends in Nutrition a) What’s Next in Feeding a Growing Global Population b) Human milk oligosaccharides(HMO) c) Chrono Nutrition and Nano Nutrition	8

V	New technology in Nutrition Research and Practice a) Application of food tech and smart health care to clinical nutrition service b) Telemedicine, mobile, wearable devices and clinical nutrition services	08
Reference / Text Books: - Singh P. Kumar Y, Singh A (2024). Futuristic Trends in Food Science, Nutrition and Technology. P.K. Publishers and Distributors. Delhi, ISBN-10 8119428625 2. - Sterling, R. A. (2024). Space medicine and nutrition: A comprehensive guide for future healthcare. Independently Published.ISBN-13 : 979-8879788242 - Andjelkovic, M., Paal, P., Kriemler, S., Mateikaite-Pipiriene, K., Rosier, A., Beidleman, B. A., Derstine, M., Pichler Hefti, J., Hillebrandt, D., Horakova, L., Jean, D., & Keyes, L. E. (2024). Nutrition in Women at High Altitude: A Scoping Review-UIAA Medical Commission Recommendations. High altitude medicine & biology, 25(1), 9–15. https://doi.org/10.1089/ham.2023.0047 - NASA. (2012). NASA: Space food and nutrition educator guide. Biblio Gov.ISBN-13: 9781288291038.		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/ Sessional Examination		5
2) Presentations /Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total		50
Prerequisites for the course: - Fundamentals of Nutrition - Human Physiology - Genetics and Molecular Biology		
Course Learning Outcomes: By the end of this course, students will be able to: - Explain AI benefits, drawbacks, and tools in dietetics. - Define nutrigenomics and related "omics," linking nutrients to gene expression. - Describe gut microbiota and roles of probiotics, prebiotics, and symbiotics. - Explain concepts like chrononutrition and human milk oligosaccharides. - Discuss technology applications (telemedicine, apps, wearables) in nutrition.		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VIII

Programme: B.Sc. Honors with Research in Food Science & Dietetics		Year: IV
Class: IV		Semester: VIII
Credits: 2 Theory: 0 Practical: 2		Subject: Food Toxicology and Safety Lab
Course Code: FSND-481P		Title: Food Toxicology and Safety Lab
Course Objectives: 1. To provide fundamental understanding of food toxicology, including sources, mechanisms, and health effects of food toxicants. 2. To develop skills in identifying, assessing, and managing toxicological risks in foods using regulatory and safety principles.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
Practical	1. Study the basic concepts, scope, and historical development of food toxicology through case-based discussions. 2. Identify and classify natural and synthetic food toxicants using food samples and literature review. 3. Demonstrate dose–response relationships by interpreting LD₅₀, NOAEL, and ADI data from toxicity studies. 4. Examine acute and chronic exposure scenarios and their health impacts using simulated datasets. 5. Illustrate ADME processes of food toxicants through flowcharts and model experiments. 6. Detect common plant, animal, and microbial toxins using standard laboratory or rapid test methods. 7. Analyze pesticide residues, heavy metals, and environmental pollutants in foods using case studies. 8. Evaluate the toxicological safety of food additives and packaging contaminants based on regulatory limits. 9. Apply HACCP principles to identify and control toxicological hazards in selected food products. 10. Prepare a risk assessment and communication report following FSSAI and Codex guidelines.	
Reference / Text Books:		

- Helferich, W.G. & Winter, C.K. (2001). *Food Toxicology*. CRC Press
- Omaye, S.T. (2004). *Food and Nutritional Toxicology*. CRC Press
- Schmidt, R.H. & Rodrick, G.E. (2002). *Food Safety Handbook*. Wiley
- WHO/FAO publications on food safety and mycotoxins
- FSSAI manuals on pesticide residues and mycotoxin analysis
- Current research articles from journals like *Food and Chemical Toxicology* and *Journal of Food Protection*

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-50
1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Prerequisites for the course:

- Basic knowledge of human physiology and metabolism
- Understanding of food chemistry and composition
- Familiarity with microbiology and food processing principles

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: To classify food toxicants and explain their toxicokinetic and toxicodynamic effects.

CO2: To assess food safety risks using dose–response data, ADI values, and regulatory standards.

CO3: To apply food safety management systems and communicate toxicological risks effectively.

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VIII

Programme: B.Sc. Honors with Research in Food Science & Dietetics		Year: IV
Class: IV		Semester: VIII
Credits: 2 Theory: 0 Practical: 2		Subject: Institutional Food Service Management Lab
Course Code: FSND-482P		Title: Institutional Food Service Management Lab
Course Objectives: 1. To provide hands-on training in planning, organizing, and managing institutional food services. 2. To develop managerial skills related to food safety, cost control, and quality assurance.		
Nature of Paper: Core Lab		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
	1. Study the organization, layout, and workflow of institutional food service systems. 2. Plan menus for different institutions based on nutritional and budgetary requirements. 3. Standardize recipes and calculate food quantities for large-scale food production. 4. Practice purchasing procedures, vendor selection, and inventory control methods. 5. Apply principles of food cost control and budgeting in institutional settings. 6. Demonstrate safe food handling, storage, and sanitation practices. 7. Implement quality control and portion control techniques during food service. 8. Evaluate equipment selection, maintenance, and energy efficiency in kitchens. 9. Apply HACCP and food safety regulations in institutional food service operations. 10. Assess customer satisfaction and service quality using feedback tools.	
Reference / Text Books: • Sethi, M. (2011). <i>Institutional food management</i>. New Age International. • West, B. B., Wood, L., Harger, V. F., & Shugart, G. S. (2013). <i>Food service in institutions</i>. PHI Learning Pvt. Ltd.		

- Payne-Palacio, J., & Theis, M. (2015). *Foodservice management: Principles and practices* (13th ed.). Pearson.
- Mudambi, S. R., & Rajagopal, M. V. (2015). *Fundamentals of foods, nutrition and diet therapy*. New Age International.
- Gisslen, W. (2018). *Professional cooking for Canadian chefs* (9th ed.). Wiley.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50
Prerequisites for the course:	
• Basic knowledge of general terms of foods and nutrition. • Knowledge of basic food groups.	
Course Learning Outcomes:	
By the end of this course, students will be able to:	
CO1: Classify food toxicants and explain their toxicological effects.	
CO2: Interpret toxicity data and regulatory safety limits accurately.	
CO3: Evaluate chemical, biological, and environmental food contamination risks.	
CO4: Implement food safety management systems for toxicological control.	

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VIII

Programme: B.Sc. Honors in Food Science & Dietetics		Year: IV
Class: IV		Semester: VIII
Credits: 2		Subject: Advanced Biochemistry Lab
Theory: 0		
Practical: 2		
Course Code: FSND-483AP		Title: Advanced Biochemistry Lab
Course Objectives: 1. To provide a practical understanding of food toxicology concepts and food contaminants. 2. To develop skills in evaluating toxicological risks and food safety measures.		
Nature of Paper: DSE Lab		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS	1. Study the basic concepts, scope, and importance of food toxicology through practical examples. 2. Identify and classify natural and synthetic toxicants present in different food materials. 3. Interpret doseresponse relationships using LD ₅₀ , NOAEL, and ADI values. 4. Analyse acute and chronic exposure scenarios using dietary intake models. 5. Demonstrate absorption, distribution, metabolism, and excretion of food toxicants. 6. Detect plant, animal, and microbial toxins using standard laboratory or rapid tests. 7. Assess pesticide residues and heavy metal contamination through case studies. 8. Evaluate the safety of food additives based on regulatory standards. 9. Examine food packaging materials for potential chemical migration risks. 10. Apply HACCP principles to identify and control toxicological hazards in foods.	
Reference / Text Books: • Nelson, D. L., & Cox, M. M. (2021). <i>Lehninger Principles of Biochemistry</i> (8 th ed.). W. H. Freeman.		

- Voet, D., Voet, J. G., & Pratt, C. W. (2018). *Fundamentals of Biochemistry* (5th ed.). Wiley.
- Devlin, T. M. (2011). *Textbook of Biochemistry with Clinical Correlations* (7th ed.). Wiley.
- Campbell, M. K., & Farrell, S. O. (2020). *Biochemistry* (9th ed.). Cengage Learning.
- Gropper, S. S., & Smith, J. L. (2020). *Advanced Nutrition and Human Metabolism* (8th ed.). Cengage Learning.
- Gibney, M. J., et al. (2021). *Nutrition and Metabolism* (3rd ed.). Wiley-Blackwell

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-100
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100
Prerequisites for the course: • Fundamentals of Nutrition • Human Biology/Physiology • Biochemistry • Research Methods	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Students will be able to identify and classify major food toxicants. CO2: Students will be able to interpret toxicity data and safety limits. CO3: Students will be able to assess chemical and biological contamination risks in foods. CO4: Students will be able to apply food safety systems for toxicological hazard control.	

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VIII

Programme: B.Sc. Honors with Research in Food Science & Dietetics		Year: IV
Class: IV		Semester: VIII
Credits: 2 Theory: 0 Practical: 2		Subject: Nutrition Assessment Methods and Applications Lab
Course Code: FSND-483BP		Title: Nutrition Assessment Methods and Applications Lab
Course Objectives: 1. To develop practical skills in applying dietary, anthropometric, biochemical, and clinical nutrition assessment methods. 2. To train students to integrate assessment data for accurate nutritional evaluation in diverse populations		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
Practical	1. Conducting 24-hour dietary recalls and food records 2. Using food composition databases and calculation software 3. Digital dietary assessment tool demonstration 4. Portion size estimation training using food models 5. Anthropometric measurement techniques (height, weight, circumferences, skinfolds) 6. BIA and other body composition assessment demonstrations 7. Growth chart plotting and interpretation 8. Anthropometric data analysis using reference standards 9. Integrated case study analyses 10. Clinical examination and documentation practice 11. Assessment report preparation and presentation	
Reference / Text Books: 1. Principles of Nutritional Assessment (3rd Edition) - Gibson 2. Nutritional Assessment (6th Edition) - Lee & Nieman 3. Research Methods in Nutrition and Dietetics - Palermo & Wilson 4. FAO Dietary Assessment Guidelines 5. WHO Anthropometric Reference Standards 6. National dietary assessment tools and databases 7. Professional assessment software and applications		

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50
Prerequisites for the course:	
- Fundamentals of Nutrition - Human Biology/Physiology	
Course Learning Outcomes:	
By the end of this course, students will be able to:	
CO1: To Practically evaluate principles, benefits, and limitations of nutritional assessment methods.	
CO2: To analyze and interpret biochemical and clinical indicators of nutritional status.	
CO3: To use digital tools and databases for nutrition assessment and data management.	
CO4: Interpret assessment data using relevant standards and cut-off points.	
CO5: To apply integrated assessment findings to nutrition care planning and decision-making.	

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VIII

Programme: B.Sc. Honors with Research in Food Science & Dietetics		Year: IV
Class: IV		Semester: VIII
Credits: 2		Subject: MOOC/NPTEL, E/IPR
Theory: 2		
Practical: 0		
Course Code: FSND-VAC-485		Title: MOOC/NPTEL, E/IPR
Course Objectives: 1. To make acquainted students with online learning platforms and fundamentals of Intellectual Property Rights for academic and professional advancement.		
Nature of Paper: SEC-15		
Minimum Passing Marks/Credits: 40% Marks / 2 Credit (NPTEL Certificate)		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
	MOOC/NPTEL and E/IPR courses enhance value addition by offering flexible, industry-relevant learning, enabling students to strategically select subjects aligned with career goals.	-
If the course is available as Generic Elective then the students of following departments may opt it		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/Sessional Examination		50
2) Presentations/Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		50
Course Learning Outcomes: CO1: To utilize MOOC/NPTEL platforms and apply basic IPR concepts in research, innovation, and career planning.		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VIII

Programme: B.Sc. Honors with Research in Food Science & Dietetics		Year: IV
Class: IV		Semester: VIII
Credits: 1		Subject: SPORTS
Theory: 0		
Practical: 1		
Course Code: SPWC-481		Title: SPORTS
Course Objectives: 1. To build essential interpersonal skills, including collaborative strategy, ethical sportsmanship, and disciplined goal setting within a team environment.		
Nature of Paper: SEC-6		
Minimum Passing Marks/Credits: 50% Marks / 1 Credit (PRACTICAL)		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are encouraged to engage in a diverse range of indoor and outdoor recreational activities, such as carrom, chess, and various team sports, to promote physical well-being and strategic thinking.	-
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		50
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		50
Course Learning Outcomes: CO1: Execute specialized skills, techniques, and tactical strategies in at least two selected indoor or outdoor sports.		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VIII

Programme: B.Sc. Honors with Research in Food Science & Dietetics		Year: IV
Class: IV		Semester: VIII
Credits: 4		Subject: Seminar/Industrial Training/Research
Theory: 0		
Practical: 4		
Course Code: FSND-486		Title: Seminar/Industrial Training/Research
Course Objectives: 1. Students will learn basic communication, interpersonal skills, and positive personality development.		
Nature of Paper: Industrial Training/Survey/Research Project		
Minimum Passing Marks/Credits: 50% Marks / 4 Credit (PRACTICAL)		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 1 Hrs.=1Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
	Seminar, Industrial Training, and Research focus on practical exposure, critical analysis, independent study, industry interaction, and professional skill development.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Exhibit professional behavior, ethical values, and confidence required for career development and lifelong learning.		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VIII

Programme: B.Sc. Honors with Research in Food Science & Dietetics		Year: IV
Class: IV		Semester: VIII
Credits: NC Theory: NC Practical: NC		Subject: INDUSTRIAL VISIT
Course Code: FSND-487		Title: INDUSTRIAL VISIT
Course Objectives: 1. Develop skills to observe, record, and analyze industrial processes effectively.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 0 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are required to deliver a formal report detailing their key observations, technical insights, and professional assessments gathered during the industrial visit.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Identify community needs and explore university–community partnership opportunities. CO2: Participate in volunteer activities and document experiences for reflection		

IIMTU-NEP IMPLEMENTATION
Year: IV / Semester: VIII

Programme: B.Sc. Honors with Research in Food Science & Dietetics		Year: IV
Class: IV		Semester: VIII
Credits: NC	Subject: UNIVERSITY	SOCIAL
Theory: NC	RESPONSIBILITY	
Practical: NC		
Course Code: FSND-488	Title: UNIVERSITY	SOCIAL
RESPONSIBILITY		
Course Objectives:		
1) To generate awareness of social, ethical, and environmental responsibilities.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: 50% Marks / Non Credit (PRACTICAL)		
L: 0		
T: 0		
P: 1 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
	Community Engagement University–community partnerships. Basics of volunteering and service learning. Identifying local community needs. Activity: Field visit to NGOs or schools.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/ Sessional Examination		-
2) Presentations /Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes:		
CO1: Analyze environmental challenges and promote sustainable campus practices.		
CO2: Implement eco-friendly initiatives like waste management and tree plantation.		

Evaluation Scheme

MASTER'S OF SCIENCE (Food Science, Nutrition and Dietetics)

M.Sc. (Food Science, Nutrition and Dietetics)										
Year: I / Semester I										
S.NO.	COURSE CATEGORY	COURSE CODE	COURSE TITLE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
1	CORE THEORY-13	FSND-471	Advanced Human Nutrition and Metabolism	3	0	0	25	75	100	3
2	CORE THEORY-14	FSND-472	Advanced Pathophysiology	3	0	0	25	75	100	3
3	DSE-7	FSND-473A	Research Trends in Nutrition and Dietetics	3	0	0	25	75	100	3
		FSND-473B	Innovation in Food Product Development							
4	AECC-7	FSND-474	Research Methodology and Statistics	3	0	0	15	35	50	3
5	CORE LAB-13	FSND-471P	Advanced Human Nutrition and Metabolism Lab	0	0	2	15	35	50	2
6	CORE LAB-14	FSND-472P	Advanced Pathophysiology Lab	0	0	2	15	35	50	2
7	DSE LAB-7	FSND-473AP	Research Trends in Nutrition and Dietetics Lab	0	0	2	15	35	50	2
		FSND-473BP	Innovation in Food Product Development Lab							
8	SEC-13	FSND-475	Advanced Nutritional Counseling Skills	2	0	0	15	35	50	2
9	SEC-14	FSND-476	Sports	0	0	0	25	0	25	0
10	GE-4	-	To be Decided by the University	4	0	0	25	75	100	4
11	NC	FSND-477	Professional Skills	0	0	0	25	0	25	0
12	NC	FSND-478	Industrial visit	0	0	0	25	0	25	0
13	NC	FSND-479	University Social Responsibilities	0	0	0	25	0	25	0
TOTAL				18	0	6	275	475	750	24

M.Sc. (Food Science, Nutrition and Dietetics)										
Year: I / Semester: II										
S.NO.	COURSE CATEGORY	COURSE CODE	COURSE TITLE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
1	CORE THEORY-15	FSND-481	Food Toxicology and Safety	3	0	0	25	75	100	3
2	CORE THEORY-16	FSND-482	Institutional Food Service Management	3	0	0	25	75	100	3
3	DSE-8	FSND-483A	Advanced Biochemistry	3	0	0	25	75	100	3
		FSND-483B	Nutrition Assessment Methods and Application							
4	AECC-8	FSND-484	Research Publication and Ethics	3	0	0	15	35	50	3
5	CORE LAB-15	FSND-481P	Food Toxicology and Safety Lab	0	0	2	15	35	50	2
6	CORE LAB-16	FSND-482P	Institutional Food Service Management Lab	0	0	2	15	35	50	2
7	DSE LAB-8	FSND-483AP	Advanced Biochemistry Lab	0	0	2	15	35	50	2
		FSND-483BP	Nutrition Assessment Methods and Application Lab							
8	SEC-15	FSND-VAC-485	MOOCs/NPTEL (E/IPR)	2	0	0	50	0	50	2
	VAC-4	FSND- 485	Scientific Writing Skills	2	0	0	15	35	50	2
9	SEC-16	SPWC-481	Sports	0	0	1	0	25	25	1
10	Industrial Training /Survey/Research Project	FSND-486	Seminar/Industrial Training/Research	0	0	4	25	75	100	4
11	NC	FSND-487	Industrial visit	0	0	0	25	0	25	0
12	NC	FSND-488	University Social Responsibilities	0	0	0	25	0	25	0
			TOTAL	16	0	11	275	500	775	27

M.Sc. (Food Science, Nutrition and Dietetics)										
Year: II / Semester: III										
S.NO.	COURSE CATEGORY	COURSE CODE	COURSE TITLE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
1	CORE THEORY-17	FSND-591	Precision Nutrition	3	0	0	25	75	100	3
2	CORE THEORY-18	FSND-592	Preventive and Therapeutic Diet	3	0	0	25	75	100	3
3	DSE-9	FSND-593A	Nutrition for Critically III	3	0	0	25	75	100	3
		FSND-593B	Nutrition and Immunity							
4	AECC-9	FSND-594	Advanced Communication Skills for Nutrition Practice	3	0	0	15	35	50	3
5	CORE LAB-17	FSND-591P	Precision Nutrition Lab	0	0	2	15	35	50	2
6	CORE LAB-18	FSND-592P	Preventive and Therapeutic Diet Lab	0	0	2	15	35	50	2
7	DSE LAB-9	FSND-593AP	Nutrition for Critically III Lab	0	0	2	15	35	50	2
		FSND-593BP	Nutrition and Immunity Lab							
8	SEC-17	FSND- 595	Intellectual Property Rights	2	0	0	15	35	50	2
10	NC	FSND-596	Industrial visit	0	0	0	25	0	25	0
11	NC	FSND-597	University Social Responsibilities	0	0	0	25	0	25	0
12	SEC-18	FSND-VAC-595	MOOCs/NPTEL (E/IPR)	0	0	2	50	0	50	2
			TOTAL	14	0	8	250	400	650	22

