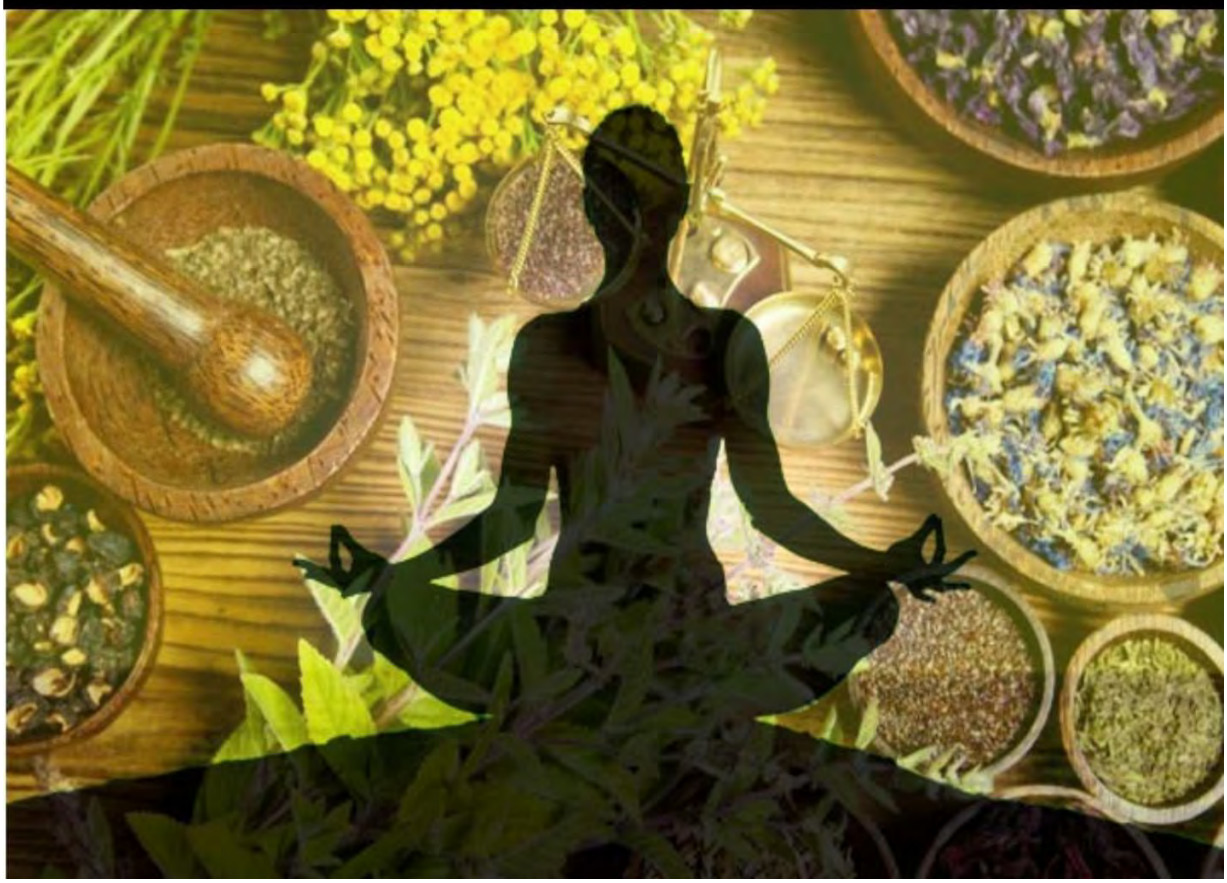
IIMT UNIVERSITY
MEERUT (U.P.)
Transforming Education System, Transforming Lives

UGC Approved
Section 2f & 12B

IIMT College of Naturopathy and Yogic Sciences

ACADEMIC HAND BOOK



ORDINANCE OF
BACHELOR IN NATUROPATHY AND YOGIC SCIENCES (BNYS)
PROGRAMME
FACULTY OF AYUSH
APPROVED BY ACADEMIC COUNCIL
ACADEMIC SESSION (2024-2025)