M.Sc. (Food Science, Nutrition and Dietetics)										
Year: II / Semester - IV										
S.NO.	COURSE CATEGORY	COURSE CODE	COURSE TITLE	CONTACT HOURS			EVALUATION SCHEME			CREDITS
				L	T	P	IA	EA	TOTAL	
1	Industrial Training /Survey/Research Project	FSND-501	Internship/ Research	0	0	16	200	300	500	16
			TOTAL	0	0	16	200	300	500	16

Format-3

Format-3

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: M.Sc. Honors in Food Science & Dietetics	Year: I	
Class: I	Semester: I	
Credits: 3	Subject: Advanced Human Nutrition and Metabolism	
Theory: 3		
Practical: 0		
Course Code: FSND-471	Title: Advanced Human Nutrition and Metabolism	
Course Objectives:		
1. Understand How the Body Digests and Uses Carbohydrates, Fats, Proteins, Vitamins, Minerals and Water to Stay Healthy.		
2. Compare Student Diets to Recommended Daily Intakes (Like RDA/EAR) and Identify if Nutrient Levels are Inadequate or Excessive.		
3. Recognize Common Signs of Nutrient Deficiencies or Metabolic Issues and Suggest Simple Dietary Changes to Fix Them.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1 Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Carbohydrates a) Structural Features, Types, Functions, Sources, Requirements of Carbohydrates b) Chemistry And Characteristics of Dietary and Functional Fibers c) Role of Dietary Fiber, Resistant Starch and Fructo-oligosaccharides in various Physiological Disorders d) Glycemic Response to Carbohydrates e) Digestion, Absorption, Transport and Distribution of Carbohydrates.	12
II	Fats Or Lipids a) Structure and Biological Importance b) Digestion, Absorption, Transport and Storage c) Lipids, Lipoproteins and Cardiovascular Disease Risk d) Integrated Metabolism in Tissues e) Regulation of Lipid Metabolism f) Brown Fat Thermogenesis g) Deficiency Disorders of Lipids and Essential Fatty Acids h) Role of Omega-3 and Omega 6 Fatty Acids in Physiological Disorders.	12

III	Proteins a) Functional Categories b) Protein Structure and Organization c) Digestion, Absorption and Amino Acid Metabolism d) Protein Turnover e) Synthesis and Catabolism of Tissue Proteins f) Evaluation of Protein Quality g) Protein Deficiency/ Malnutrition h) Body Composition, Energy Balance.	12
IV	Regulatory Nutrients and Water a) Functions, Absorption, Requirement, Sources, Deficiency, Toxicity, Metabolism and Excretion of Fat-Soluble Vitamins - A, D, E And K And Water-Soluble Vitamins- Thiamine, Riboflavin, Niacin, Pyridoxine, Folate, B12, Ascorbic Acid, Pantothenic Acid and Biotin b) Functions And Mechanisms of Action, Digestion, Absorption, Transport, Excretion, Adequate Intake, Requirements, Deficiency, Toxicity of Macro Minerals - Calcium and Phosphorus and Micro Minerals – Iron, Zinc, Sodium, Copper, Cobalt, Selenium and Chromium c) Water And Electrolyte Balance - Functions and Distribution of Water in Body d) Electrolyte Composition of Body Fluids and Electrolyte Balance.	12
V	Energy Balance and Recommended Dietary Allowances a) Energy Balance Fundamentals - Units, Direct and Indirect Calorimetry - Determination of Energy Value of Food - Total Energy Requirement (TEE), Resting Energy Expenditure (REE) - Factors Affecting Physical Activity, BMR and Thermic Effect of Food (TEF) b) Recommended Dietary Allowances (RDA) - RDA and Estimated Average Requirements (EAR) - Factors Affecting RDA - General Principles of Deriving RDA c) Nutrient Specific RDA and Procedures - Determination of RDA of Different Nutrients - Requirements and RDA d) Indian Context: Standards and Application - Indian Standards for Heights & Weights - Reference Man & Woman and Other Terminologies e) Practical Application and Tools - Practical Applications of RDA; My Healthy Plate	12
Practical: 1. RDA Chart Construction & Application: Create RDA Charts for ICMR - Indian Standards for Adults (Man/Woman, Sedentary / Moderate / Heavy Activity), Vitamins or Minerals. 2. Individual Diet vs RDA Assessment: Evaluate a 3-Day Typical Diet (E.g. Indian Plate Model) Against RDA for Macro- and Micro-Nutrients.		

3. Metabolic Pathway Mapping & Enzyme Activity Assays Clinical Markers of Nutritional Deficiencies: Identify Biochemical Markers and Signs for Actual or Simulated Deficiency of Different Macro & Micro Nutrients.

Reference / Text Books:

- Wildman REC and Medeiros DM (2000) Advanced Human Nutrition. CRC Press, Boca Raton, Florida.
- Bamji MS, Rao NP and Reddy V (2003) Textbook of Human Nutrition. 2nd Edition, Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi.
- Eastwood MA (1997) Principles of Human Nutrition. London; Chapman & Hall. 248 “Curriculum of Nutrition and Dietetics (Intellectual Property of the National Commission for Allied and Healthcare Professions, Ministry of Health and Family Welfare).”
- FAO (2004) Human Energy Requirements -Report of a Joint FAO/WHO/UNU Expert Consultation. Technical Report Series 1. Food and Agriculture Organization, Geneva.
- FAO (2007) Protein and Amino Acid Requirements - Report of a Joint FAO/WHO/UNU Expert Consultation. Technical Report Series 1. Food and Agriculture Organization, Rome.
- Berdanier, CD and Zempleni, J (2009) Advanced Nutrition: Macronutrients, Micronutrients and Metabolism. CRC Press, New York.
- Groff J L and Gropper S (2012) Advanced Nutrition and Human Metabolism. 7th Edition, Yolanda Cossio, New York.
- Summathi S (2017) Food Chemistry and Nutrition. BS Publication, Hyderabad.
- Ross A C, Caballero B, Cousins RJ, Tucker KL and Ziegler TR (2012) Modern Nutrition in Health and Disease. 11th Edition, LWW, Philadelphia.
- Whitney EN & Rolfels CR (2019) Understanding Nutrition. 15th Ed., West Publishing Company, USA.
- Stipanuk MH and Caudill MA (2013) Biochemical, Physiological and Molecular Aspects of Human Nutrition. 3rd Edition, Elsevier Pub.
- <https://www.nutritionintl.org>
- <https://www.who.int>
- <https://www.hsph.harvard.edu/nutritionsource>
- <http://www.nin.res.in>

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-100
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100

Prerequisites for the course:

- Basic Human Nutrition
- Fundamentals of Biochemistry
- Human Physiology

Course Learning Outcomes:

By the end of this course, students will be able to:

1. Describe structure, classification, roles, digestion, absorption, metabolism, and disorders of carbs, proteins, and lipids.

2. Evaluate effects of fiber, resistant starch, and functional carbs on glycemia and disorder management.
3. Assess lipid–protein metabolic integration and regulation in relation to CVD, thermogenesis, and PEM.
4. Analyze roles, requirements, metabolism, toxicity, and balance of vitamins, minerals, and water.
5. Apply energy balance and RDA using assessment tools, Indian standards, and case studies.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: M.Sc. Honors in Food Science & Dietetics		Year: I
Class: I		Semester: I
Credits: 3		Subject: Advanced Pathophysiology
Theory: 3		
Practical: 0		
Course Code: FSND-472		Title: Advanced Pathophysiology
Course Objectives: 1. To Comprehend Normal Biochemistry, Disease Pathogenesis, Etiology, Clinical Signs & Symptoms, Diagnostic Tests and Complications of the Healthy & Diseased Conditions. 2. To Identify and Understand the Importance and Use of Diagnostic Tests in the Prognosis of Disease Processes.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L:3 T:0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Cardiovascular, Respiratory, And Neoplastic Disorders A. Cardiovascular System - Disorders Of Rhythm: Bradyarrhythmia (SA/AV Node Dysfunction), Tachyarrhythmias - Disorders of the Heart: Congestive Heart Failure, Ischemic Heart Disease (MI, Angina, Sudden Cardiac Death), Valvular Heart Disease (Including Rheumatic HD), Myocardial Diseases, Cardiomyopathies, Congenital Heart Diseases - Hypertension: Primary and Secondary Hypertension, Pathogenesis and Risk Factors, Effects on Heart, Kidneys, and Brain - Vascular Pathology: Atherosclerosis and Arteriosclerosis – Pathogenesis and Risk Factors - Disorders of Lipoprotein Metabolism - Cardiac Function Tests B. Respiratory System - General Characteristics and Classification - Infectious Disorders: Common Cold, Influenza, Pneumonia - Obstructive Disorders: Asthma, Chronic Bronchitis, Emphysema - Restrictive Disorders: Pneumothorax, Atelectasis - Others: COPD, ARDS, Respiratory Failure, Bronchiectasis, Cystic Fibrosis, Disorders of Pleura and Diaphragm	12

	• Pulmonary Function Tests C. Neoplasia (Cancer Pathophysiology) • Definition And Classification (Benign Vs. Malignant) • Molecular Basis: Oncogenes, Tumor Suppressor Genes • Carcinogenesis: Chemical (Initiation, Promotion, Progression), Radiation, Viral • Clinical Features, Host Defences • Grading And Diagnosis (Histologic, Molecular, Tumor Markers)	
II	Renal And Urinary Tract Disorders a) Clinical Manifestations Overview b) Glomerular Disorders: Glomerulonephritis, Nephrotic and Nephritic Syndrome c) Tubulointerstitial Diseases: Pyelonephritis d) Vascular Renal Disorders: Nephrosclerosis e) Other Renal Disorders: Urolithiasis, Acute and Chronic Renal Failure f) Voiding Dysfunction, Incontinence g) Fluid And Electrolyte Imbalances h) Renal Function Tests	12
III	Gastrointestinal Tract Disorders a) Esophageal And Gastric Disorders: Gerd And Bile Reflux, Hiatal Hernia, Esophagitis, Gastritis And Peptic Ulcers b) Intestinal And Colonic Disorders: Ischemic Bowel Disease, Hemorrhoids, Enterocolitis (Diarrhea, Dysentery), Constipation c) Malabsorption Syndromes: Celiac Sprue, Bacterial Overgrowth, Iibd d) Colonic Diverticulosis e) Functional Assessment: Gastric Function Tests	12
IV	Hepatobiliary And Pancreatic Disorders a) Jaundice and Bilirubin Metabolism b) Hepatic Injury Patterns: Necrosis, Inflammation, Fibrosis c) Hepatitis (Viral) d) Cirrhosis: Etiology (Alcohol, Etc.), Portal Hypertension, Ascites, Splenomegaly e) Hepatic Failure and Encephalopathy f) Gallbladder Disorders: Cholelithiasis (Cholesterol and Pigment Stones), Cholecystitis g) Cholestasis h) Pancreatitis (Acute and Chronic) i) Liver Function Tests	12
V	Endocrine And Reproductive System Disorders A. Endocrine System • Thyroid Disorders: Hypothyroidism and Hyperthyroidism and Diagnostic Tests • Diabetes Mellitus (DM): Types and Pathogenesis, Metabolic Derangements, Complications (Microangiopathy, Macroangiopathy, Neuropathy, Nephropathy, Retinopathy, Diabetic Foot), Diagnostic Tests B. Reproductive System	12

	- Female Reproductive Disorders: Endometriosis, Polycystic Ovarian Syndrome (PCOS) - Sexually Transmitted Diseases (STDs): Etiology, Clinical Features, Diagnosis, And Treatment	
Reference / Text Books: - Baynes, J., and Dominiczak. M. (2002). Medical Biochemistry. London: Mosby - Thabrew, I. and Ayling. R.M. (2001). Biochemistry for Clinical Medicine. New Delhi: Replika Press Pvt. Ltd. - Guyton, A.C., and Hall. J.E. (1996). Textbook of Medical Physiology (9th ed.). Bangalore: Prism Books Pvt. Ltd. - Cotran, R.S., Kumar, V., Robbins, S.L., and Schoen. F.J. (Ed.). (1994). Robbins Pathologic Basis of Disease (5th ed.). Bangalore: Prism Books Pvt. Ltd. - Devlin, T.M. (2002). (Ed.). Textbook of Biochemistry with Clinical Correlations. (5th ed.). New York: Wiley-Liss.		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/ Sessional Examination		10
2) Presentations /Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		--
5) ESE		75
Total		100
Prerequisites for the course: - Basics of Biochemistry and Metabolism - Human Anatomy and Physiology - Disease Processes (Basic Pathology & Immunology)		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Interpret test data for heart, lung, and cancer to guide nutrition. CO2: Use kidney tests to plan diets for renal and urinary issues. CO3: Advise diets for gut disorders to aid digestion and absorption. CO4: Apply liver/pancreas tests to design condition-specific diets. CO5: Plan diets for hormonal and reproductive disorders.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: M.Sc. Honors in Food Science & Dietetics		Year: I
Class: I		Semester: I
Credits: 3		Subject: Research Trends in Nutrition and Dietetics
Theory: 3		
Practical: 0		
Course Code: FSND-473A		Title: Research Trends in Nutrition and Dietetics
Course Objectives: 1. To develop understanding regarding the principles of research design, methodology, and analysis 2. To develop responsible conduct in research, including ethical considerations and plagiarism avoidance 3. To developing critical thinking and problem-solving skills to approach complex nutrition-related issues 4. To communicate scientific information to various audiences		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Research Process and Responsible Conduct • Principles of Research: This section will cover the fundamental principles of research design, methodology, and analysis as they apply to nutrition and dietetics. • Ethical Considerations: A deep dive into ethical considerations for research studies, including informed consent, data privacy, and the responsible use of human and animal subjects. • Plagiarism: Examination of the concept, factors, and solutions related to plagiarism in academic and professional writing. • Problem Identification: The process of identifying and defining complex, relevant nutrition-related issues suitable for research.	12
II	Study Design and Evaluating Evidence in Nutrition • Study Designs: An overview of different types of study designs, such as observational studies (cohort, case-control), experimental studies (randomized controlled trials), and quasi-experiments. • Strengths and Limitations: Critical analysis of the strengths and limitations inherent to each research design. • Quality Evaluation: Methods for evaluating the quality and validity of research studies.	12

	• Literature Review: Practical skills for reviewing the existing literature on nutrition-related topics to build a foundation for new research. • Data Analysis and Interpretation: Techniques for analyzing and interpreting the findings of research studies.	
III	Literacy Skills to Search Relevant and Reliable Sources • Source Identification: A guide to identifying and utilizing reliable databases (e.g., PubMed, Scopus), peer-reviewed journals, and other scientific sources to locate evidence-based information. • Source Evaluation: Practical skills for evaluating the credibility and reliability of various information sources, including distinguishing between scientific and popular media.	12
IV	Knowledge Translation to Various Audiences • Principles of Knowledge Translation: Introduction to the principles and frameworks of knowledge translation, focusing on how to effectively communicate research findings to different audiences. • Group Discussion: A forum for group discussions on various perspectives related to current nutrition-related issues with peers, fostering critical thinking and communication skills.	12
V	Emerging Trends and Future Directions in Nutrition Research • Technology in Research: Exploration of modern technological trends in nutrition research, including the use of artificial intelligence, big data analytics, mobile health apps, and wearable technologies. • Personalized Nutrition: Discussion of the growing field of personalized nutrition, covering nutrigenomics, and how genetic and individual factors influence dietary recommendations. • Translating Research into Policy and Practice: The role of research in shaping public health policy and clinical practice. This includes understanding the process of creating evidence-based guidelines and recommendations. • Professional Development: Examination of career paths in nutrition research and the importance of lifelong learning to stay current with new trends and methodologies.	12

Reference / Text Books:

- Vegrove JA., Hodson L., Sharma S. and Lanham-New SA. (2015). Nutrition Research Methodologies (The Nutrition Society Textbook).
- Wiley-Blackwell; 1st edition. Starks TP. (2006). Trends in Nutrition Research. Nova Science Publishers Inc 1st edition. Pounis G. (2018).
- Analysis in Nutrition Research: Principles of Statistical Methodology and Interpretation of the Results. Academic Press Inc. Nelson M. (2020).
- Statistics in Nutrition and Dietetics. Wiley-Blackwell Chrzan J. and Brett J. (2017).
- Research methods for anthropological studies of food and nutrition. Berghahn Books Sreelathak NT. and Sreelatha K. (2021) Research ethics and plagiarism. Ess Ess Pubns. Guyton, A. C., and Hall. J.E. (1996).
- Textbook of Medical Physiology (9th ed.). Bangalore: Prism Books Pvt. Ltd.

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

Max. Marks-100

1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100
Prerequisites for the course:	
• Introduction to Nutrition Science • Statistics for Health Sciences	
Course Learning Outcomes:	
By the end of this course, students will be able to:	
1. Explain research design principles, ethics, problem identification, and plagiarism avoidance. 2. Evaluate study designs, assess research quality, and synthesize literature. 3. Search and assess credible scientific evidence effectively. 4. Communicate research findings clearly and discuss current nutrition issues. 5. Explore trends, technologies, careers, and the role of research in public health policy.	