IIMT COLLEGE AND HOSPITAL OF NATUROPATHY AND YOGIC SCIENCES

1. Preamble-

The degree of Bachelor of Naturopathy & Yogic Sciences is a degree of Naturopathy doctor in exercise of the powers conferred by **IIMT UNIVERSITY,** The standing academic board of **IIMT UNIVERSITY.**

2. Definitions and Nomenclatures

Bachelor of Naturopathy & Yogic Science (B.N.Y.S.)

3. Vision and mission of the School

- Currently Naturopathy is being academically inducted as a bachelor degree programme of five & half years. Bachelor of Naturopathy & yoga Sciences (B.N.Y.S.) in India.

- Unlike other Indian systems of medicine courses, this course has an advantage in having basic sciences similar to that of modern medicine. Strong foundation in the form of basic sciences has not only allowed students to make smarter attempt to understand the clinical theories of Naturopathy but also highlighted the evidence based clinical practice.

- World over there is an aggressive recognition of potential in this system and at the same time the need for rigorous scientific evaluation of health practice used traditionally.

- This has lead to significant scientific authentication of the effectiveness backed by worlds leading Medical Institutions, organizations & even by the Governments acknowledged by National Institute of Health, USA, Ministry of AYUSH, Government of India to name a few.

4. Program Educational objectives

IIMT COLLEGE & HOSPITAL OF NATUROPATHY AND YOGIC SCIENCES established in the year 2019 under IIMT UNIVERSITY, MEERUT with vision to produce highly, qualified skilled, trained, and competent

Mission to establish the IIMT COLLEGE & HOSPITAL OF NATUROPATHY AND YOGIC SCIENCES was specifically centralized to focus on:

- Providing quality education and skilled professionals
- To promote research and development in respective field
- To groom every student to be an excellent professional who follows principals of Naturopathy and yoga

5. Program outcome

1. Recognize the health needs of the community and carry out professional obligations ethically and in keeping with the objectives of the national health policy;

2. Develop the skills in the most of the competencies, and training that are required to deliver the Naturopathy and Yoga health care system

3. Become aware of the contemporary advance and developments in the discipline concerned;

4. Acquire a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology

5. Become proficient in the profession by developing scientific temper and improve educational experience;

6. Identify social , economic , environmental, biological and emotional determinants of health in a given case and taken them into account while planning therapeutic, rehabilitation, preventive and promotion measures/strategies

7. Plan and devise measure in naturopathy and yoga for the prevention and rehabilitation of patients suffering from disease and disability

8. Demonstrate skills in documentation of individual case details as well as morbidity data relevant to the assigned situation

9. Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behavior in accordance with the societal norms and expectations;

10. Play the assigned role in the implementation of national health programs effectively and responsibly

11. Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or field situation;

12. Develop skills as a self directed learner recognize continuing educational needs, select and use appropriate learning resources ;

13. Demonstrate competence in basic concepts of research methodology and epidemiology and be able to critically analyze relevant published research literature

14. To implement all national health policy

15. Work towards realization of 'health of all' as a national goal through naturopathy and yoga ;

16. To follow the medical ethics and to full fill the social and professional responsibilities as a naturopathy and yoga physician through drugless therapies

17. Be competent in the practice of holistic medicine with expert knowledge and experience in health promotion prevention curative and rehabilitative aspects of diseases

18. Become proficient in their profession by developing scientific temper and improve educational experience.

Program Specific outcome

After successful completion of the program an individual will:

PSO.1 DEMONSTRATE COMPREHENSIVE KNOWLEDGE & UNDERSTANDING OF THE BASIS OF HEALTH & DISEASE & ITS MANAGEMENT-
Graduate should be able to assess the patients with the knowledge of basis medical sciences & correlate the physiological & pathetical aspects of the diseases & apply the knowledge & manage the disease by educating & making the concepts clear to patients or students