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: M.Sc. Honors in Food Science & Dietetics		Year: I
Class: I		Semester: I
Credits: 3 Theory: 3 Practical: 0		Subject: Innovation in Food Product Development
Course Code: FSND-473B		Title: Innovation in Food Product Development
Course Objectives: 1. To develop understanding of the structured process of food product development with a focus on Indian markets. 2. To provide knowledge of emerging food trends, regional cuisines, and functional foods using indigenous ingredients. 3. To build competencies in prototype development, sensory analysis, and food regulatory compliance specific to India. 4. To inspire innovation and entrepreneurship aligned with national initiatives like <i>Start-up India</i>, <i>Make in India</i>, and <i>Eat Right India</i>.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L:3 T:0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Food Product Development • Scope and need for new food products in Indian markets • Current trends: ready-to-eat, organic, millet-based, plant-based, immunity boosters • Types of food product innovations: traditional, value-added, convenience, fortified • Consumer behaviour and cultural preferences in India	8
II	Innovation and Idea Generation • Sources of ideas: Indian dietary habits, Ayurveda, functional foods • Design thinking, market survey, SWOT analysis • Use of AI and data in identifying consumer trends (Zomato, Swiggy, etc.) • Role of women entrepreneurs and SHGs in rural innovation	8
III	Product Design and Development • Ingredient sourcing from Indian agro-based industries (millets, pulses, spices) • Product formulation for nutrition and taste • Fortification with iron, folic acid, vitamin A – aligning with national	10

	nutrition goals - Indigenous and sustainable packaging practices - Pilot-scale production for small businesses	
IV	Sensory Evaluation, Quality & Shelf-Life (Global Perspective) - Sensory testing: discrimination, descriptive, affective methods - Cross-cultural flavour preferences & consumer segmentation - Instrumental vs. sensory correlation - Packaging for global climates: MAP, biodegradable, smart systems - Shelf-life prediction: ASLT, modelling tools - Global labelling standards: FDA, EFSA, Codex - Case studies: product adaptation across regions	9
V	Regulations, Labeling, and Entrepreneurship in Indian Context - FSSAI regulations: - Licensing and registration - Labeling rules (allergens, nutrition facts, vegetarian/non-veg symbol) - Health and nutrition claims (e.g., “low GI”, “iron-fortified”). - Nutrition labeling using Indian Packaged Foods Regulations (2020) - Packaging and labeling for export (APEDA, Spices Board, Organic India certification) - Business model development: - Incubation centers (NIFTEM, CFTRI, IIMR, IITs) - Financial support from NABARD, MSME, Atal Innovation Mission - Direct-to-consumer channels: farmers’ markets, ONDC, WhatsApp commerce	11

PRACTICALS:

- Market Survey: Identify 5 trending food products in Indian supermarkets and analyze ingredients.
- Prototype Development: Formulate and develop a nutrition-based food product.
- Conduct sensory tests (triangle, hedonic, QDA) for product development.
- Evaluate global case studies (e.g., adapting snacks or dairy for export).

Reference / Text Books:

- FSSAI Manuals & Guidelines (www.fssai.gov.in)
- National Institute of Nutrition (NIN) – *Indian Food Composition Tables*
- Fuller, G.W. (2016). *New Food Product Development*. CRC Press
- Earle & Earle (2000). *Developing New Food Products for a Changing Marketplace*
- Websites: *Start-up India, Eat Right India, NIFTEM, CFTRI, SIDBI*

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-100
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100

Prerequisites for the course:

- Basic knowledge of general terms of foods and nutrition.
- Knowledge of basic food groups.

Course Learning Outcomes:

By the end of this course, students will be able to:

1. Identify market gaps and design innovative food products for Indian diets.
2. Apply food science, nutrition, and indigenous knowledge in product formulation.
3. Conduct sensory testing and shelf-life evaluation under Indian conditions.
4. Develop business models for rural and urban Indian food markets.
5. Apply FSSAI standards for product labeling and safety.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: M.Sc. Honors in Food Science & Dietetics		Year: I
Class: I		Semester: I
Credits: 3		Subject: Research Methodology and Statistics
Theory: 3		
Practical: 0		
Course Code: FSND-474		Title: Research Methodology and Statistics
Course Objectives:		
1. Underline the significance of research Methodology in research.		
2. Develop ability to construct data gathering, instruments appropriate to the research design.		
3. Develop ability present and interpret data in a research report or thesis.		
4. Understand the role of statistics in research.		
5. Apply statistical techniques to research data for analyzing and interpreting data meaningfully.		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Research in Food & Nutrition a) Meaning, objectives, and significance of research in food, nutrition, and dietetics b) Types of research: Basic, applied, clinical, epidemiological, community-based c) Scientific approach, research process, steps in research d) Identification, definition, and formulation of research problems e) Literature review: Sources, critical analysis, referencing, and citation styles f) Research ethics: Plagiarism, ethical clearance, informed consent, research integrity g) Research in food science: Example case studies	8
II	Research Design & Data Collection a) Research approaches: Qualitative, quantitative, and mixed methods b) Research designs: Descriptive, analytical, experimental, and observational; case studies and surveys c) Sampling: Population and sample, types of sampling methods (probability & non-probability), determining sample size d) Data types: Primary vs. secondary data, tools for data collection (questionnaire, interview, dietary assessment, lab methods) e) Reliability and validity of tools	8

	f) Pilot studies and protocol development in nutrition research	
III	Data Presentation & Descriptive Statistics - Classification and tabulation of data for food & nutrition studies - Graphical presentation: Tables, charts (bar, pie, histograms, frequency polygons, scatter plots) - Measures of central tendency: Mean, median, mode (with nutritional data examples) - Measures of dispersion: Range, standard deviation, variance, coefficient of variation - Concepts of skewness and kurtosis	8
IV	Inferential Statistics & Hypothesis Testing - Introduction to probability in nutrition research - Hypothesis: Types, formulation, null and alternative hypotheses - Errors in hypothesis testing: Type I & II errors, significance level, p-value - Parametric tests: t-test (paired, unpaired), ANOVA; relevance to group comparisons in diet trials - Non-parametric tests: Chi-square, Mann-Whitney, Wilcoxon - Tests of association: Correlation, regression analysis (application to dietary intake and health outcomes) - Interpretation of results and drawing valid conclusions	8
V	Statistical Software, Research Communication & Application - Introduction to statistical software (e.g., MS Excel, SPSS, R) for basic analysis in nutrition studies - Data entry, cleaning, and processing - Reporting and presentation: Elements of a scientific report/thesis, abstract, tables, graphs - Interpretation and discussion of nutrition research findings - Writing research articles, preparing presentations, and communicating results to scientific and public health audiences - Application and review: Critical evaluation of published research in food, nutrition, and dietetics	8

Reference / Text Books:

- Introduction of statistical Methods - C.B. Gupta
- Fundamentals of statistics vol. I & II - Goon, Gupta, Dasgupta
- Hand book of Research Methodology - Devdas R.P. & Kulandaivel K
- Research Methods - S.P. Gupta
- Statistical concepts and applications - Harry Franxk and Steven C. Althoen
- Fundamentals of statistics - S.C. Gupta
- Probability theory and Mathematical - V.K. Rahatgi Statistics
- Mathematics, statistics and systems for - Bailey Health
- Basic statistics – Dunn
- Survival models and data Analysis - Elandt Johnson
- Theory and Analysis of sample survey - Darogasdingh- F.S. Choudhary Designs
- Methods of Research - Good C.V. and Scafes D.E.
- Research in Education - Best J.W.
- Statistics in Education and Psychology - Garret H.

- Bell, J. (1997): Doing Your Research Project: A Guide for First-time Researchers in Education and Social Science, Viva Books, New Delhi
- Bell, J. (1997): How to Complete Your Research Project Successfully: A Guide for First-time Researchers, UBSPD, New Delhi.
- Bulmer, M.C. (1984): Sociological Research Methods: An Introduction, Macmillan, Hong Kong.
- Festinger, L. and Katz, D. (ed.) (1977): Research Methods in the Behavioral Sciences, Amerind Publishing, New Delhi.
- Holloway, I. (1997): Basic Concepts of Qualitative Research, Blackwell Science, London.
- Jain, G. (1998): Research Methodology: Methods and Techniques, Mangal Statistics 1. Gupta, S. (2001) "Research Methodology and Statistical Techniques", Deep and Deep, New Delhi,
- Hooda, R.P. (2003) "Statistics for Business and Economics", 3rd ed., Macmillan India Ltd., Delhi.
- Dey, B.R. (2005) "Textbook of Managerial Statistics", Macmillan India Ltd., Delhi,
- Fleming, M.C. & Nellis, Joseph G. (1997) "The Essence of Statistics for Business", Prentice-Hall of India, New Delhi,
- Sarma, K.V.S. (2001) "Statistics made Simple: Do it yourself on PC", Prentice-Hall, New Delhi.
- Kothari, C.R; Research Methodology, 2nd edition, New Age International Publishers, 2004.
- Gupta, S.P; Statistical Methods, 31st revised edition, Sultana Chand and Sons, 2002.
- Devadas, R.P; A Handbook on Methodology of Research, Sri Ramakrishna Vidhyalaya, Coimbatore, 1989.
- Donald, H.M.C. Burney; Research Methods, fifth edition, Thomson and Wadsworth Publications, 2002.
- Pillai, R.S.N and Bagavathi,V , Statistics, Chand and company limited, 2001 .
- Web Resources:
- <https://explorable.com/research-methodology>
- <https://www.mbaknol.com/research-methodology/the-basic-types-of-research>

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-50
1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Prerequisites for the course:

- A Fundamental Understanding of Nutrition
- Basic Mathematical Skills

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Understand the research process and ethics in food and nutrition.

CO2: Choose and justify suitable research methods and data collection tools.

CO3: Present research data using statistics and graphs.

CO4: Conduct hypothesis testing and interpret results.

CO5: Analyze data with statistical software and present findings professionally.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: M.Sc. Honors in Food Science & Dietetics		Year: I
Class: I		Semester: I
Credits: 2		Subject: Advanced Nutritional Counselling Skills
Theory: 2		
Practical: 0		
Course Code: FSND-475		Title: Advanced Nutritional Counselling Skills
Course Objectives: 1. To Learn What Diet Counselling is and Why it Matters. 2. To Improve Talking and Listening Skills for Helping People to Eat Better. 3. To Know How to Give Food Advice for Different Ages and Health Needs. 4. To Get Ready to Work in Hospitals and Communities.		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits THEORY+Sessional		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Basics Of Diet Counseling a) Diet Counselling – Meaning, Significance, Process, Types b) Goals Of Counselling, Individuals, Group and Family Counselling, Ethical Principles of Counselling. c) Basic Sequence in Counselling. d) Materials Needed for Counselling –Models, Charts, Posters, AV Aids, Hand Outs Etc. e) Communication Process in Counselling and Linguistics in Clinical Dietary Practices, Problems in Communication f) Role Of Counsellor & Counselee g) Techniques Of Obtaining Relevant Information – 24-Hour Dietary Recall, List of Food Likes and Dislikes, Lifestyle h) Dietician as a Part of Medical Team and Research Team i) Impact Of Counselling on Health and Disease of Individuals – Discussion of Hospital Case Studies	5
II	Diet Counselling at Hospital and Community Level a) Role of Counselling in Hospital b) Role of Counselling in Community c) Organizing Health Camps and Patient Feedback – At Hospital Level d) Organizing Health Camps and Patient Feedback – At Community Level e) Patient Follow Up / Home Visits f) Evaluation of Counselor Progress & Client’s Progress	5

	g) Strategies to Maintain Dietary Adherence h) Reinstitution of Intervention or Treatment i) The Termination Process.	
III	Introducing to Psychology and Counselling Introduction To Psychology – Definition, Nature and Scope Attention And Perception – Types of Attention and Factors Influencing Attention, Principles of Perceptual Organization and Abnormalities in Perception Learning And Memory- Types of Learning, Types of Memory, Forgetting and its Causes Motivation And Emotion-Types of Motives, Types of Emotions, Emotional Expression Personality- Nature and Definition, Factors Influencing Personality, Psycho Analytic Theory of Personality Nature And Goals of Counseling Principles of Counseling Characteristics of a Good Counselor Ethical Principles of Counselling Special Areas of Counselling: Educational, Family, Health, Community and Counselling of Alcoholic and Drug Addicts	5
IV	Counseling Skills a) Approaches to Counselling – • Psycho Analytic Approach, • Behavioristic • Humanistic Approach b) Pre – Helping Phase: • Rapport Building Skills, • Attending And Listening Skills. c) Stage I Skills: • Empathy, Respect • Genuineness And Concreteness. d) Stage II Skills: • Advanced Empathy, Self-Disclosure • Immediacy And Confrontation. e) Stage III Skills: • Goal Setting, Action Plan Programme and Brainstorming	5
V	Dietary Counselling Through the Life Span a) Considerations For Counselling Plans For: • Antenatal And Pregnant Women • Lactating Women • Child Care and Childhood Nutrition Problems • SAM, Weight Management, Vitamin and Mineral Deficiencies • School Children, Adolescents, Young Adults • Fitness, Weight Management, Eating Disorders b) Managing Diet Related Chronic Diseases in Adults • Obesity • Diabetes	5

	• Dyslipidemia • Hypertension • CVD • Cancer Risk Prevention • Renal Disease • Liver Disorders • Geriatric Counselling	

Reference / Text Books:

- Mahan, L. K. and Escott Stump. S. (2016) Krause's Food & Nutrition Therapy 14th ed. Saunders-Elsevier
- Snetselaar L. (2009). Nutrition Counselling Skills for the Nutrition Care Process. Fourth Ed. Sudbury, Massachusetts: Jones Bartlett Publishers.
- Holli B Betsy and Beto a Judith. (2014). Nutrition Counselling and Education Skills for Dietetics Professionals. Sixth edition. USA: Lippincot Williams and Wilkins; Wolters Kluwer.
- Gibson, R.L., Mitchell, M.H. (2005). Introduction to counselling and guidance (6th Ed)
- Gelso, C.J., Fretz, B.R. (1995). Counselling Psychology, Bangalore, Prism Books Pvt. Ltd.
- Sharma, T.C. (2002). Modern Methods of Guidance and Counseling, New Delhi, sarup & sons.
- Beena and Parweshwaran- Invitation to Psychology, Neel Kamal Publications.
- Gable J. (2016). Counselling Skills for dietitians. Florida, USA: John Wiley and Sons.
- Midwinter R and Dickson J. (2015). Embedding Counselling and Communication Skills. A Relational Skills Model. Routledge 2015
- DeVito Joseph A. (2015) Human Communication: The Basic Course. New York: Pearson
- King K and Klawiter B. (2007). Nutrition Therapy. Advanced Counselling Skills. Third Edition. Philadelphia, USA: Lippincot Williams and Wilkins; Wolters Kluwer. 2007
- Curry, R.K. and Jaffe, A. (1998): Nutrition Counseling and Communication Skills, W.B. Saunders Co. London.
- Hosking, G. and Powell, R. (1985): Chronic Childhood Disorders; Wright, Bristol.
- <http://www.fao.org/docrep/X2550E/X2550e04.html>
- Ravi M (2016) Counselling what why and how, New Delhi, Viva Books
- McClave, S.A., Taylor, B.E., Martindale, R.G., Warren, M.M., Johnson, D.R., Braunschweig, C., McCarthy, M.S., Davanos, E., Rice, T.W., Cresci, G.A. and Gervasio, J.M. (2016). Guidelines for the provision and assessment of nutrition support therapy in the adult critically ill patient: Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition (ASPEN). Journal of Parenteral and Enteral Nutrition, 40(2), pp.159-211.
- WHO 2016, Antenatal guidelines

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Prerequisites for the course:

- Basic knowledge of human nutrition and diet planning.
- Understanding of nutrition-related diseases (e.g., diabetes, obesity).
- Good communication skills in English and local language.

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Understand principles, processes, and ethics of diet counselling for individuals, families, and groups.

CO2: Apply communication and behavioural counselling techniques in clinical and community settings.

CO3: Use counselling aids and materials to improve client understanding and participation.

CO4: Develop evidence-based nutrition plans for various life stages and clinical conditions.

CO5: Evaluate client progress, counselling outcomes, and coordinate with healthcare teams.

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: M.Sc. Honors in Food Science & Dietetics		Year: I
Class: I		Semester: I
Credits: 2 Theory: 0 Practical: 2		Subject: Advanced Human Nutrition and Metabolism Lab
Course Code: FSND-471P		Title: Advanced Human Nutrition and Metabolism Lab
Course Objectives: 1. Understand How the Body Digests and Uses Carbohydrates, Fats, Proteins, Vitamins, and Water to Stay Healthy. 2. Compare Student Diets to Recommended Daily Intakes (Like RDA/EAR) and Identify if Nutrient Levels are Inadequate or Excessive.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
Practical-	1. RDA Chart Construction & Application: Create RDA Charts for ICMR - Indian Standards for Adults (Man / Woman, Sedentary / Moderate / Heavy Activity), Vitamins or Minerals. 2. Individual Diet vs RDA Assessment: Evaluate a 3-Day Typical Diet (E.g. Indian Plate Model) Against RDA for Macro- and Micro-Nutrients. 3. Metabolic Pathway Mapping & Enzyme Activity Assays 4. Clinical Markers of Nutritional Deficiencies: Identify Biochemical Markers and Signs for Actual or Simulated Deficiency of Different Macro & Micro Nutrients.	
Reference / Text Books: • Wildman REC and Medeiros DM (2000) Advanced Human Nutrition. CRC Press, Boca Raton, Florida. • Bamji MS, Rao NP and Reddy V (2003) Textbook of Human Nutrition. 2nd Edition, Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi. • Eastwood MA (1997) Principles of Human Nutrition. London; Chapman & Hall. 248 "Curriculum of Nutrition and Dietetics (Intellectual Property of the National Commission for Allied and Healthcare Professions, Ministry of Health and Family Welfare)." • FAO (2004) Human Energy Requirements-Report of a Joint FAO/WHO/UNU Expert Consultation. Technical Report Series 1. Food and Agriculture Organization, Geneva.		

- FAO (2007) Protein and Amino Acid Requirements - Report of a Joint FAO/WHO/UNU Expert Consultation. Technical Report Series 1. Food and Agriculture Organization, Rome.
- Berdanier, CD and Zemleni, J (2009) Advanced Nutrition: Macronutrients, Micronutrients and Metabolism. CRC Press, New York.
- Groff J L and Gropper S (2012) Advanced Nutrition and Human Metabolism. 7th Edition, Yolanda Cossio, New York.
- Summathi S (2017) Food Chemistry and Nutrition. BS Publication, Hyderabad.
- Ross A C, Caballero B, Cousins RJ, Tucker KL and Ziegler TR (2012) Modern Nutrition in Health and Disease. 11th Edition, LWW, Philadelphia.
- Whitney EN & Rolfels CR (2019) Understanding Nutrition. 15th Ed., West Publishing Company, USA.
- Stipanuk MH and Caudill MA (2013) Biochemical, Physiological and Molecular Aspects of Human Nutrition. 3rd Edition, Elsevier Pub.
- <https://www.nutritionintl.org>
- <https://www.who.int>
- <https://www.hsph.harvard.edu/nutritionsource>
- <http://www.nin.res.in>

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50
Prerequisites for the course:	
• Basic Human Nutrition • Fundamentals of Biochemistry • Human Physiology	
Course Learning Outcomes:	
By the end of this course, students will be able to:	
CO1: Describe structure, classification, roles, digestion, absorption, metabolism, and disorders of carbs, proteins, and lipids.	
CO2: Evaluate effects of fiber, resistant starch, and functional carbs on glycemia and disorder management.	
CO3: Assess lipid protein metabolic integration and regulation in relation to CVD, thermogenesis, and PEM.	
CO4: Analyze roles, requirements, metabolism, toxicity, and balance of vitamins, minerals, and water.	
CO5: Apply energy balance and RDA using assessment tools, Indian standards, and case studies.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: M.Sc. Honors in Food Science & Dietetics		Year: I
Class: I		Semester: I
Credits: 2		Subject: Advanced Pathophysiology Lab
Theory: 0		
Practical: 2		
Course Code: FSND-472P		Title: Advanced Pathophysiology Lab
Course Objectives: 1. Perform and interpret laboratory diagnostic tests related to altered physiological functions. 2. Correlate clinical signs, symptoms, and laboratory findings with disease pathology.		
Nature of Paper: Core Lab		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week = 2 Credits)		
Unit	Contents	No. of Lectures Allotted
Practical-	1. Cardiovascular Disease Risk Assessment: Interpret Patient Reports Including Lipid Profiles (Total, HDL, LDL, Triglycerides, VLDL), Blood Pressure, And Blood Glucose (HbA1c, Fasting Glucose) To Assess CVD Risk and Understand Atherosclerosis. 2. Cardiac Disorders: Heart Failure & MI: Interpret Cardiac Markers (Troponin, CK-MB, BNP) And Conceptual ECG/Echocardiogram Reports to Understand Congestive Heart Failure (CHF) And Myocardial Infarction (MI). Simulated Patient Reports, Case Studies. 3. Respiratory Disorders: PFTs & Lung Diseases: Interpret Pulmonary Function Tests (FVC, FEV1, FEV1/FVC, TLC, RV, DLCO) To Analyse Obstructive (Asthma, COPD) And Restrictive (Pneumonia, Pneumothorax) lung diseases. Simulated PFT Reports, Case Studies. 4. Cancer Pathophysiology & Tumor Markers: Understand Tumor Markers (PSA, CEA, CA-125, AFP, CA 19-9) And Genetic Concepts (Oncogenes, Tumor Suppressor Genes) In Cancer Diagnosis and Host Defence. Simulated Patient Reports, Case Studies. 5. Renal Disorders: CKD & Function Tests: Interpret Renal Function Tests (Creatinine, BUN, eGFR, Electrolytes, Urinalysis) To Stage Chronic Kidney Disease (CKD). Simulated Patient Reports, Case Studies (CKD, Acute Renal Failure). 6. Oesophageal & Gastric Disorders: Understand GERD, Hiatal	

	Hernia, Gastritis, And Peptic Ulcers, And the Role of Functional Assessments (E.G., Ph Monitoring, Endoscopy Concepts). Case Studies, Conceptual Test Findings. 7. Liver Disorders: LFTs & Hepatic Injury: Interpret Liver Function Tests (Bilirubin, AST, ALT, ALP, GGT, Albumin, PT/INR) To Understand Jaundice and Patterns of Hepatic Injury. Simulated Patient Reports, Case Studies (Hepatitis, Cirrhosis). 8. Advanced Liver, Gallbladder & Pancreatic Disorders: Understand Advanced Pathophysiology of Cirrhosis (With Complications), Gallbladder (Cholelithiasis, Cholecystitis), And Pancreatic (Pancreatitis) Disorders and Their Nutritional Management. Case Studies, Simulated Imaging Reports (Ultrasound). 9. Thyroid Disorders & TFTs: Interpret Thyroid Function Tests (TSH, FT3, FT4, Autoantibodies Concepts) To Understand Hyper- and Hypothyroidism and Their Nutritional Implications. Simulated Patient Reports, Case Studies (Hashimoto's, Graves'). 10. Diabetes Mellitus: Diagnosis & Management: Diagnose DM Types, Understand Metabolic Derangements and Complications, And Apply Nutritional Principles. Simulated Patient Reports (FPG, OGTT, Hba1c, C-Peptide, Antibodies, Micro albumin, Lipid Profile, Retinal Exam Concepts), Case Studies (Type 1, Type 2, Gestational DM, Complications).	
Reference / Text Books:		
• Baynes, J., and Dominiczak. M. (2002). Medical Biochemistry. London: Mosby • Thabrew, I. and Ayling. R.M. (2001). Biochemistry for Clinical Medicine. New Delhi: Replika Press Pvt Ltd. • Guyton, A.C., and Hall. J.E. (1996). Textbook of Medical Physiology (9th ed.). Bangalore: Prism Books Pvt. Ltd. • Cotran, R.S., Kumar, V., Robbins, S.L., and Schoen. F.J. (Ed.). (1994). Robbins Pathologic Basis of Disease (5th ed.). Bangalore: Prism Books Pvt. Ltd. • Devlin, T.M. (2002). (Ed.). Textbook of Biochemistry with Clinical Correlations. (5th ed.). New York: Wiley-Liss.		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/Sessional Examination		5
2) Presentations/Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total		50
Prerequisites for the course:		
• Basics of Biochemistry and Metabolism • Disease Processes (Basic Pathology & Immunology)		
Course Learning Outcomes:		
By the end of this course, students will be able to:		

CO1: Explain the pathophysiological basis of major diseases affecting different organ systems.
CO2: Demonstrate proficiency in performing advanced laboratory techniques used in pathophysiological assessment.
CO3: Interpret biochemical, hematological, and physiological parameters associated with disease states.
CO4: Analyze laboratory data to identify deviations from normal physiological functions.
CO5: Correlate experimental findings with clinical case scenarios for better diagnostic understanding.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: M.Sc. Honors in Food Science & Dietetics		Year: I
Class: I		Semester: I
Credits: 2		Subject: Research Trends in Nutrition and Dietetics Lab
Theory: 0		
Practical: 2		
Course Code: FSND-473AP		Title: Research Trends in Nutrition and Dietetics Lab
Course Objectives: 1. Understand and apply research processes relevant to nutrition and dietetics. 2. Develop competencies in scientific observation, experimentation, data collection, and analysis in nutrition research. 3. Familiarise with contemporary tools, methods, and emerging technologies used in nutrition/dietetics research.		
Nature of Paper: DSE Lab		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS	1. Identify a current nutrition issue, form a research question, and outline an approach. 2. Detect plagiarism in a given text, paraphrase, and cite correctly. 3. Design a hypothetical nutrition research study, justify design, address bias, and plan data collection. 4. Conduct a systematic database search, document strategy, and report relevant results. 5. Compare a peer-reviewed article with a popular source for credibility and rigor. 6. Present a recent impactful research finding, explaining its significance and implications. 7. Write a short report on a nutrition research technology, covering pros, cons, and future potential.	
Reference / Text Books: • Vegrove JA., Hodson L., Sharma S. and Lanham-New SA. (2015). Nutrition Research Methodologies (The Nutrition Society Textbook). • Wiley-Blackwell; 1st edition. Starks TP. (2006). Trends in Nutrition Research. Nova Science Publishers Inc 1st edition. Pounis G. (2018). • Analysis in Nutrition Research: Principles of Statistical Methodology and Interpretation of the		

Results. Academic Press Inc. Nelson M. (2020).

- Statistics in Nutrition and Dietetics. Wiley-Blackwell Chrzan J. and Brett J.(2017).
- Research methods for anthropological studies of food and nutrition. Berghahn Books Sreelathak NT. and Sreelatha K. (2021) Research ethics and plagiarism. Ess Ess Pubns. Guyton, A.C., and Hall. J.E. (1996).
- Textbook of Medical Physiology (9th ed.). Bangalore: Prism Books Pvt. Ltd.

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

Max. Marks-50

1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Prerequisites for the course:

- Introduction to Nutrition Science
- Statistics for Health Sciences

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Conduct literature searches, summarize scientific articles, and identify current research trends

CO2: Design and implement simple experimental protocols using appropriate methodologies (anthropometry, dietary analysis, biochemical assays, etc.).

CO3: Collect, record, analyze, and interpret quantitative and qualitative data using statistical tools.

CO4: Evaluate nutritional research studies critically for validity, reliability, strengths, and limitations.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: I

Programme: M.Sc. Honors in Food Science & Dietetics		Year: I
Class: I		Semester: I
Credits: 2 Theory: 0 Practical: 2		Subject: Innovation in Food Product Development Lab
Course Code: FSND-473B		Title: Innovation in Food Product Development Lab
Course Objectives: 1. To enhance students' ability to formulate, standardize, and modify food products to meet nutritional, sensory, and consumer needs. 2. To familiarize students with the use of novel ingredients, functional foods, and value-added food concepts. 3. To develop skills in sensory evaluation, quality assessment, and shelf-life studies of newly developed food products.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 3 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS	1. Market Survey: Identify 5 trending food products in Indian supermarkets and analyze ingredients. 2. Prototype Development: Formulate and develop a nutrition-based food product. 3. Conduct sensory tests (triangle, hedonic, QDA) for product development 4. Evaluate global case studies (e.g., adapting snacks or dairy for export).	
Reference / Text Books: • FSSAI Manuals & Guidelines (www.fssai.gov.in) • National Institute of Nutrition (NIN) – <i>Indian Food Composition Tables</i> • Fuller, G.W. (2016). <i>New Food Product Development</i>. CRC Press • Earle & Earle (2000). <i>Developing New Food Products for a Changing Marketplace</i> • Websites: <i>Start-up India, Eat Right India, NIFTEM, CFTRI, SIDBI</i>		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
Max. Marks-100		

1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50
Prerequisites for the course:	
• Basic knowledge of general terms of foods and nutrition. • Knowledge of basic food groups.	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Apply principles of food science and nutrition in the development of innovative and value-added food products. CO2: Formulate and standardize food products using traditional and novel ingredients while ensuring nutritional adequacy. CO3: Conduct sensory evaluation and quality analysis to assess acceptability of newly developed food products. CO4: Evaluate shelf life, safety, and basic packaging requirements for developed food products. CO5: Demonstrate creativity, teamwork, and documentation skills in food product development and presentation.	

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: M.Sc. Honors in Food Science & Dietetics		Year: I
Class: I		Semester: I
Credits: NC		Subject: SPORTS
Theory: NC		
Practical: NC		
Course Code: FSND-476		Title: SPORTS
Course Objectives: 1. To build essential interpersonal skills, including collaborative strategy, ethical sportsmanship, and disciplined goal setting within a team environment.		
Nature of Paper: SEC-6		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week=4 Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are encouraged to engage in a diverse range of indoor and outdoor recreational activities, such as carrom, chess, and various team sports, to promote physical well-being and strategic thinking.	-
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		25
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Execute specialized skills, techniques, and tactical strategies in at least two selected indoor or outdoor sports.		

IIMTU-NEP IMPLEMENTATION
Year: I/ Semester: I

Programme: M.Sc. Honors in Food Science & Dietetics		Year: I
Class: I		Semester: I
Credits: NC		Subject: PROFESSIONAL SKILLS
Theory: NC		
Practical: NC		
Course Code: FSND-477		Title: PROFESSIONAL SKILLS
Course Objectives: 1. Students will learn basic communication, interpersonal skills, and positive personality development.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 1 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 1 Hrs.=1Credit (4Hrs./Week=4 Credits)		
Unit	Contents	No. of Lectures Allotted
	• Introduction, meaning, and importance of soft skills in academic and professional life. • Communication skills, interpersonal skills, and personality development for effective behavior. Presentation skills, time management, and stress management. • Leadership skills, teamwork, problem-solving, and decision-makingCareer readiness, professional ethics, work values, and workplace etiquette.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Exhibit professional behavior, ethical values, and confidence required for career development and lifelong learning.		

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: M.Sc. Honors in Food Science & Dietetics		Year: I
Class: I		Semester: I
Credits: NC		Subject: INDUSTRIAL VISIT/SEMINAR PRESENTATION ON THE REPORT
Theory: NC		
Practical: NC		
Course Code: FSND-478		Title: INDUSTRIAL VISIT/SEMINAR PRESENTATION ON THE REPORT
Course Objectives: 1. Develop skills to observe, record, and analyze industrial processes effectively.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 1 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=4 Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are required to deliver a formal report detailing their key observations, technical insights, and professional assessments gathered during the industrial visit.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Identify community needs and explore university–community partnership opportunities. CO2: Participate in volunteer activities and document experiences for reflection.		

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: I

Programme: M.Sc. Honors in Food Science & Dietetics		Year: I
Class: I		Semester: I
Credits: NC		Subject: UNIVERSITY SOCIAL RESPONSIBILITY
Theory: NC		
Practical: NC		
Course Code: FSND-479		Title: UNIVERSITY SOCIAL RESPONSIBILITY
Course Objectives:		
1) To generate awareness of social, ethical, and environmental responsibilities.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 1		
T: 0		
P: 0 (In Hours/Week)- 0		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
	Community Engagement University–community partnerships. Basics of volunteering and service learning. Identifying local community needs. Activity: Field visit to NGOs or schools.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes:		
CO1: Analyze environmental challenges and promote sustainable campus practices.		
CO2: Implement eco-friendly initiatives like waste management and tree plantation.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: M.Sc. in Food Science & Dietetics		Year: I
Class: I		Semester: II
Credits: 3		Subject: Food Toxicology and Safety
Theory: 3		
Practical: 0		
Course Code: FSND-481		Title: Food Toxicology and Safety
Course Objectives: 1. To understand how harmful substances in food affect human health. 2. To identify and evaluate food toxins from natural, chemical, and microbial sources. 3. To learn food safety practices and regulations to ensure safe food consumption.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Food Toxicology and Principles • Definition, scope, and history of food toxicology • Types of food toxicants (natural vs. synthetic) • Dose-response concepts (LD50, NOAEL, etc.) • Exposure types: acute vs. chronic • ADME (Absorption, Distribution, Metabolism, Excretion) • Risk assessment, toxicity testing, and safety evaluation methods	12
II	Natural Toxins and Biological Contaminants • Plant toxins: alkaloids, glycosides, lectins, phytates, oxalates • Animal toxins: shellfish, pufferfish, scombroid toxins • Microbial toxins: mycotoxins (aflatoxins, ochratoxin, etc.), bacterial toxins • Sources, detection methods, and control strategies	12
III	Chemical Contaminants and Environmental Pollutants • Pesticide and veterinary drug residues in food • Heavy metals: lead, mercury, arsenic • Industrial pollutants: POPs, PCBs, PAHs • Processing contaminants: acrylamide, AGEs, benzene • Control measures and safety regulations	12
IV	Food Additives and Packaging Contaminants • Toxicology of food additives: preservatives, colours, sweeteners, flavour enhancers • Acceptable Daily Intake (ADI) and safety limits	12

	• Packaging materials and chemical migration (e.g. BPA, phthalates) • Indirect additives: cleaning agents, processing aids • Regulations and safety evaluation of food contact materials	
V	Food Safety Management and Risk Communication • HACCP principles and food safety systems • ISO 22000 and prerequisite programs (GMP, GHP) • Genetically modified foods and novel food safety • Food fraud, nanotechnology, and climate-related food risks • Risk assessment, regulatory bodies (FSSAI, Codex), and public communication	12
Reference / Text Books: • Helferich, W.G. & Winter, C.K. (2001). <i>Food Toxicology</i>. CRC Press • Omaye, S.T. (2004). <i>Food and Nutritional Toxicology</i>. CRC Press • Schmidt, R.H. & Rodrick, G.E. (2002). <i>Food Safety Handbook</i>. Wiley • WHO/FAO publications on food safety and mycotoxins • FSSAI manuals on pesticide residues and mycotoxin analysis • Current research articles from journals like <i>Food and Chemical Toxicology</i> and <i>Journal of Food Protection</i>		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course: • Basic knowledge of human physiology and metabolism • Understanding of food chemistry and composition • Familiarity with microbiology and food processing principles		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Identify and analyse food toxicants and their health effects. CO2: Assess safety of foods with natural or chemical contaminants. CO3: Apply sampling and testing methods for toxicant detection. CO4: Implement HACCP and other systems to prevent contamination. CO5: Understand regulations and communicate toxicology risks effectively.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: M.Sc. in Food Science & Dietetics		Year: I
Class: I		Semester: II
Credits: 3		Subject: Institutional Food Service Management
Theory: 3		
Practical: 0		
Course Code: FSND-482		Title: Institutional Food Service Management
Course Objectives:		
1. Understand the principles of food service management and operational control in institutions.		
2. Gain skills in large-scale food production and quality assurance.		
3. Learn planning, organizing, staffing, budgeting, and evaluating food service operations.		
4. Develop proficiency in menu planning, food purchasing, cost control, and waste management.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Institutional Food Services a) Definition and scope of food service b) Types of institutional food services (hospital, school, hostel, etc.) c) Types of food service systems (conventional, commissary, ready-prepared, assembly-serve) d) Roles and responsibilities of food service managers and dietitians	7
II	Kitchen Planning and Equipment a) Kitchen layout and work area design b) Equipment: types, use, and maintenance c) Workflow, work simplification d) Sanitation and hygiene practices	7
III	Menu Planning and Standardization a) Types of menus (cyclic, selective, a la carte, table d’hôte) b) Nutritional, economic, and cultural considerations c) Principles of menu planning d) Recipe standardization e) Portion control and food acceptability	8
IV	Quantity Food Production and Service a) Bulk cooking methods and techniques b) Reheating, holding, and food transport c) Styles of food service: cafeteria, buffet, tray, etc. d) Factors affecting food quality and safety in large-scale cooking	8

V	Food Costing and Budgeting and Human Resource and Legal Aspects a) Components of food cost b) Budgeting principles for food service Cost control methods c) Purchasing methods and vendor selection d) Inventory and waste management e) Organizational structure and staffing in food services f) Training, motivation, leadership g) Ethics and labor laws in food service h) Food laws and standards: FSSAI, HACCP, ISO, Codex	11
Reference / Text Books: - Sethi, M. (2011). <i>Institutional food management</i>. New Age International. - West, B. B., Wood, L., Harger, V. F., & Shugart, G. S. (2013). <i>Food service in institutions</i>. PHI Learning Pvt. Ltd. - Payne-Palacio, J., & Theis, M. (2015). <i>Foodservice management: Principles and practices</i> (13th ed.). Pearson. - Mudambi, S. R., & Rajagopal, M. V. (2015). <i>Fundamentals of foods, nutrition and diet therapy</i>. New Age International. - Gisslen, W. (2018). <i>Professional cooking for Canadian chefs</i> (9th ed.). Wiley.		
If the course is available as Generic Elective then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course: - Basic knowledge of general terms of foods and nutrition. - Knowledge of basic food groups.		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Explain various food service systems and their operations in institutional settings. CO2: Design a functional kitchen layout with appropriate equipment and safety standards. CO3: Plan, standardize, and cost menus for diverse institutional needs. CO4: Demonstrate skills in large-scale food preparation, service, and hygiene management. CO5: Manage human and financial resources effectively in a food service institution.		