PSO.2 DEMONSTRATE SKILL COMPETENCY & TRAINING – Develop the skill in competencies, and training that are required to deliver naturopathy and yoga health care system to the masses. Demonstrate skills in documentation of individual case details as well as morbidity data relevant to the assigned situation. organize and supervise the chosen/assigned health care services, demonstrate adequate managerial skills in the clinic/hospital or the field situation. Develop skills as a self directed learner; recognize continuing educational needs, select and use appropriate learning resources.

PSO.3 WORK WITH SELF DIRECTED APPROACH & SOCIAL RELEVANCE – recognize the health needs of the community become aware of the contemporary advances and developments in the discipline concerned to healthcare through naturopathy & yoga. Thus become proficient in their profession by developing scientific temper and improve educational experience.

PSO.4 **Treat with Empathy, Moral & Human Values**- Plan and devise measures in Naturopathy and yoga for the prevention and rehabilitation of patients suffering from disease and disability. In doing so demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behavior in accordance with the societal norms and expectations.

PSO.5 **RESEARCH attitude with Evidence Based Practice & Life-long Approach** Demonstrate competence in basic concepts of research and epidemiology, and be able to critically analyze relevant published research literature. Acquire a spirit of scientific inquiry and is oriented principles of research methodology and epidemiology.

PSO.6 **Behave ethically& in Tune with the Laws of the Land** - Carry out professional obligations ethically and in keeping with the objectives of the national health policies and to fulfill the social and professional responsibilities as Naturopathy and Yoga Physician through drugless therapies effectively and responsibly.

PSO.7 **Be Environment friendly, Encourage Sustainability and have individualized approach** Identify social, economic, environmental, biological and emotional determinants of health in a given case and take them into account while planning therapeutic, rehabilitative, and preventive and health promoting measures/strategies with sustainable approaches by educating the masses.

6. Admission

- Candidates seeking admission to the Bachelor of Naturopathy and Yogic sciences course should have passed at 10+2 pass from board of school Education Uttar Pradesh or an examination recognized as equivalent there to with at least 50% marks in Physics, Chemistry and Biology taken together both in qualifying and competitive examinations.

- Candidate should have completed the age of 17 years at the time of admission or would complete the said age on or before 31stDecember of the year of admission to the first year B.N.Y.S. course.

7. Eligibility in all year as NEP (entry & exit) as per NEHQF and NSQF (if applicable)

The eligibility of entrance to B.N.Y.S. course is that a candidate must have appeared in NEET qualified with minimum marks at 50th percentile in exam for the said academic year. However respect of candidates belonging to scheduled castes, scheduled tribes, other backward castes, the minimum marks shall be at 40th percentile In respect of the candidates with bench marked disabilities act 2016 the minimum marks shall be at 45th percentile for general category for SC/ST/OBC candidates. The percentile shall be determined on the basis of highest marks secured in the All India Common Merit List in NEET.

The program shall be spread over Five and half academic years, spread over four and half year comprising actual teaching for minimum of 180 days in each year and internship training for 1 year in the fifth year

8. Curriculum

- Duration of the course will be 4 1/2 years +1 (one) year internship. The course will be divided into four parts.

1st BNYS	-	1 Year (12 Months)
2nd BNYS	-	1Year (12 Months)
3rd BNYS	-	1Year (12 Months)
4th BNYS	-	1 & ½ Year (18 Months)

One Year rotatory internship (12 Months)

After completing the course successfully, a graduate will have to under internship for a period of one year. Degree will be awarded only after satisfactorily completing the one-year period of internship.

Internship Training of 12 months is offered in the fifth year. The students are expected to train in Naturopathy and Yoga hospital and OPD, Medical Department and OPD of IIMT' HOSPITAL.