IIMTU-NEP IMPLEMENTATION
Year: I/ Semester: II

Programme: M.Sc. in Food Science & Dietetics		Year: I
Class: I		Semester: II
Credits: 3		Subject: Advanced Biochemistry
Theory: 3		
Practical: 0		
Course Code: FSND-483A		Title: Advanced Biochemistry
Course Objectives: 1. Provide an in-depth understanding of biomolecular structure, function, and regulation. 2. Explain advanced metabolic pathways and their integration in health and disease. 3. Explore the biochemical basis of nutrient–gene interactions and nutrigenomics. 4. Apply biochemical principles in clinical and food science research contexts. 5. Develop proficiency in modern biochemical techniques and instrumentation.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Advanced Carbohydrate Biochemistry • Structural diversity and functional roles of complex carbohydrates. • Glycoproteins, proteoglycans, and glycolipids in cell recognition. • Advanced glycation end-products (AGEs) and their nutritional implications. • Regulation of carbohydrate metabolism – hormonal control (insulin, glucagon, epinephrine). • Integration of glycolysis, gluconeogenesis, pentose phosphate pathway, and TCA cycle.	11
II	Lipid Metabolism & Signaling • Lipidomics: classification, structure, and functional lipids in membranes. • Eicosanoids, prostaglandins, and leukotrienes – synthesis and roles. • β-oxidation, ketogenesis, and regulation of lipid metabolism. • Lipid-mediated signaling pathways in nutrition-related disorders. • Nutritional modulation of lipid profiles and cardiovascular health.	9
III	Protein & Enzyme Biochemistry • Protein structure–function relationships; folding and misfolding (amyloids, prions). • Post-translational modifications and their nutritional regulation. • Proteolysis in health and disease (ubiquitin–proteasome system,	12

	autophagy). - Enzyme kinetics (single- and multi-substrate reactions) and regulation. - Enzyme inhibition in drug design and nutraceutical development.	
IV	Vitamins, Minerals & Cofactor Biochemistry - Molecular roles of vitamins and minerals as enzyme cofactors. - Vitamin–gene interactions and epigenetic regulation. - Mineral metabolism disorders – biochemical and clinical implications. - Antioxidant defence mechanisms – role of micronutrients. - Nutritional modulation of oxidative stress pathways.	12
V	Molecular & Clinical Biochemistry Applications - Nutrigenomics and nutriproteomics – tools and case studies. - Signal transduction pathways relevant to nutrition (MAPK, PI3K/Akt, NF-κB). - Clinical biochemistry of metabolic diseases (diabetes, metabolic syndrome, CVD). - Metabolomics in nutrition research – data analysis and interpretation. - Advanced biochemical markers for nutritional assessment.	12
Reference / Text Books: - Nelson, D. L., & Cox, M. M. (2021). <i>Lehninger Principles of Biochemistry</i> (8th ed.). W. H. Freeman. - Voet, D., Voet, J. G., & Pratt, C. W. (2018). <i>Fundamentals of Biochemistry</i> (5th ed.). Wiley. - Devlin, T. M. (2011). <i>Textbook of Biochemistry with Clinical Correlations</i> (7th ed.). Wiley. - Campbell, M. K., & Farrell, S. O. (2020). <i>Biochemistry</i> (9th ed.). Cengage Learning. - Gropper, S. S., & Smith, J. L. (2020). <i>Advanced Nutrition and Human Metabolism</i> (8th ed.). Cengage Learning. - Gibney, M. J., et al. (2021). <i>Nutrition and Metabolism</i> (3rd ed.). Wiley-Blackwell		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course: - Fundamentals of Nutrition - Human Biology/Physiology - Biochemistry - Research Methods		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Analyze biochemical pathways and their integration in metabolic regulation. CO2: Interpret advanced biochemical data in clinical and nutritional contexts. CO3: Apply molecular biochemistry concepts to food and health research. CO4: Use advanced biochemical techniques for nutrient and metabolite analysis. CO5: Critically evaluate current research in biochemistry and nutrition science.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: M.Sc. in Food Science & Dietetics		Year: I
Class: I		Semester: II
Credits: 3		Subject: Nutrition Assessment Methods and Applications
Theory: 3		
Practical: 0		
Course Code: FSND-483B		Title: Nutrition Assessment Methods and Applications
Course Objectives: 1. Understand the basics of nutritional assessment and its ethical principles. 2. Learn how to collect and analyse a person's dietary information. 3. Accurately measure body size and composition and interpret growth charts. 4. Interpret lab results to check for nutrient deficiencies. 5. Combine different assessment methods to evaluate a person's nutritional health.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Foundations of Nutritional Assessment a) Introduction to Assessment: Definition, importance, and historical context of nutritional assessment. b) Assessment Principles: The Nutrition Care Process (NCP), direct vs. indirect methods, and ethical considerations. c) Planning & Quality: Study design, data management, and quality control.	12
II	Dietary Assessment Methods a) Dietary Intake: Principles and challenges of assessing food intake. b) Assessment Methods: Retrospective (24-hour recall, FFQ) and prospective (food records) techniques. c) Modern Tools: Use of digital apps, web platforms, and food composition databases.	12
III	Anthropometric Assessment & Body Composition a) Basic Measurements: Techniques for height, weight, BMI, and circumferences. b) Body Composition: Theory of fat mass and fat-free mass. c) Advanced Methods: Principles of Bioelectrical Impedance Analysis (BIA) and DXA. d) Applications: Interpreting growth charts and assessing different	12

	populations.	
IV	Biochemical Assessment a) Lab Principles: Role of biochemical markers and types of lab specimens. b) Biomarkers: Assessing protein, energy, and micronutrient status (vitamins, minerals). c) Advanced Techniques: An overview of metabolomics and point-of-care testing.	12
V	Clinical & Integrated Assessment a) Clinical Methods: Physical examinations for signs of malnutrition and functional assessments. b) Integrated Approach: Combining different methods and using screening tools (e.g., MUST, SGA). c) Practical Applications: Assessment for children, the elderly, and specific disease states.	12
Reference / Text Books: 1. Principles of Nutritional Assessment (3 rd Edition) – Gibson. 2. Nutritional Assessment (6th Edition) - Lee & Nieman. 3. Research Methods in Nutrition and Dietetics - Palermo & Wilson. 4. FAO Dietary Assessment Guidelines. 5. WHO Anthropometric Reference Standards. 6. National dietary assessment tools and databases. 7. Professional assessment software and applications.		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course: - Fundamentals of Nutrition - Human Biology/Physiology - Biochemistry - Research Methods		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Evaluate principles, benefits, and limitations of nutritional assessment methods. CO2: Choose suitable assessment techniques for specific populations, settings, and research goals. CO3: Perform dietary, anthropometric, biochemical, and clinical assessments accurately. CO4: Interpret assessment data using relevant standards and cut-off points. CO5: Combine multiple assessment methods for a comprehensive nutritional evaluation.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: M.Sc. in Food Science & Dietetics		Year: I
Class: I		Semester: II
Credits: 3		Subject: Research Publication And Ethics
Theory: 3		
Practical: 0		
Course Code: FSND-484		Title: Research Publication And Ethics
Course Objectives: 1. Understand Ethical Foundations 2. Develop Academic Writing Skills 3. Analyze Ethical Violations 4. Prevent and Detect Plagiarism		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	PHILOSOPHY, ETHICS AND SCIENTIFIC CONDUCT • Introduction to Philosophy • Origin of Philosophy • Characteristics of Philosophy • Common sense and Philosophy • Relationship between Philosophy& Science • Ethics with respect to science and research • Intellectual honesty and research integrity • Scientific misconducts: Falsification, Fabrication and Plagiarism (FFP) • Redundant publications: duplicate and overlapping publications, salami slicing • Selective reporting and misrepresentation of data	7
II	Publication Ethics • Publication ethics: definition, introduction and importance • Best practices/standards setting initiatives and guidelines: COPE, WAME etc. • Conflicts of interest • Publication misconduct: Definition, concept, problems that lead to unethical behavior and vice versa, types • Violation of publication ethics, authorship and contributorship	7

	• Identification of publication misconduct, complaints and appeals • Predatory publishers and journals	
III	Open Access Publishing • Open access publications and initiatives • SHERPA/RoMEO online resource to check publisher copyright & self-archiving policies • Software tool to identify predatory publications developed by SPPU: UGC-CARE list of journals • Journal finder/journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc.	8
IV	Publication Misconduct Group discussions • Subject specific ethical issues, FFP, authorship • Conflicts of interest • Complaints and appeals: examples and fraud from India and abroad Software tools • Use of reference management software like Mendeley, Zotero etc. and anti-plagiarism software like Turnitin, Urkund	8
V	Databases and research metrics • Databases • Indexing databases • Citation databases: Web of Science, Scopus etc. • Research Metrics • Impact factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score • Metrics: h-index, g-index, i-10 index, altmetrics	11

Reference / Text Books:

- Bailey, S. (2015). *The essentials of academic writing for international students*. Routledge.
- Beall, J. (2012). Predatory publishers are corrupting open access. *Nature*, 489 (7415), 179-179. <https://doi.org/10.1038/489179a>
- Belcher, W.L. (2019). *Writing your journal article in twelve weeks* (2nd ed.). The University of Chicago Press.
- Bird, A. (2006). *Philosophy of Science*. Routledge.
- Macintyre, A. (1967). *A short history of ethics*. Routledge and Kegan Paul.
- Chaddah, P. (2018) *Ethics in competitive research: Do not get scooped; Do not get plagiarized*. [This is based on a talk at the UGC Workshop on Academic Integrity]
- Awareness at The M.S. University of Baroda, 2019. It will form a chapter in the book to be published. A video of the actual talk is available at <https://drive.google.com/file/d/1wldtgNIZpW9F7ZT6yj2DjBGj0ZYyVrD1/viewchaddah.praveen@gmail.com>
- National Academy of Sciences, National Academy of Engineering and Institute of Medicine. (2009). *On being a scientist: a guide to responsible conduct in research* (3rd ed.). National Academies Press.
- Osmond, A. (2015). *Academic writing and grammar for students*. Sage.
- Resnik, D. B. (2011). *What is ethics in research and why is it important*. National
- Institute of Environmental Health Sciences, pp. 1-10. Retrieved from

<https://www.niehs.nih.gov/research/resources/bioethics/whatis/index.cfm>

- Indian National Science Academy (INSA). *Ethics in science education, research and governance* (2019), ISBN:978-81-939482-1-7. [http://www.insaindia.res.in/pdf/Ethics Book.pdf](http://www.insaindia.res.in/pdf/Ethics%20Book.pdf)
- Strunk, W., Jr., & White, E.B. (1959). *The elements of style*. Macmillan.
- Wolcott, H.F. (1990). *Writing up qualitative research. Qualitative research methods series* (Vol. 20). Sage.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

Max. Marks-100

1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Prerequisites for the course:

- Students should have a foundational understanding of basic research methodologies and principles of ethics.

Course Learning Outcomes:

By the end of this course, students will be able to:

1. Understand research ethics and identify scientific misconduct (FFP).
2. Apply publishing ethics and avoid predatory journals.
3. Use tools for open access and credible journal selection.
4. Employ reference managers and anti-plagiarism software.
5. Evaluate journals using databases and Impact Factor.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: M.Sc. in Food Science & Dietetics		Year: I
Class: I		Semester: II
Credits: 2		Subject: Scientific Writing Skills
Theory: 2		
Practical: 0		
Course Code: FSND-485		Title: Scientific Writing Skills
Course Objectives: • To orient students with current concepts in Human Nutrition • To Know about the Emerging trends in Nutrition		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits THEORY+Sessional		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Scientific Writing • Meaning and importance of scientific writing • Characteristics of good scientific writing: clarity, precision, and objectivity • Differences between scientific writing and general writing • Types of scientific documents (research papers, reports, theses, review articles) • Ethical considerations in scientific writing	06
II	Structure of Scientific Documents • Basic structure of a scientific paper (IMRAD format: Introduction, Methods, Results, and Discussion) • Writing an effective title and abstract • Organization of introduction and literature background • Presentation of materials and methods • Writing results and discussion sections	12
III	Literature Review and Referencing • Purpose and importance of literature review • Searching scientific literature using databases and online sources • Organizing and summarizing research findings • Citation and referencing styles (APA, MLA, Vancouver, etc.) • Avoiding plagiarism and maintaining academic integrity	10
IV	Data Presentation and Scientific Language • Presenting data using tables, graphs, and charts	8

	• Writing clear descriptions of results • Use of appropriate scientific language and terminology • Avoiding ambiguity and unnecessary words • Proofreading and editing scientific documents	
V	Publishing and Communicating Research • Preparing manuscripts for journals • Basics of peer review and publication process • Writing conference papers and presentations • Preparing posters and oral presentations • Responding to reviewers and revising manuscripts	8
Reference / Text Books: • Greene, A. E. (2013). <i>Writing science in plain English</i>. University of Chicago Press. • Schimel, J. (2012). <i>Writing science: How to write papers that get cited and proposals that get funded</i>. Oxford University Press. • Silvia, P. J. (2018). <i>How to write a lot: A practical guide to productive academic writing</i> (2nd ed.). American Psychological Association. • Swales, J. M., & Feak, C. B. (2012). <i>Academic writing for graduate students: Essential tasks and skills</i> (3rd ed.). University of Michigan Press. • Day, R. A., & Gastel, B. (2016). <i>How to write and publish a scientific paper</i> (8th ed.). Greenwood.		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/ Sessional Examination		5
2) Presentations /Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total		50
Prerequisites for the course: • Research writing skills		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Understand the principles and structure of scientific writing. CO2: Develop skills to review literature and cite sources properly. CO3: Present research data clearly and effectively. CO4: Prepare scientific manuscripts and research reports. CO5: Communicate research findings in academic platforms.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: M.Sc. in Food Science & Dietetics		Year: I
Class: I		Semester: II
Credits: 2		Subject: Food Toxicology and Safety Lab
Theory: 0		
Practical: 2		
Course Code: FSND-481P		Title: Food Toxicology and Safety Lab
Course Objectives: 1. To provide fundamental understanding of food toxicology, including sources, mechanisms, and health effects of food toxicants. 2. To develop skills in identifying, assessing, and managing toxicological risks in foods using regulatory and safety principles.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1 Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
Practical	1. Study the basic concepts, scope, and historical development of food toxicology through case-based discussions. 2. Identify and classify natural and synthetic food toxicants using food samples and literature review. 3. Demonstrate dose–response relationships by interpreting LD ₅₀ , NOAEL, and ADI data from toxicity studies. 4. Examine acute and chronic exposure scenarios and their health impacts using simulated datasets. 5. Illustrate ADME processes of food toxicants through flowcharts and model experiments. 6. Detect common plant, animal, and microbial toxins using standard laboratory or rapid test methods. 7. Analyze pesticide residues, heavy metals, and environmental pollutants in foods using case studies. 8. Evaluate the toxicological safety of food additives and packaging contaminants based on regulatory limits. 9. Apply HACCP principles to identify and control toxicological hazards in selected food products. 10. Prepare a risk assessment and communication report following FSSAI and Codex guidelines.	
Reference / Text Books: • Helferich, W.G. & Winter, C.K. (2001). <i>Food Toxicology</i> . CRC Press		

- Omaye, S.T. (2004). *Food and Nutritional Toxicology*. CRC Press
- Schmidt, R.H. & Rodrick, G.E. (2002). *Food Safety Handbook*. Wiley
- WHO/FAO publications on food safety and mycotoxins
- FSSAI manuals on pesticide residues and mycotoxin analysis
- Current research articles from journals like *Food and Chemical Toxicology* and *Journal of Food Protection*

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology

Max. Marks-50

1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Prerequisites for the course:

- Basic knowledge of human physiology and metabolism
- Understanding of food chemistry and composition
- Familiarity with microbiology and food processing principles

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: To classify food toxicants and explain their toxicokinetic and toxicodynamic effects.

CO2: To assess food safety risks using dose–response data, ADI values, and regulatory standards.

CO3: To apply food safety management systems and communicate toxicological risks effectively

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: M.Sc. in Food Science & Dietetics		Year: I
Class: I		Semester: II
Credits: 2 Theory: 0 Practical: 2		Subject: Institutional Food Service Management Lab
Course Code: FSND-482P		Title: Institutional Food Service Management Lab
Course Objectives: 1. To provide hands-on training in planning, organizing, and managing institutional food services. 2. To develop managerial skills related to food safety, cost control, and quality assurance.		
Nature of Paper: Core Lab		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
	1. Study the organization, layout, and workflow of institutional food service systems. 2. Plan menus for different institutions based on nutritional and budgetary requirements. 3. Standardize recipes and calculate food quantities for large-scale food production. 4. Practice purchasing procedures, vendor selection, and inventory control methods. 5. Apply principles of food cost control and budgeting in institutional settings. 6. Demonstrate safe food handling, storage, and sanitation practices. 7. Implement quality control and portion control techniques during food service. 8. Evaluate equipment selection, maintenance, and energy efficiency in kitchens. 9. Apply HACCP and food safety regulations in institutional food service operations. 10. Assess customer satisfaction and service quality using feedback tools.	
Reference / Text Books: • Sethi, M. (2011). <i>Institutional food management</i>. New Age International. • West, B. B., Wood, L., Harger, V. F., & Shugart, G. S. (2013). <i>Food service in institutions</i>. PHI Learning Pvt. Ltd.		

- Payne-Palacio, J., & Theis, M. (2015). *Foodservice management: Principles and practices* (13th ed.). Pearson.
- Mudambi, S. R., & Rajagopal, M. V. (2015). *Fundamentals of foods, nutrition and diet therapy*. New Age International.
- Gisslen, W. (2018). *Professional cooking for Canadian chefs* (9th ed.). Wiley.

If the course is available as Generic Elective then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50
Prerequisites for the course:	
• Basic knowledge of general terms of foods and nutrition. • Knowledge of basic food groups.	
Course Learning Outcomes:	
By the end of this course, students will be able to:	
CO1: Classify food toxicants and explain their toxicological effects.	
CO2: Interpret toxicity data and regulatory safety limits accurately.	
CO3: Evaluate chemical, biological, and environmental food contamination risks.	
CO4: Implement food safety management systems for toxicological control.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: M.Sc. in Food Science & Dietetics		Year: I
Class: I		Semester: II
Credits: 2		Subject: Advanced Biochemistry Lab
Theory: 0		
Practical: 2		
Course Code: FSND-483AP		Title: Advanced Biochemistry Lab
Course Objectives: 1. To provide a practical understanding of food toxicology concepts and food contaminants. 2. To develop skills in evaluating toxicological risks and food safety measures.		
Nature of Paper: DSE Lab		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L:2 T:0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
PRACTICALS	1. Study the basic concepts, scope, and importance of food toxicology through practical examples. 2. Identify and classify natural and synthetic toxicants present in different food materials. 3. Interpret dose response relationships using LD ₅₀ , NOAEL, and ADI values. 4. Analyse acute and chronic exposure scenarios using dietary intake models. 5. Demonstrate absorption, distribution, metabolism, and excretion of food toxicants. 6. Detect plant, animal, and microbial toxins using standard laboratory or rapid tests. 7. Assess pesticide residues and heavy metal contamination through case studies. 8. Evaluate the safety of food additives based on regulatory standards. 9. Examine food packaging materials for potential chemical migration risks. 10. Apply HACCP principles to identify and control toxicological hazards in foods.	
Reference / Text Books: • Nelson, D. L., & Cox, M. M. (2021). <i>Lehninger Principles of Biochemistry</i> (8 th ed.). W. H. Freeman.		

- Voet, D., Voet, J. G., & Pratt, C. W. (2018). *Fundamentals of Biochemistry* (5th ed.). Wiley.
- Devlin, T. M. (2011). *Textbook of Biochemistry with Clinical Correlations* (7th ed.). Wiley.
- Campbell, M. K., & Farrell, S. O. (2020). *Biochemistry* (9th ed.). Cengage Learning.
- Gropper, S. S., & Smith, J. L. (2020). *Advanced Nutrition and Human Metabolism* (8th ed.). Cengage Learning.
- Gibney, M. J., et al. (2021). *Nutrition and Metabolism* (3rd ed.). Wiley-Blackwell.