9. Medium of Instruction

Medium of Instruction will be on English Mode.

10. Choice base Credit system (CBCS)/LOCF/OBE

The CBCS provides an opportunity for the students to choose courses from the prescribed courses comprising core, elective/minor or skill based courses. 'The courses can be evaluated following the grading system, which is considered to be better than the conventional marks system therefore, it is necessary to introduce uniform grading system in the entire higher

education India. This will benefit the students to move across institutions within India to across countries. The uniform grading system will also enable potential employers assessing the performance of the candidates. In order to bring uniformity in. evaluation system and computation of the Cumulative Grade Point Average (CGPA) based on student's performance in examinations, the UGC has formulated the guidelines to be followed.

The Curriculum offers a total of 60 courses out of which the student has to complete 60 courses and the total number of credits required for the award of BNYS degree is 209 credits. The courses are divided into 3 categories, i.e. Core courses, Ability Enhancement Courses and Skill enhancement courses

1. **Core Course**: Generally A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.

2. **Elective courses**, a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/ subject of study or which provides an extended scope or which enables an exposure to some other 01 nurtures the candidate's proficiency/skill is called an Elective Course.

2.1 **Discipline Specific Elective (DSE) Course**: Elective courses may be offered by the main discipline/subject of study is referred to as Discipline Specific Elective (to be offered by main discipline/subject of study).

2.2 Dissertation Project work: An elective course of 49 credits designed to acquire special advantage knowledge, such as supplement study/support study to a project work, and candidate studies such a course on his own with an advisory support by a teacher faculty member is called dissertation/project work. A Project/Dissertation project work may be given in lieu of a discipline specific elective paper.

2.3 Generic Elective course (GEC): An elective course chosen generally from an discipline subject with an intention to seek exposure to other subjects/disciplines is called a Generic Elective Course.

P.S.: A core course offered in a discipline/subject may be treated as an elective by other discipline/subject and Vice versa and such electives may also be referred to as Generic Elective.

3. Ability Enhancement Courses: The Ability Enhancement (AE) Courses may be of two kind's .AE (compulsory Course (AECC) and Skill Enhancement Courses (SEC). AECC courses (two) are the courses based upon the content that leads to knowledge enhancement. They [(i) Environmental Science, (ii) English/MIL Communication] are mandatory for all disciplines. SEC courses (minimum two) are value-based and/or skill-based and are aimed at providing hands-on-training, competencies- skills, etc.

All core courses have a practical component, along with theory. Ability Enhancement courses are theory based and Skills enhancement courses have theory with the practical

Component if required, however external practical evaluation is offered only for

compulsory subjects.

List of all courses under different categories for BNYS Programme.

COURSE TYPE CORE COURSES	CORE CODE	CORE NAME
	Anatomy paper 1	BNY 101
	Anatomy paper 2	BNY 102
	Anatomy practical	BNY 103P
	Physiology paper 1	BNY 104
	Physiology paper 2	BNY 105
	Physiology practical	BNY 106P
	Biochemistry	BNY 107
	Biochemistry practical	BNY 108P
	Philosophy of nature cure 1	BNY 109
	Philosophy of nature cure 2	BNY 110
	Philosophy of nature cure practical	BNY 111P
	Yoga practice theory	BNY 112
	Yoga practical	BNY 113
	Pathology	BNY 201
	Pathology practical	BNY 202P
	Manipulative Therapeuties	BNY301
	Manipulative Therapeuties Practical	BNY302P
	Acupuncture	BNY303
	Acupuncture Practical	BNY304P
	Yoga Applications	BNY305
	Yoga Practical	BNY306P
	Fasting Therapy	BNY307
	Fasting Therapy Practical	BNY308P
	Naturopathy Diagnosis	BNY309
	Naturopathy Diagnosis Practical	BNY310
	Modern Diagnosis	BNY311
	Modern Diagnosis Practical	BNY312
	Nutrition ,Dietetics , Herbs	BNYS401
	Nutrition ,Dietetics , Herbs Practical	BNYS411
	Obstretics and Gyanecology	BNYS402
	Obstretics and Gyanecology Practical	BNYS412
COURSE TYPE CORE COURSES	Yoga Therapy	BNYS403
	Yoga Practical	BNYS413
	Hydrotherapy Paper 1	BNYS404
	Hydrotherapy Paper2	BNYS405
	Hydrotherapy Practical	BNYS414P
	Physiotherapy	BNYS406
	Physiotherapy Practical	BNYS415P
	Holistic Practices of Naturopathy and Yoga	BNYS416