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-100
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100

Prerequisites for the course:

- Fundamentals of Nutrition
- Human Biology/Physiology
- Biochemistry
- Research Methods

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Students will be able to identify and classify major food toxicants.

CO2: Students will be able to interpret toxicity data and safety limits.

CO3: Students will be able to assess chemical and biological contamination risks in foods.

CO4: Students will be able to apply food safety systems for toxicological hazard control.

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: M.Sc. in Food Science & Dietetics		Year: I
Class: I		Semester: II
Credits: 2		Subject: Nutrition Assessment Methods and Applications Lab
Theory: 0		
Practical: 2		
Course Code: FSND-483BP		Title: Nutrition Assessment Methods and Applications Lab
Course Objectives: 1. To develop practical skills in applying dietary, anthropometric, biochemical, and clinical nutrition assessment methods. 2. To train students to integrate assessment data for accurate nutritional evaluation in diverse populations		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 2 T: 0 P: (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
Practical	1. Conducting 24-hour dietary recalls and food records 2. Using food composition databases and calculation software 3. Digital dietary assessment tool demonstration 4. Portion size estimation training using food models 5. Anthropometric measurement techniques (height, weight, circumferences, skinfolds) 6. BIA and other body composition assessment demonstrations 7. Growth chart plotting and interpretation 8. Anthropometric data analysis using reference standards 9. Integrated case study analyses 10. Clinical examination and documentation practice 11. Assessment report preparation and presentation	
Reference / Text Books: 1. Principles of Nutritional Assessment (3 rd Edition) - Gibson 2. Nutritional Assessment (6 th Edition) - Lee & Nieman 3. Research Methods in Nutrition and Dietetics - Palermo & Wilson 4. FAO Dietary Assessment Guidelines 5. WHO Anthropometric Reference Standards 6. National dietary assessment tools and databases 7. Professional assessment software and applications		
If the course is available as Generic Elective, then the students of following departments may opt it.		

Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/Sessional Examination	5
2) Presentations/Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50
Prerequisites for the course:	
- Fundamentals of Nutrition - Human Biology/Physiology	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: To Practically evaluate principles, benefits, and limitations of nutritional assessment methods. CO2: To analyze and interpret biochemical and clinical indicators of nutritional status. CO3: To use digital tools and databases for nutrition assessment and data management. CO4: Interpret assessment data using relevant standards and cut-off points. CO5: To apply integrated assessment findings to nutrition care planning and decision-making.	

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: M.Sc. in Food Science & Dietetics		Year: I
Class: I		Semester: II
Credits: 2 Theory: 2 Practical: 0		Subject: MOOC/NPTEL, E/IPR
Course Code: FSND-VAC-485		Title: MOOC/NPTEL, E/IPR
Course Objectives: 1. To make acquainted students with online learning platforms and fundamentals of Intellectual Property Rights for academic and profession advancement.		
Nature of Paper: SEC-15		
Minimum Passing Marks/Credits: 40% Marks / 2 Credit (NPTEL Certificate)		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
	MOOC/NPTEL and E/IPR courses enhance value addition by offering flexible, industry-relevant learning, enabling students to strategically select subjects aligned with career goals.	-
If the course is available as Generic Elective then the students of following departments may opt it		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/Sessional Examination		50
2) Presentations/Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		50
Course Learning Outcomes: CO1: To utilize MOOC/NPTEL platforms and apply basic IPR concepts in research, innovation, and career planning.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: M.Sc. in Food Science & Dietetics		Year: I
Class: I		Semester: II
Credits: 1		Subject: SPORTS
Theory: 0		
Practical: 1		
Course Code: SPWC-481		Title: SPORTS
Course Objectives: 1. To build essential interpersonal skills, including collaborative strategy, ethical sportsmanship, and disciplined goal setting within a team environment.		
Nature of Paper: SEC-6		
Minimum Passing Marks/Credits: 50% Marks / 1 Credit (PRACTICAL)		
L: 0 T: 0 P: 1 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are encouraged to engage in a diverse range of indoor and outdoor recreational activities, such as carrom, chess, and various team sports, to promote physical well-being and strategic thinking.	-
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		-
3) Assignments		50
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		50
Course Learning Outcomes: CO1: Execute specialized skills, techniques, and tactical strategies in at least two selected indoor or outdoor sports.		

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: M.Sc in Food Science & Dietetics		Year: I
Class: I		Semester: II
Credits: 4		Subject: Seminar/Industrial Training/Research
Theory: 0		
Practical: 4		
Course Code: FSND-486		Title: Seminar/Industrial Training/Research
Course Objectives:		
1. Students will learn basic communication, interpersonal skills, and positive personality development.		
Nature of Paper: Industrial Training/Survey/Research Project		
Minimum Passing Marks/Credits: 50% Marks / 4 Credit (PRACTICAL)		
L: 0		
T: 0		
P: 1 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 1 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Seminar, Industrial Training, and Research focus on practical exposure, critical analysis, independent study, industry interaction, and professional skill development.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes:		
CO1: Exhibit professional behavior, ethical values, and confidence required for career development and lifelong learning.		

IIMTU-NEP IMPLEMENTATION
Year: I / Semester: II

Programme: M.Sc. in Food Science & Dietetics		Year: I
Class: I		Semester: II
Credits: NC		Subject: INDUSTRIAL VISIT
Theory: NC		
Practical: NC		
Course Code: FSND-487		Title: INDUSTRIAL VISIT
Course Objectives:		
1. Develop skills to observe, record, and analyze industrial processes effectively.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 0		
T:0		
P: 1 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are required to deliver a formal report detailing their key observations, technical insights, and professional assessments gathered during the industrial visit.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes:		
CO1: Identify community needs and explore university–community partnership opportunities.		
CO2: Participate in volunteer activities and document experiences for reflection.		

IIMTU-NEP IMPLEMENTATION

Year: I / Semester: II

Programme: M.Sc. in Food Science & Dietetics		Year: I
Class: I		Semester: II
Credits: NC		Subject: UNIVERSITY SOCIAL RESPONSIBILITY
Theory: NC		
Practical: NC		
Course Code: FSND-488		Title: UNIVERSITY SOCIAL RESPONSIBILITY
Course Objectives:		
1. To generate awareness of social, ethical, and environmental responsibilities.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 1		
T: 0		
P: (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
	Community Engagement University–community partnerships. Basics of volunteering and service learning. Identifying local community needs. Activity: Field visit to NGOs or schools.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes:		
CO1: Analyze environmental challenges and promote sustainable campus practices.		
CO2: Implement eco-friendly initiatives like waste management and tree plantation.		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: M.Sc.in Food Science, Nutrition & Dietetics.		Year: II
Class: II		Semester: III
Credits: 3		Subject: Precision Nutrition
Theory: 3		
Practical: 0		
Course Code: FSND-591		Title: Precision Nutrition
Course Objectives:		
1. Integrate the concept of DNA, micro biome & metabolic responses to specific foods or dietary patterns, to determine personalized eating plan for wellness and illness.		
2. Describe the principles of precision nutrition & medicine, focusing on the interaction between nutrients and human/microbial genes.		
3. Identify genetic backgrounds contributing to individual differences in macro- and micronutrient metabolism		
4. Comprehend the biochemical, physiological and molecular aspects of energy metabolism and inflammatory pathways that play a crucial role in the pathogenesis of metabolic diseases, including roles of diet and dietary components		
5. Apply the concept of nutrigenetics for designing clinical nutrition therapies and diet plans for disease management.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Introduction to Precision Nutrition and Nutritional Genomics (a) The Human Genome - Introduction, Study (b) Definition of various terms- Precision Nutrition & Personalized Nutrition (c) Nutrigenomics (d) Nutrigenetics (e) Exposome (f) Epigenetics (g) Gene variations (h) Mutations (i) Epigenetics vs Epigenomics (j) Genotype & Phenotype (k) SNP, Differences between SNPs, Mutations and CNVs, (l) The Genome of Rare and Complex Diseases	12

II	Precision Medicine (a) Influence of Genetics and Environmental Factors in Complex Diseases (b) Gene- Nutrient Interaction (c) Need for Precision: The problem of Missing Heritability (d) Concept of Interaction Precision Nutrition vs. Community Nutrition (e) Current Basis of Nutritional Research Experimental Designs in Precision Nutrition (f) Omics Technologies and their Biomarkers (g) Epigenomics (h) Proteomics (i) Metabolomics (j) Metagenomics (k) Functional Genomic (l) Nutrigenetics	12
III	SNPs Associated with Nutrition-Related Diseases (Diet-Dependent)- (a) Vascular health (b) Cardiovascular diseases (c) Oxidative stress (eNOS SOD) ApoE Metabolic Health (d) Obesity (Snacking) (e) Diabetes Type 2 (f) Methylation Detoxification - Liver health (g) Circadian Rhythm and gene – Chronobiology (h) Appetite and Satiety (i) Central Clock Peripheral Clocks (j) Circadian Rhythm Hormones (k) Intake Control (Leptin and Ghrelin) (l) Exercise Genotype: Adrenergic genotype (m) Food Specific Genotype: Caffeine, Lactose Gluten	13
IV	SNPs Predisposing to Complex Nutrition Related Diseases (a) Genetic Risk Scores (GRS) (b) Diet-gene interaction: polygenic risk score: Type II Diabetes (c) Hypertension (d) Arteriosclerosis (e) Hyperlipidemia (f) Cancer (g) SNP vs. Allergies vs. Intolerances	7
V	Role of Bioactive Components of Diet on Gene Expression (a) The Effect of Micro and Macro Nutrients on Gene Expression (b) Human Micro biota Composition Enterotypes and Diet (c) Micro biota and Metabolic Syndrome (d) Micro biota and Cardiovascular Diseases (e) Effect of the Oral and Intestinal Micro biota (f) Gut-brain Axis (g) Micro biota and Neurodegenerative Diseases Micro biota and Neuropsychiatric Diseases (h) Schizophrenia (i) Anxiety, Depression (j) Autism	10

PRACTICALS-

1. Use 2–3 case examples of individuals with different food needs (e.g., lactose intolerance, gluten sensitivity, obesity) and create a personalized nutrition plan.
2. Create a chart listing common bioactive components (e.g., curcumin, garlic, flavonoids) and their health benefits.
3. Prepare a diet plan for improving gut health (high fiber, fermented foods, etc.) and explain its impact on digestion and immunity.
4. Use food logs of 2 individuals and assess their macronutrient intake. Link to risk of obesity or insulin resistance.
5. Compare early eaters vs. late eaters (case data). Discuss how it affects sleep, metabolism, and weight.
6. Use visual aids to identify common SNPs related to food (e.g., lactose intolerance, caffeine sensitivity).
7. Given a mock client profile (age, family history, food habits), suggest a precision-based diet plan.
8. Collect food allergy/intolerance histories (real or mock) and relate with possible genetic background.

Reference / Text Books:

- Arshad, Z., Bains, V.K., Jhingran, R., Madan, R., & Srivastava, R. (2017). Nutrigenomics: An Overview. *Asian Journal of Oral Health & Allied Sciences*, 7(2), 52.
- Ayesha Nasir, Mir. M. Hassan Bullo, Zaheer Ahmed, Aysha Imtiaz, Eesha Yaqoob, Mahpara Safdar, Hajra Ahmed, Asma Afreen & Sanabil Yaqoob. (2020). Nutrigenomics: Epigenetics and cancer prevention: A comprehensive review. *Critical Reviews in Food Science and Nutrition*, 60(8), 1375-1387. doi:10.1080/10408398.2019.1571480
- Berná G, Oliveras-López MJ, Jurado-Ruiz E, Tejedo J, Bedoya F, Soria B, Martín F. (2014). Nutrigenetics and nutrigenomics insights into diabetes etiopathogenesis. *Nutrients*, 6(11), 5338-5369. doi:10.3390/nu6115338
- Fenech M, El-Sohehy A, Cahill L, Ferguson LR, French TA, Tai ES, Milner J, Koh WP, Xie L, Zucker M, Buckley M, Cosgrove L, Lockett T, Fung KY, Head R. (2011). Nutrigenetics and nutrigenomics: viewpoints on the current status and applications in nutrition research and practice. *J Nutrigenet Nutrigenomics*, 4(2), 69-89. doi:10.1159/000327772 5.
- Ganesh S.B. & Sugumar, K. (2020). Nutrigenomics: A new direction in periodontics. *International Journal of Applied Dental Sciences*, 6(1), 146-149.
- Harvard T.H. Chan School of Public Health. (2022). Precision Nutrition. The Nutrition Source. Retrieved from <https://www.hsph.harvard.edu/nutritionsource/precision-nutrition/>
- Helland MH, Nordbotten GL. (2021). Dietary Changes, Motivators, and Barriers Affecting Diet and Physical Activity among Overweight and Obese: A Mixed Methods Approach. *Int J Environ Res Public Health*, 18(20), 10582. doi:10.3390/ijerph182010582
- Himanshu D, Ali W, Wamique M. (2020). Type 2 diabetes mellitus: pathogenesis and genetic diagnosis. *J Diabetes MetabDisord*, 19(2), 1959 1966. doi:10.1007/s40200-020-00641-x
- Manoharan, S., & Kareem, N. (2020). Nutrigenomics In Periodontics - A Review. *International Journal of Pharmaceutical Research*, 12(1), 1983 1986. 292 “Curriculum of Nutrition and Dietetics (Intellectual Property of the National Commission for Allied and Healthcare Professions, Ministry of Health and Family Welfare).”
- Meiliana, A., & Wijaya, A. (2020). Nutrigenetics, Nutrigenomics, and Precision Nutrition. *Indones Biomed J*, 12(3), 189-200.
- Sushrut Jangi, Katie Hsia, Naisi Zhao, Carol A Kumamoto, Sonia Friedman, Siddharth Singh, Dominique S Michaud. Dynamics of the Gut Mycobiome in Patients with Ulcerative Colitis. *Clin*

Gastroenterol Hepatol, 2023 Oct 5:S1542-3565(23)00762-0. doi: 10.1016/j.cgh.2023.09.023 - Guojun Wu, Naisi Zhao, Liping Zhao. Microbial-host isozyme: A novel target in "drug the bug" strategies for diabetes. Cell Metab, 2023 Oct 3;35(10):1677-1679. doi: 10.1016/j.cmet.2023.09.008. - Haslberger, Alexander G. (ed.): Advances in precision nutrition, personalization, and healthy aging [] Cham. Springer, 2022. 978-3-031 10152-6.	
If the course is available as Generic Elective, then the students of following departments may opt it.	
Evaluation/Assessment Methodology	
	Max. Marks-100
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	--
5) ESE	75
Total	100
Prerequisites for the course: - Genetics - Biochemistry & Metabolism - Fundamentals of Nutrition - Molecular Biology	
Course Learning Outcomes: By the end of this course, students will be able to: Sure! Here's a very concise version: - Define key terms: precision nutrition, nutrigenetics, nutrigenomics, epigenetics. - Explain SNPs' role in nutrition-related disease risk. - Analyze diet and microbiome effects on gene expression. - Evaluate omics and genetic risk in precision nutrition. - Apply genetics to personalize dietary recommendations.	

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: M.Sc.in Food Science, Nutrition & Dietetics. Class: II		Year: II Semester: III
Credits: 3 Theory: 3 Practical: 0		Subject: Preventive and Therapeutic diet
Course Code: FSND-592		Title: Preventive and Therapeutic diet
Course Objectives: 1. Relate the Physiologic Role of Specific Nutrient & Non-Nutrient Components of Food in Relation to Various Organ Systems. 2. Explain the Mechanisms of Disease Management Process and Correlate it with the Principles of Medical Nutrition Therapy 3. Interpret Therapeutic Principles in Clinical Settings to Develop Dietary Interventions.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Nutrients In Disease Prevention and Therapy a) Role of Macronutrients (Carbohydrates, Proteins, Lipids) in Disease Prevention and Treatment • Types, Mode of Action, Therapeutic Applications b) Role of Micronutrients (Vitamins and Minerals) in Various Disease Conditions c) Importance of Dietary Fiber and Water in Health and Disease d) Introduction to the Immune and Inflammatory System • Nutrients Affecting Immune Function • Cytokines In Disease e) Chrono-Nutrition • Circadian Rhythm, Food Timing and its Role in Chronic Diseases f) Basics of Nutrition Therapy • Types Of Therapeutic Diets • Feeding Techniques • Guidelines For Hypo- And Hypermetabolic Patients	12
II	Nutrition in Critical Care and Special Conditions a) Critical care nutrition • Definition and goals of nutrition support in critically ill • Enteral nutrition: indications and overview	12

	b) Burns - Types, degrees, burn surface area assessment - Systemic response and nutrition goals c) Inborn Errors of Metabolism - Phenylketonuria, glycogen storage disease, galactosemia d) Obesity and metabolic syndrome - Nutrition therapy across age groups e) Diabetes Mellitus (Type 1, Type 2, Gestational) - MNT for complications including nephropathy	
III	Respiratory and Gastrointestinal Disorders a) Respiratory disorders - Normal respiration overview - MNT for acute exacerbations and chronic pulmonary conditions - Immunonutrition in pulmonary disorders b) Gastrointestinal disorders - MNT for gastritis, GERD, diverticular disease - Post-gastric surgery nutrition	12
IV	Hepatic and Pancreatic Conditions a) Liver disorders - Cirrhosis, hepatic encephalopathy, NAFLD, hemochromatosis - Gall bladder diseases b) Pancreatic disorders - Acute and chronic pancreatitis c) Liver and pancreatic transplant nutrition care	12
V	Cardiovascular and Renal Disorders a) Cardiovascular disorders - Essential and secondary hypertension - General heart disease MNT b) Renal disorders - Acute renal failure, chronic kidney disease - Nephrotic syndrome - Renal replacement therapy and transplant care c) Integration of nutrition therapy in managing multiple NCDs	12
Practical- - Estimation of nutrient requirements- Energy, Carbohydrates, Protein etc., Disease specific dietary planning & interpretation of case studies - Cardiovascular Disease - Diabetes - Obesity - Inborn Errors of Metabolism - Standardizing general high calorie high protein recipes. - Standardizing general low-calorie recipes - Standardizing recipes based on different nutrient needs - Counseling Techniques and mock sessions		

- c. Estimation of nutrient requirements – Critical Care, Burns (different Types & Degrees), Cancer (dietary guidelines for different cancers & therapies), Surgery (associated to different disease states)
- d. Disease-specific dietary planning & interpretation of case studies and presentations in Gastrointestinal diseases.
 - Disease-specific dietary planning & interpretation of case studies and presentations in Liver disorders
 - Disease-specific dietary planning & interpretation of case studies and presentations in Renal Disorders
 - Disease-specific dietary planning & interpretation of case studies and presentations in pulmonary disease
- e. Review & Case study presentations for therapeutic conditions
 - Review of nutrient drug interactions classes for small sample case study presentations by students

Reference / Text Books:

1. Racz B., Duskova M., Starka L., Hainer V., Kunesova M. Links between the circadian rhythm, obesity and the microbiome. *Physiol. Res.* 2018;67: S409–S420.
2. Ceschia A, Horton R. Maternal health: time for a radical reappraisal. *The Lancet.* 2016;388 (10056):2064–6.
3. Wei M, Ho E, Hegde P. Wei M, et al. An overview of percutaneous endoscopic gastrostomy tube placement in the intensive care unit. *J Thorac Dis.* 2021 Aug; 13(8):5277-5296.
4. Preventive Nutrition – The Comprehensive Guide for Health Professionals (2005); 3rd Edition; Edited by Andrienne Bendich, Richard J. Deckelbaum Human Press Inc., New Jersey
5. Nutrition Support for the critically ill patient – A Guide to Practice (2005); Edited by GAIL CRESCI Taylor and Francis London, CRC press, USA.
6. Dietary Fiber in Human Nutrition (2001); 3rd Edition; Edited by Gene A. Spiller CRC press, USA.
7. Handbook of Nutrition and Food (2002); Edited by Carolyn D. Berdanier, CRC press, USA

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-100
1) Class tasks/Sessional Examination	10
2) Presentations/Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100

Prerequisites for the course:

- Basic knowledge of human physiology
- Fundamentals of nutrition
- Basic diet planning skills
- Introduction to pathology
- Awareness of public health nutrition

Course Learning Outcomes:

By the end of this course, students will be able to:

- CO1: Explain preventive and therapeutic roles of macro/micronutrients, fiber, and water in diseases.
 CO2: Apply medical nutrition therapy principles for pulmonary and gastrointestinal diseases.
 CO3: Plan nutrition care for liver, pancreatic, and transplant-related disorders.
 CO4: Design therapeutic diets for cardiovascular and renal diseases.
 CO5: Integrate dietary strategies to manage non-communicable diseases (NCDs).