	Holistic Practices of Naturopathy and Yoga Practicals	BNYS416P
	Hospital Management and Research Methodology	BNYS408
	Hospital management and research methodology practical	BNYS417P
	Psychology and basic psychiatry	BNYS409
	Psychology and basic psychiatry practical	BNYS418P

11. Attendance

The students are expected to attend all the classes and should not have less than 75 % attendance in theory as well as in practical classes, wherever held, to become eligible to appear for the university examination. Short fall in attendance can, however be condoned in deserving cases to the extent of 10% by the Principal. If the short fall is more than 10% but not more than 15%, the Principal may recommend deserving cases to the Vice Chancellor for condonation. The order of the Vice Chancellor in this regard shall be final.

12.1 Condonation of medical cases

It will be consider only when an authentic certificate issued by Registered Medical Consultant and Practitioners.

13.1 Internal Assessment (IA) (External Assessment (EA)

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

Courses	Courses type	Course Code	Credits	Hours	Marks		
					Assessment	External Assessment	Total
BNYS FIRST YEAR							
Anatomy paper 1	Core course	BNY101	1.5	1.5	30	70	100
Anatomy paper 2	Core course	BNY102	1.5	1.5	30	70	100
Anatomy practical	Core course	BNY103P	0.5	1	40	60	100
Physiology paper 1	Core course	BNY104	1.5	1.5	30	70	100
Physiology paper 2	Core course	BNY105	1.5	1.5	30	70	100
Physiology practical	Core course	BNY106P	1	2	40	60	100
Biochemistry	Core course	BNY107	3	3	30	70	100
Biochemistry practical	Core course	BNY108P	1	2	40	60	100
Philosophy of nature cure 1	Core course	BNY109	6	6	30	70	100
Philosophy of nature cure 2	Core course	BNY110	4	4	30	70	100
Philosophy of nature cure practical	Core course	BNY111P	1	2	40	60	100
Yoga practices theory	Core course	BNY112	5	5	15	50	65
Yoga practical	Core course	BNY113P	3	6	15	20	35
English communication	Ability enhancement course	AECC01	1	1			100
Sanskrit	Ability enhancement course	BNY 114	1	1			50
Tutorials			0.5	1			

TOTAL			33	40			1350
SECOND YEAR							
Pathology	Core course	BNY201	3	3	30	70	100
Pathology Practical	Core course	BNY202P	1	2	40	60	100
Microbiology	Core course	BNY203	3	3	30	70	100
Microbiology practical	Core course	BNY204P	2	4	40	60	100
Community Medicine	Core course	BNY205P	3	3	30	70	100
Community Medicine Practical	Core course	BNY206P	1.5	3	40	60	100
Yoga Philosophy	Core course	BNY207	2	2	30	70	100
Yoga Practical	Core course	BNY208P	3	6	40	60	100
Chromo therapy and Magneto Therapy	Core course	BNY209	4	4	30	70	100
Chromo therapy and Magneto Therapy Practical	Core course	BNY210P	2	4	40	60	100
Indian Constitution	Ability Enhancement Course	BNY211	1	1			50
Environmental Sciences	Ability Enhancement Course	AECC02	1	1			50
Tutorials			2	4			
Total			**28.5**	**40**			**1100**
THIRD YEAR							
Manipulative Therapeutics	CORE COURSES	BNY301	3	3	30	70	100
Manipulative Therapeutics Practical	CORE COURSES	BNY302P	1	2	40	60	100
Acupuncture	CORE COURSES	BNY303	3	3	30	70	100
Acupuncture Practical	CORE COURSES	BNY304P	1	2	40	60	100
Yoga Applications	CORE COURSES	BNY305	5	5	30	70	100
Yoga Practical	CORE COURSES	BNY306P	6	6	40	60	100
Fasting Therapy	CORE COURSES	BNY307	3	3	30	70	100
Fasting Therapy Practical	CORE COURSES	BNY308P	1	2	40	60	100
Naturopathy Diagnosis	CORE COURSE	BNY309	3	3	30	70	100
Naturopathy Diagnosis Practical	CORE COURSE	BNY310	1	2	40	60	100
Modern Diagnosis	CORE COURSE	BNY311	4	4	30	70	100
Modern Diagnosis Practical	CORE COURSE	BNY312	1	2	40	60	100
Human Values	ABILITY ENHANCEMENT COURSE	IIPEV01	1	1			50
Techniques In Spa	SKILL ENHANCEMENT COURSE	BNY313	1	1			50
Tutorials			0.5	1			
TOTAL			**34.5**	**40**			**1300**
FOURTH YEAR							
Nutrition, Dietetics, Herbs	CORE COURSES	BNYS401	3	3	30	70	100
Nutrition, Dietetics, Herbs Practical	CORE COURSES	BNYS411P	1	2	40	60	100
Obstetrics and	CORE COURSES	BNYS402	5	5	30	70	100

Gynecology							
Obstetrics and Gynecology Practical	CORE COURSES	BNYS412P	1	2	40	60	100
Yoga Therapy	CORE COURSES	BNYS403	3	3	30	70	100
Yoga Practical	CORE COURSES	BNYS413P	2	4	40	60	100
Hydrotherapy Paper 1	CORE COURSES	BNYS404	2	2	30	70	100
Hydrotherapy Paper2	CORE COURSES	BNYS405	1	1	30	70	100
Hydrotherapy Practical	CORE COURSES	BNYS414P	1	2	40	60	100
Physiotherapy	CORE COURSES	BNYS406	1	1	30	70	100
Physiotherapy Practical	CORE COURSES	BNYS415P	0.5	1	40	60	100
Holistic Practices of Naturopathy and Yoga	CORE COURSES	BNYS407	3	3	30	70	100
Holistic Practices of Naturopathy and Yoga Practicals	CORE COURSES	BNYS416P	0.5	1	40	60	100
Hospital Management and Research Methodology	CORE COURSES	BNYS408	5	5	30	70	100
Hospital management and research methodology practical	CORE COURSES	BNYS417P	0.5	1	40	60	100
Psychology and basic psychiatry	CORE COURSES	BNYS409	1	1	20	50	100
Psychology and basic psychiatry practical	CORE COURSES	BNYS418P	0.5	1	10	20	30
Total			**33**	**40**			**1600**

12. Internship – Research / Industrial Internship

Internship Duration: 12 months.

Internship a phase of training wherein a graduate student is expected to conduct actual practice of Naturopathic Modalities and acquire skills under the supervision of a competent faculty member so that he/she may become capable of working independently. A project work to be carried out by student individually.

Specific objectives of Internship: At the encl of the internship the student should be able to:

(i) Diagnose a disease and prescribe the right treatment.
(ii) outline the planning requirements of such a service
(iii) Explain its organization and management
(iv) Identify various management issue.

Time allocation to each discipline is approximate and shall be guided more specifically by the actual experience obtained.