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: M.Sc.in Food Science, Nutrition & Dietetics.		Year: II
Class: II		Semester: III
Credits: 3		Subject: Nutrition for Critically III
Theory: 3		
Practical: 0		
Course Code: FSND-593A		Title: Nutrition for Critically III
Course Objectives: 1. Learn about optimal and timely nutrition intervention in critically ill patients. 2. Determine the nutritional needs of critically ill patients. 3. Create nutritional support plans for specific conditions like burns and trauma. 4. Manage and prevent feeding complications in patients.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L:3 T:0 P: 0(In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Nutrition support practice (a) Challenges (b) Opportunities (c) Role of Nutrition therapy in improving clinical outcomes in critical illness	6
II	Early Indicators of malnutrition in ICU • Energy and Protein requirements for critically ill • Complications of nutrition support: Refeeding syndrome, overfeeding, hyperglycemia • Enhanced Recovery after surgery	8
III	Nutrition support in Burn • Nutritional status and body composition of Burn patients • Absorption of micro and macronutrients • Metabolism of micro and macronutrients • Sterilization of micro and macronutrients • Criteria for implementation of nutrition support • Principles of prescription (Route and amount) • Composition of nutrition support formulas for Burn Post ICU Management	13
IV	Nutrition support in Trauma • Nutritional status and body composition of Trauma patients	7

	- Absorption of micro and macronutrients - Metabolism of micro and macronutrients - Sterilization of micro and macronutrients - Criteria for implementation of nutrition support - Principles of prescription (Route and amount) - Composition of nutrition support formulas for Trauma	
V	Nutrition support in Critically ill patients - Nutritional status and body composition of critically ill patients - Absorption of micro and macronutrients - Metabolism of micro and macronutrients - Sterilization of micro and macronutrients - Criteria for implementation of nutrition support - Principles of prescription (Route and amount) - Composition of nutrition support formulas for critically ill patients	7
PRACTICALS- - Enteral nutrition formulations-1 - Enteral nutrition formulations- 2 - Nutrition Screening - Case studies in Burn patients. for nutritional planning. - Case studies in Trauma patients. for nutritional planning. - Case studies in critically ill patients. for nutritional planning.		
Reference / Text Books: - Al-Dorzi H. M., & Arabi Y.M. (2023). Nutrition for critically ill patients. Schmidt G.A., & Kress J.P., & Douglas I.S. (Eds.), Hall, Schmidt and Wood's Principles of Critical Care, 5th Edition. McGraw Hill. - Mehta Y, Sunavala JD, Zirpe K, Tyagi N, Garg S, Sinha S, Shankar B, Chakravarti S, Sivakumar MN, Sahu S, Rangappa P, Banerjee T, Joshi A, Kadhe G. Practice Guidelines for Nutrition in Critically Ill Patients: A Relook for Indian Scenario. Indian J Crit Care Med. 2018 Apr;22(4):263-273. a. doi: 10.4103/ijccm.IJCCM_3_18. PMID: 29743765; PMCID: PMC5930530. - Walker RN, Heuberger RA. Predictive equations for energy needs for the critically ill. Respir Care. 2009;54(4):509–521.		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-100
1) Class tasks/Sessional Examination		10
2) Presentations/Seminar		10
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		75
Total		100
Prerequisites for the course: - Fundamentals of Nutrition - Human Anatomy & Physiology - Medical Terminology - Clinical Nutrition		
Course Learning Outcomes:		

By the end of this course, students will be able to:

CO1: Understand nutrition's role in critically ill patient recovery.

CO2: Determine appropriate feeding and avoid common issues in critical care.

CO3: Plan nutrition for burn patients effectively.

CO4: Develop nutritional support for trauma patients.

CO5: Apply comprehensive nutrition care for critically ill patients.

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III

Programme: M.Sc.in Food Science, Nutrition & Dietetics.	Year: II	
Class: II	Semester: III	
Credits: 3	Subject: Nutrition & Immunity	
Theory: 3		
Practical: 0		
Course Code: FSND-593B	Title: Nutrition & Immunity	
Course Objectives: 1. Relate the Physiologic Role of Specific Nutrient & Non-Nutrient Components of Food in Relation to Various Organ Systems. 2. Explain the Mechanisms of Disease Management Process and Correlate it with the Principles of Medical Nutrition Therapy 3. Interpret Therapeutic Principles in Clinical Settings to Develop Dietary Interventions.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
I	Foundations of Nutrition and Immunity a) Concept of Immunity: This section will cover the fundamental concepts of immunity, including the different types (innate and adaptive) and the key cells of the immune system (e.g., lymphocytes, phagocytes). b) Role of Nutrition in Immunity: Explore the intricate relationship between nutritional status and immune function. Discuss how both under nutrition and over nutrition can impact the body's ability to mount an effective immune response. c) Immune System Components: Detailed study of the structure and function of the five classes of immunoglobulin's: IgG, IgM, IgA, IgD, and IgE. An in-depth look at humoral and cell-mediated immunity. d) Immunity and Malnutrition: Discuss the immune changes that occur in states of malnutrition. e) Immune System Disorders: Introduction to autoimmunity and hypersensitivity reactions, linking them to nutritional factors.	12
II	Micronutrients and Immune Function a) Micronutrient-Immune Connection: Examine the role of specific micronutrients (vitamins, minerals) in immune function, the mechanisms by which they act, and their clinical relevance. b) Immunologic Effects of Micronutrients: Delve into the specific immunologic effects and mechanisms of different vitamins and minerals.	12

	c) Nutritional Status and Immunity: Analyze how nutrient deficiencies and excesses can affect immune competence and susceptibility to infections. d) Defence Mechanisms: Explore the host's defence mechanisms and the essential nutrients required for their development and proper function.	
III	Immuno-modulatory Nutrients and Supplements a) Infection and Nutritional Status: Analyze how infections can lead to malnutrition and nutrient deficiencies, creating a vicious cycle of infection and poor nutritional status. b) Nutrients with Immuno-modulatory Properties: Explore the role of specific immuno-modulatory nutrients, including arginine, glutamine, omega-3 fatty acids, sulphur-containing amino acids, nucleotides, ornithine, alpha-ketoglutarate, and taurine. c) Beneficial Supplements: Study the role of prebiotics, probiotics, and symbiotics in modulating the immune system and their potential health benefits.	12
IV	Nutritional Immunology, Gene Expression, and Disease Prevention a) Nutrition in Disease Management: This unit focuses on the role of nutrition in the prevention and management of various diseases, particularly auto-immune disorders. b) Designing Foods for Immune Disorders: Examine the principles of designing specialized foods for individuals with immune-related conditions. c) Nutrigenomics: Introduce the basic principles of gene structure and expression, including transcription and translation mechanisms, and discuss how different nutrients can influence gene expression. d) Thrifty Genotype Hypothesis: Explore the thrifty genotype-phenotype hypothesis and its implications for understanding metabolic diseases and nutritional adaptations.	12
V	Immunization and Research a) Immunization Programs: Overview of national and international immunization programs, including their history and milestones. b) New Initiatives in Vaccines: Discuss the development of new vaccines and recent initiatives in immunization. c) Immunization and Child Health: Focus on the importance of immunization for child health and the role of nutrition in ensuring vaccine efficacy. d) Research in Nutrition and Immunity: This unit will involve a review of research papers on the subject of nutrition and immunity, providing an understanding of the latest developments and methodologies in the field.	12
Practical- a. Obtain a standard national immunization card or chart (e.g., from the World Health Organization or a national health ministry). b. Plot the required vaccines and their administration timeline for a hypothetical child from birth to five years of age. c. Alongside the immunization schedule, identify and chart the key nutritional milestones and requirements for each age group (e.g., exclusive breastfeeding for the first six months, introduction of complementary foods, etc.). d. Write a brief report (250-300 words) explaining how malnutrition (e.g., deficiencies in Vitamin A,		

- Zinc, or Iron) could potentially compromise the immune response to a vaccine.
- Using a World Health Organization (WHO) growth chart (e.g., for weight-for-age or height-for-age), plot the data and analyse it for a hypothetical child over a two-year period.
 - Based on your analysis, design a one-week **corrective diet plan** (2-3 meals and 2 snacks per day) for the child. The plan should specifically address the identified nutritional gaps and include foods rich in micronutrients crucial for both growth and immunity.
 - For each diet plan, include a variety of foods that are excellent sources of key immune-boosting nutrients such as: **Vitamins:** Vitamin C, Vitamin D, Vitamin E, **Minerals:** Zinc, Selenium, Iron, **Other Components:** Probiotics, Prebiotics, Omega-3 fatty acids
 - For each plan, provide a detailed rationale (150-200 words) explaining why you chose those specific foods and how they contribute to a strong immune system for that particular age group.

Reference / Text Books:

- Nutrition, Immunity, and Infection by Philip C. Calder, Anil D. Kulkarni, Anil DigambarKulkarni, CRC Press, Taylor & Francis Group, 2018
- Nutrition and Immune Function by P. C. Calder, C. J. Field, H. S. Gill Reference Books
- Devereux, G., 9780851995830.0001, CABI, doi:10.1079/9780851995830.0001, (1–20), CABI Publishing, The immune system: an overview., (2002)

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology

	Max. Marks-100
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100

Prerequisites for the course:

- Human Anatomy & Physiology
- Fundamentals of Nutrition
- Basic Biochemistry
- Introductory Microbiology or Immunology
- Public Health Principles

Course Learning Outcomes:

By the end of this course, students will be able to:

- CO1: Understand immunity basics and nutrition's role.
 CO2: Identify micronutrients impacting immune function.
 CO3: Explain immuno-modulatory nutrients and supplements.
 CO4: Understand diet's influence on genes and disease management.
 CO5: Recognize immunization importance and analyze related research.

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: M.Sc.in Food Science, Nutrition & Dietetics.		Year: II
Class: II		Semester: III
Credits: 3 Theory: 3 Practical: 0		Subject: Advanced Communication Skills for Nutrition
Course Code: FSND-594		Title: Advanced Communication Skills for Nutrition
Course Objectives: 1. Describe different forms of intellectual property and their legal protection mechanisms. 2. Interpret provisions of Indian IPR laws and global agreements. 3. Conduct basic patent searches and understand documentation procedures.		
Nature of Paper: AECC		
Minimum Passing Marks/Credits: 40% Marks / 3 Credits THEORY+Sessional		
L: 3 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Fundamentals of Communication in Nutrition Education • Meaning and importance of communication in nutrition and health promotion • Elements of communication: sender, message, channel, receiver, feedback • Types of communication: verbal, non-verbal, written, and visual • Barriers to effective communication in health and nutrition settings	4
II	Nutrition Counseling and Interpersonal Communication • Principles of nutrition counseling • Building rapport with clients and patients • Active listening and empathy in health communication • Communication with different age groups (children, adolescents, elderly)	6
III	Communication Media in Nutrition Education • Use of mass media in nutrition awareness • Print media: posters, pamphlets, brochures, newsletters • Digital media: social media, blogs, online campaigns for nutrition promotion • Role of audio-visual aids in nutrition education	7
IV	Scientific and Professional Communication • Scientific writing in nutrition (reports, articles, case studies) • Writing nutrition education materials	7

	- Preparation of nutrition reports and documentation - Presentation skills for seminars and conferences	
V	Community Communication and Behavior Change - Communication strategies for community nutrition programs - Behavior Change Communication (BCC) in health and nutrition - Planning nutrition awareness campaigns - Evaluation of communication effectiveness	6

References:

- Contento, I. R. (2016). *Nutrition education: Linking research, theory, and practice* (3rd ed.). Jones & Bartlett Learning.
- Gibney, M. J., Lanham-New, S. A., Cassidy, A., & Vorster, H. H. (2019). *Introduction to human nutrition* (3rd ed.). Wiley-Blackwell.
- Northouse, P. G., & Northouse, L. L. (1998). *Health communication: Strategies for health professionals* (3rd ed.). Appleton & Lange.
- Park, K. (2021). *Park's textbook of preventive and social medicine* (26th ed.). Banarsidas Bhanot.
- Srilakshmi, B. (2018). *Nutrition science* (7th ed.). New Age International Publishers.
- Whitney, E., & Rolfes, S. R. (2020). *Understanding nutrition* (16th ed.). Cengage Learning.

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Prerequisites for the course:

- A fundamental understanding of a scientific discipline, such as Food and Nutrition.
- Basic proficiency in English writing and grammar.
- Familiarity with foundational research concepts and methods.

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Understand communication principles in nutrition education.

CO2: Develop effective counseling and interpersonal communication skills.

CO3: Use media tools to promote nutrition awareness.

CO4: Write and present scientific nutrition information effectively.

CO5: Design community-based nutrition communication programs.

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: M.Sc.in Food Science, Nutrition & Dietetics.		Year: II
Class: II		Semester: III
Credits: 2 Theory: 2 Practical: 0		Subject: Intellectual Property Rights
Course Code: FSND-595		Title: Intellectual Property Rights
Course Objectives: 1. Describe different forms of intellectual property and their legal protection mechanisms. 2. Interpret provisions of Indian IPR laws and global agreements. 3. Conduct basic patent searches and understand documentation procedures.		
Nature of Paper: SEC		
Minimum Passing Marks/Credits: 40% Marks / 2 Credits THEORY+Sessional		
L: 2 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
I	Fundamentals of Intellectual Property Rights • Meaning, concept, and evolution of Intellectual Property Rights • Types of Intellectual Property: Patents, Copyrights, Trademarks, Industrial Designs, Geographical Indications, Trade Secrets • Need and importance of IPR in research and innovation • International conventions and agreements: ◦ World Intellectual Property Organization (WIPO) ◦ World Trade Organization (WTO) ◦ TRIPS Agreement • Overview of Indian IPR laws and regulatory authorities	7
II	Patents and Related Rights • Patentable subject matter and criteria (novelty, inventive step, industrial applicability) • Patent filing procedure in India • Patent search and drafting basics • Rights of patent holder and infringement • Indian Patent Act and amendments • Protection of plant varieties and farmers' rights • Case studies in biotechnology, pharmaceuticals, and food science	7
III	Copyright, Trademarks and Other IPR • Copyright law: scope, ownership, duration, infringement • Copyright in academic research, theses, and publications • Trademarks: registration process and protection	7

	- Industrial designs and Geographical Indications - Trade secrets and confidential information - IPR issues in digital environment and e-resources	
IV	IPR in Research, Innovation and Entrepreneurship - IPR in higher education and research institutions - Technology transfer and commercialization - Licensing, assignment, and royalty - Startups, innovation, and incubation centers - Ethical issues in IPR and plagiarism - IPR management in food, nutrition, biotechnology, and pharmaceutical sectors - Recent trends: Traditional knowledge and biodiversity protection	7

References:

- Ahuja, V. K. (2007). *Law relating to intellectual property rights*. Lexis Nexis Butterworths.
- Aplin, T., & Davis, J. (2009). *Intellectual property law: Text, cases, and materials* (1st ed.). Oxford University Press.
- Vaver, D. (2011). *Intellectual property law: Copyright, patents, trade-marks* (2nd ed.). Irwin Law.
- Van Caenegem, W. (2006). *Intellectual property* (2nd ed.). Lexis Nexis Butter worths.
- Van Caenegem, W. (2007). *Intellectual property law and innovation*. Cambridge University Press.
- Merges, R. P. (Ed.). (2007). *Economics of intellectual property law* (Vols. 1–2). Edward Elgar Publishing.
- Dutfield, G., & Suthersanen, U. (2020). *Global intellectual property law* (2nd ed.). Edward Elgar Publishing.
- Geiger, C. (Ed.). (2020). *Research handbook on intellectual property and investment law*. Edward Elgar Publishing.

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-50
1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50

Prerequisites for the course:

- A fundamental understanding of a scientific discipline, such as Food and Nutrition.
- Basic proficiency in English writing and grammar.
- Familiarity with foundational research concepts and methods.

Course Learning Outcomes:

By the end of this course, students will be able to:

CO1: Understand the fundamental concepts, evolution, and types of Intellectual Property Rights.
CO2: Explain national and international IPR frameworks and agreements governing intellectual property.

CO3: Analyze procedures for patent filing, copyright protection, trademark registration, and related rights.

CO4: Apply IPR knowledge in research, innovation, entrepreneurship, and technology transfer.

CO5: Evaluate ethical issues, plagiarism, and IPR management in academic and industrial settings.

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III

Programme: M.Sc.in Food Science, Nutrition & Dietetics.		Year: II
Class: II		Semester: III
Credits: 2		Subject: Precision Nutrition Lab
Theory: 0		
Practical: 2		
Course Code: FSND-591P		Title: Precision Nutrition Lab
Course Objectives: 1. To integrate the concept of DNA, microbiome & metabolic responses to specific foods or dietary patterns, to determine personalized eating plan for wellness and illness.		
Nature of Paper: CORE		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
	PRACTICALS- 1. Use 2–3 case examples of individuals with different food needs (e.g., lactose intolerance, gluten sensitivity, obesity) and create a personalized nutrition plan. 2. Create a chart listing common bioactive components (e.g., curcumin, garlic, flavonoids) and their health benefits. 3. Prepare a diet plan for improving gut health (high fiber, fermented foods, etc.) and explain its impact on digestion and immunity. 4. Use food logs of 2 individuals and assess their macronutrient intake. Link to risk of obesity or insulin resistance. 5. Compare early eaters vs. late eaters (case data). Discuss how it affects sleep, metabolism, and weight. 6. Use visual aids to identify common SNPs related to food (e.g., lactose intolerance, caffeine sensitivity). 7. Given a mock client profile (age, family history, food habits), suggest a precision-based diet plan. 8. Collect food allergy/intolerance histories (real or mock) and relate with possible genetic background.	
Reference / Text Books: • Arshad, Z., Bains, V.K., Jhingran, R., Madan, R., &Srivastava, R. (2017). Nutrigenomics: An Overview. Asian Journal of Oral Health & Allied Sciences, 7(2), 52. • Ayesha Nasir, Mir. M. Hassan Bullo, Zaheer Ahmed, AyshaImtiaz, Eesha Yaqoob, Mahpara Safdar, Hajra Ahmed, Asma Afreen & Sanabil Yaqoob. (2020). Nutrigenomics: Epigenetics and		

cancer prevention: A comprehensive review. Critical Reviews in Food Science and Nutrition, 60(8), 1375-1387. doi:10.1080/10408398.2019.1571480

- Berná G, Oliveras-López MJ, Jurado-Ruiz E, Tejedo J, Bedoya F, Soria B, Martín F. (2014). Nutrigenetics and nutrigenomics insights into diabetes etiopathogenesis. Nutrients, 6(11), 5338-5369. doi:10.3390/nu6115338
- Fenech M, El-Sohehy A, Cahill L, Ferguson LR, French TA, Tai ES, Milner J, Koh WP, Xie L, Zucker M, Buckley M, Cosgrove L, Lockett T, Fung KY, Head R. (2011). Nutrigenetics and nutrigenomics: viewpoints on the current status and applications in nutrition research and practice. J Nutrigenet Nutrigenomics, 4(2), 69-89. doi:10.1159/000327772 5.
- Ganesh S.B. & Sugumar, K. (2020). Nutrigenomics: A new direction in periodontics. International Journal of Applied Dental Sciences, 6(1), 146-149.
- Harvard T.H. Chan School of Public Health. (2022). Precision Nutrition. The Nutrition Source. Retrieved from <https://www.hsph.harvard.edu/nutritionsource/precision-nutrition/>
- Helland MH, Nordbotten GL. (2021). Dietary Changes, Motivators, and Barriers Affecting Diet and Physical Activity among Overweight and Obese: A Mixed Methods Approach. Int J Environ Res Public Health, 18(20), 10582. doi:10.3390/ijerph182010582
- Himanshu D, Ali W, Wamique M. (2020). Type 2 diabetes mellitus: pathogenesis and genetic diagnosis. J Diabetes Metab Disord, 19(2), 1959 1966. doi:10.1007/s40200-020-00641-x
- Manoharan, S., & Kareem, N. (2020). Nutrigenomics In Periodontics - A Review. International Journal of Pharmaceutical Research, 12(1), 1983 1986. 292 “Curriculum of Nutrition and Dietetics (Intellectual Property of the National Commission for Allied and Healthcare Professions, Ministry of Health and Family Welfare).”
- Meiliana, A., & Wijaya, A. (2020). Nutrigenetics, Nutrigenomics, and Precision Nutrition. Indones Biomed J, 12(3), 189-200.
- Sushrut Jangi, Katie Hsia, Naisi Zhao, Carol A Kumamoto, Sonia Friedman, Siddharth Singh, Dominique S Michaud. Dynamics of the Gut Mycobiome in Patients with Ulcerative Colitis. Clin Gastroenterol Hepatol, 2023 Oct 5:S1542-3565(23)00762-0. doi: 10.1016/j.cgh.2023.09.023
- Guojun Wu, Naisi Zhao, Liping Zhao. Microbial-host isozyme: A novel target in "drug the bug" strategies for diabetes. Cell Metab, 2023 Oct 3;35(10):1677-1679. doi: 10.1016/j.cmet.2023.09.008.
- Haslberger, Alexander G. (ed.): Advances in precision nutrition, personalization, and healthy aging [] Cham. Springer, 2022. 978-3-031 10152-6.

If the course is available as Generic Elective, then the students of following departments may opt it.

Evaluation/Assessment Methodology	
	Max. Marks-100
1) Class tasks/ Sessional Examination	10
2) Presentations /Seminar	10
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	75
Total	100
Prerequisites for the course:	
• Genetics • Biochemistry & Metabolism • Fundamentals of Nutrition • Molecular Biology	
Course Learning Outcomes:	

By the end of this course, students will be able to:

Sure! Here's a very concise version:

CO1: Define key terms: precision nutrition, nutrigenetics, nutrigenomics, epigenetics.

CO2: Explain SNPs' role in nutrition-related disease risk.

CO3: Analyze diet and microbiome effects on gene expression.

CO4: Evaluate omics and genetic risk in precision nutrition.

CO5: Apply genetics to personalize dietary recommendations.

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: III

Programme: M.Sc.in Food Science, Nutrition & Dietetics.		Year: II
Class: II		Semester: III
Credits: 2		Subject: Preventive and Therapeutic diet Lab
Theory: 0		
Practical: 2		
Course Code: FSND-592P		Title: Preventive and Therapeutic diet Lab
Course Objectives:		
1. Relate the Physiologic Role of Specific Nutrient & Non-Nutrient Components of Food in Relation to Various Organ Systems.		
2. Explain the Mechanisms of Disease Management Process and Correlate it with the Principles of Medical Nutrition Therapy		
3. Interpret Therapeutic Principles in Clinical Settings to Develop Dietary Interventions.		
Nature of Paper: Core		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0		
T: 0		
P: 2 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
	Practical- a. Estimation of nutrient requirements- Energy, Carbohydrates, Protein etc., Disease specific dietary planning & interpretation of case studies • Cardiovascular Disease • Diabetes • Obesity • Inborn Errors of Metabolism b. Standardizing general high calorie high protein recipes. • Standardizing general low-calorie recipes • Standardizing recipes based on different nutrient needs • Counseling Techniques and mock sessions c. Estimation of nutrient requirements – Critical Care, Burns (different Types & Degrees), Cancer (dietary guidelines for different cancers & therapies), Surgery (associated to different disease states)	
	d. Disease-specific dietary planning & interpretation of case studies and presentations in Gastrointestinal diseases. • Disease-specific dietary planning & interpretation of case studies and presentations in Liver disorders • Disease-specific dietary planning & interpretation of case studies and presentations in Renal Disorders	

	• Disease-specific dietary planning & interpretation of case studies and presentations in pulmonary disease e. Review & Case study presentations for therapeutic conditions • Review of nutrient drug interactions • classes for small sample case study presentations by students	
Reference / Text Books:		
1. Racz B., Duskova M., Starka L., Hainer V., Kunesova M. Links between the circadian rhythm, obesity and the microbiome. <i>Physiol. Res.</i> 2018; 67: S409–S420. 2. Ceschia A, Horton R. Maternal health: time for a radical reappraisal. <i>The Lancet.</i> 2016; 388 (10056):2064–6. 3. Wei M, Ho E, Hegde P. Wei M, et al. An overview of percutaneous endoscopic gastrostomy tube placement in the intensive care unit. <i>J Thorac Dis.</i> 2021 Aug; 13 (8):5277-5296. 4. Preventive Nutrition – The Comprehensive Guide for Health Professionals (2005); 3rd Edition; Edited by Andrianne Bendich, Richard J. Deckelbaum Human Press Inc., New Jersey 5. Nutrition Support for the critically ill patient – A Guide to Practice (2005); Edited by GAIL CRESCI Taylor and Francis London, CRC press, USA. 6. Dietary Fiber in Human Nutrition (2001); 3rd Edition; Edited by Gene A. Spiller CRC press, USA. 7. Handbook of Nutrition and Food (2002); Edited by Carolyn D. Berdanier, CRC press, USA		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/ Sessional Examination		5
2) Presentations /Seminar		5
3) Assignments		5
4) Research Project Report Seminar On Research Project Report		-
5) ESE		35
Total		50
Prerequisites for the course:		
• Basic knowledge of human physiology • Fundamentals of nutrition • Basic diet planning skills • Introduction to pathology • Awareness of public health nutrition		
Course Learning Outcomes:		
By the end of this course, students will be able to:		
CO1: Explain preventive and therapeutic roles of macro/micronutrients, fiber, and water in diseases.		
CO2: Apply medical nutrition therapy principles for pulmonary and gastrointestinal diseases.		
CO3: Plan nutrition care for liver, pancreatic, and transplant-related disorders.		
CO4: Design therapeutic diets for cardiovascular and renal diseases.		
CO5: Integrate dietary strategies to manage non-communicable diseases (NCDs).		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: M.Sc.in Food Science, Nutrition & Dietetics.		Year: II
Class: II		Semester: III
Credits: 2 Theory: 0 Practical: 2		Subject: Nutrition for Critically Ill Lab
Course Code:FSND-593AP		Title: Nutrition for Critically Ill Lab
Course Objectives: 1. Learn about optimal and timely nutrition intervention in critically ill patients. 2. Determine the nutritional needs of critically ill patients. 3. Create nutritional support plans for specific conditions like burns and trauma. 4. Manage and prevent feeding complications in patients.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week=2Credits)		
Unit	Contents	No. of Lectures Allotted
	PRACTICALS- 1. Enteral nutrition formulations-1 2. Enteral nutrition formulations- 2 3. Nutrition Screening 4. Case studies in Burn patients. for nutritional planning. 5. Case studies in Trauma patients. for nutritional planning. 6. Case studies in Critically ill patients. for nutritional planning.	
Reference / Text Books: • Al-Dorzi H.M., & Arabi Y.M. (2023). Nutrition for critically ill patients. Schmidt G.A., & Kress J.P., & Douglas I.S. (Eds.), Hall, Schmidt and Wood's Principles of Critical Care, 5th Edition. Mc Graw Hill. • Mehta Y, Sunavala JD, Zirpe K, Tyagi N, Garg S, Sinha S, Shankar B, Chakravarti S, Sivakumar MN, Sahu S, Rangappa P, Banerjee T, Joshi A, Kadhe G. Practice Guidelines for Nutrition in Critically Ill Patients: A Relook for Indian Scenario. Indian J Crit Care Med. 2018 Apr;22(4):263-273. a. doi: 10.4103/ijccm.IJCCM_3_18. PMID: 29743765; PMCID: PMC5930530. • Walker RN, Heuberger RA. Predictive equations for energy needs for the critically ill. Respir Care. 2009; 54 (4):509–521.		
If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
Max. Marks-50		

1) Class tasks/ Sessional Examination	5
2) Presentations /Seminar	5
3) Assignments	5
4) Research Project Report Seminar On Research Project Report	-
5) ESE	35
Total	50
Prerequisites for the course: • Fundamentals of Nutrition • Human Anatomy & Physiology • Medical Terminology • Clinical Nutrition	
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Understand nutrition's role in critically ill patient recovery. CO2: Determine appropriate feeding and avoid common issues in critical care. CO3: Plan nutrition for burn patients effectively. CO4: Develop nutritional support for trauma patients. CO5: Apply comprehensive nutrition care for critically ill patients.	

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: M.Sc.in Food Science, Nutrition & Dietetics. Class: II		Year: II Semester: III
Credits: 2 Theory: 0 Practical: 2		Subject: Nutrition & Immunity Lab
Course Code: FSND-593BP		Title: Nutrition & Immunity Lab
Course Objectives: 1. Relate the Physiologic Role of Specific Nutrient & Non-Nutrient Components of Food in Relation to Various Organ Systems. 2. Explain the Mechanisms of Disease Management Process and Correlate it with the Principles of Medical Nutrition Therapy 3. Interpret Therapeutic Principles in Clinical Settings to Develop Dietary Interventions.		
Nature of Paper: DSE		
Minimum Passing Marks/Credits: 50% Marks / 2 Credits PRACTICAL		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 2 Credits)		
Unit	Contents	No. of Lectures Allotted
	Practical- a. Obtain a standard national immunization card or chart (e.g., from the World Health Organization or a national health ministry). b. Plot the required vaccines and their administration timeline for a hypothetical child from birth to five years of age. c. Alongside the immunization schedule, identify and chart the key nutritional milestones and requirements for each age group (e.g., exclusive breastfeeding for the first six months, introduction of complementary foods, etc.). d. Write a brief report (250-300 words) explaining how malnutrition (e.g., deficiencies in Vitamin A, Zinc, or Iron) could potentially compromise the immune response to a vaccine. e. Using a World Health Organization (WHO) growth chart (e.g., for weight-for-age or height-for-age), plot the data and analyse it for a hypothetical child over a two-year period. f. Based on your analysis, design a one-week corrective diet plan (2-3 meals and 2 snacks per day) for the child. The plan should specifically address the identified nutritional gaps and include foods rich in micronutrients crucial for both growth and immunity. g. For each diet plan, include a variety of foods that are excellent sources of key immune-boosting nutrients such as: Vitamins: Vitamin C, Vitamin D,	

	Vitamin E, Minerals: Zinc, Selenium, Iron, Other Components: Probiotics, Prebiotics, Omega-3 fatty acids h. For each plan, provide a detailed rationale (150-200 words) explaining why you chose those specific foods and how they contribute to a strong immune system for that particular age group.	
Reference / Text Books: 1. Nutrition, Immunity, and Infection by Philip C. Calder, Anil D. Kulkarni, Anil Digambar Kulkarni, CRC Press, Taylor & Francis Group, 2018. 2. Nutrition and Immune Function by P. C. Calder, C. J. Field, H. S. Gill Reference Books. 3. Devereux, G., 9780851995830.0001, CABI, doi:10.1079/9780851995830.0001, (1–20), CABI Publishing, The immune system: an overview., (2002). If the course is available as Generic Elective, then the students of following departments may opt it.		
Evaluation/Assessment Methodology		
	Max. Marks-50	
1) Class tasks/ Sessional Examination	5	
2) Presentations /Seminar	5	
3) Assignments	5	
4) Research Project Report Seminar On Research Project Report	-	
5) ESE	35	
Total	50	
Prerequisites for the course: • Human Anatomy & Physiology • Fundamentals of Nutrition • Basic Biochemistry • Introductory Microbiology or Immunology • Public Health Principles		
Course Learning Outcomes: By the end of this course, students will be able to: CO1: Understand immunity basics and nutrition's role. CO2: Identify micronutrients impacting immune function. CO3: Explain immuno-modulatory nutrients and supplements. CO4: Understand diet's influence on genes and disease management. CO5: Recognize immunization importance and analyze related research.		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: M.Sc.in Food Science, Nutrition & Dietetics.		Year: II
Class: II		Semester: III
Credits: NC Theory: NC Practical: NC		Subject: INDUSTRIAL VISIT
Course Code: FSND-596		Title: INDUSTRIAL VISIT
Course Objectives: 1. Develop skills to observe, record, and analyze industrial processes effectively.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 0 T: 0 P: 0 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Students are required to deliver a formal report detailing their key observations, technical insights, and professional assessments gathered during the industrial visit.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes: CO1: Identify community needs and explore university–community partnership opportunities. CO2: Participate in volunteer activities and document experiences for reflection.		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: M.Sc.in Food Science, Nutrition & Dietetics.		Year: II
Class: II		Semester: III
Credits: NC		Subject: UNIVERSITY SOCIAL RESPONSIBILITY
Theory: NC		
Practical: NC		
Course Code: FSND-597		Title: UNIVERSITY SOCIAL RESPONSIBILITY
Course Objectives:		
1) To generate awareness of social, ethical, and environmental responsibilities.		
Nature of Paper: NC		
Minimum Passing Marks/Credits: NC (PRACTICAL)		
L: 1		
T: 0		
P: 0 (In Hours/Week)		
Theory - 1 Hr. = 1 Credit		
Practical- 2 Hrs.=1Credit(4Hrs./Week=4Credits)		
Unit	Contents	No. of Lectures Allotted
	Community Engagement University–community partnerships. Basics of volunteering and service learning. Identifying local community needs. Activity: Field visit to NGOs or schools.	-
Evaluation/Assessment Methodology		
		Max. Marks-25
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		25
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		25
Course Learning Outcomes:		
CO1: Analyze environmental challenges and promote sustainable campus practices.		
CO2: Implement eco-friendly initiatives like waste management and tree plantation.		

IIMTU-NEP IMPLEMENTATION
Year: II / Semester: III

Programme: M.Sc. in Food Science & Dietetics		Year: II
Class: II		Semester: III
Credits: 2 Theory: 2 Practical: 0		Subject: MOOC/NPTEL, E/IPR
Course Code: FSND-VAC-595		Title: MOOC/NPTEL, E/IPR
Course Objectives: 1. To make acquainted students with online learning platforms and fundamentals of Intellectual Property Rights for academic and profession advancement.		
Nature of Paper: SEC-18		
Minimum Passing Marks/Credits: 40% Marks / 2 Credit (NPTEL Certificate)		
L: 0 T: 0 P: 2 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit (4Hrs./Week= 4 Credits)		
Unit	Contents	No. of Lectures Allotted
	MOOC/NPTEL and E/IPR courses enhance value addition by offering flexible, industry-relevant learning, enabling students to strategically select subjects aligned with career goals.	-
If the course is available as Generic Elective then the students of following departments may opt it		
Evaluation/Assessment Methodology		
		Max. Marks-50
1) Class tasks/Sessional Examination		50
2) Presentations/Seminar		-
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		-
5) ETE		-
Total:		50
Course Learning Outcomes:		
CO1: To utilize MOOC/NPTEL platforms and apply basic IPR concepts in research, innovation, and career planning.		

IIMTU-NEP IMPLEMENTATION

Year: II / Semester: IV

Programme: M.Sc.in Food Science, Nutrition & Dietetics.		Year: II
Class: II		Semester: IV
Credits: 16		Subject: INTERNSHIP/ DESSERTATION (CLINICAL/ INDUSTRY)
Theory: 0		
Practical: 16		
Course Code: FSND-501		Title: INTERNSHIP/ DESSERTATION (CLINICAL/ INDUSTRY)
Course Objectives: 1. To provide practical exposure and research experience in clinical or industry settings for applying theoretical knowledge, developing professional skills, and solving real-world problems.		
Nature of Paper: INTERNSHIP/ DESSERTATION		
Minimum Passing Marks/Credits: 50% Marks / 16 Credits (Seminar + Viva Voce)		
L: 0 T: 0 P: 16 (In Hours/Week) Theory - 1 Hr. = 1 Credit Practical- 2 Hrs.=1Credit(4Hrs./Week=4 Credits)		
Unit	Contents	No. of Lectures Allotted
	Application of academic knowledge and technical skills in clinical or industry settings through supervised practical work, exposure to professional practices, and hands-on experience. Identification, analysis, and resolution of practical clinical or industry-related problems using critical thinking, problem-solving skills, and evidence-based professional approaches.	-
Evaluation/Assessment Methodology		
		Max. Marks-300
1) Class tasks/Sessional Examination		-
2) Presentations/Seminar		100
3) Assignments		-
4) Research Project Report Seminar On Research Project Report		200
5) ETE		-
Total:		300
Course Learning Outcomes: CO1: Apply academic knowledge and technical skills in clinical or industry-based work environments. CO2: Demonstrate professional ethics, communication, and teamwork in workplace settings. CO3: Identify, analyze, and address practical problems relevant to clinical or industry practices. CO4: Collect, analyze, and interpret data for internship reports or dissertation work. CO5: Prepare and present a structured internship/dissertation report following scientific and professional standards.		