COMPULSORY POSTINGS DURATION

- Nutrition, Fasting, Dietetics & Herbology
- Massage, Aromatherapy, Chiropractic & Osteopathy
- Hydrotherapy, and Clay therapy
- Pranic Healing

- Chromo therapy and Magneto therapy
- Acupuncture, Acupressure & Reflexology
- Yoga therapy
- Diagnostic Methods in Naturopathy & Yoga
- Modern Diagnostic Methods
- Obstetrics & Gynecology
- Family Welfare Planning
- Community Medicine
- First Aid & Emergency
- General Medicine
- Physiotherapy
- Psychology and Psychiatry

13. Maximum duration of programme/promotion policy

The program shall be spread over Five and half academic years, spread over four and half year comprising actual teaching for minimum of 180 days in each year and internship training for 1 year in the fifth year

14. Credit system & grading CGPA/SGPA

(Si) E (Ci x Gi) Ci where Ci is the number of credits of the ith course and Gi is the grade point scored by the student in the ith course

CGPA E(Ci x Si) Ci where Si is the SGPA of the ith semester and Ci is the total no. of credits in that in that semester.

The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

15. Class / division

In implement the following grading system, the college/campuses shall use the following UGC 10 point grading system

Percentage of marks	Letter grade	Grade points
85% & above	O(Outstanding)	10
80.84.99%	A+ (Excellent)	9
75.79.99%	A(Very good)	8
65.74.99%	B+(Good)	7
60.64%	B (Above Average)	6
50.59.99%	C (Average)	5
50%	I (FAIL)	0
0	Ab (absent)	0

15. Transfer of credit /Academic Credit Bank

Not Applicable.

16. 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.

17. Ragging

If anyone found active in ragging activity, Action will be taken as order of Anti-Ragging Committee.

18. Power of modify

In the event of any emergent situation, if any deviation is considered necessary, the Vice Chancellor is authorized to modify the Ordinance, subject to subsequent ratification by the executive council.

19. Any other heading as per your program

Note:-

- Nothing in the Ordinance shall debar the University from amending the Ordinance and the same shall be applicable to all the students whether old or new.
- Any other provision not contained in the Ordinance shall be governed by the rules and regulations framed by the University from time to time.
- In case of any dispute, the Vice-Chancellor will be competent authority to interpret the rules and his interpretation shall be final.

FIRST YEAR

1. HUMANANATOMY

Objectives

Course Type- Core Course

Course Code – BNY 101, BNY 102, BNY 103P **Credits- 4**

It aims at giving inclusive knowledge of the gross and microscopic structure and development of human body to provide a basis for assessing the correlation of organs and structures and anatomical basis for disease presentations.

Theory

1. General anatomy in brief:
   - basic tissues of body.
   - terminology and nomenclature
2. Elements of anatomy in brief:
   - osteology
   - arthrology
   - myology
   - neurology
3. Regional anatomy:
   - upper limb, lower limb
   - thorax - including diaphrag

- head, neck -brain and spinal cord in brief

4. Embryology (gen. embryology) inbrief:
   - development of individual organs and systems
5. Histology:
   - general histology, micro-anatomy of individual organs and system.
6. Applied anatomy

Anatomy Paper-1.

Course content (related regional anatomy, histology, embryology, myology, arthrology & osteology of upper limb, head, neck & brain and microanatomy)

Theory

I. General anatomy:
Introduction of anatomy, anatomical terms, different branches of anatomy, introduction of bones, its classification, functions, applied anatomy; joints-types, actions, applied anatomy; cartilage-types, action, applied anatomy, basics of all the tissues and systems of the human body.

II. Osteology : (bones of skull & upperlimb)
Names of the bones and their positions; general features, skull - all normal and interior of skull & mandible.

III. Muscular system : (head & neck and upperlimb)
Origin, insertion, nerve supply and action of the muscles with the applied anatomy and clinical testing.

IV. Arthrology: (head & neck, upperlimb)
General features of different types of joints. Brief study of the following joints of the body with movements. Shoulder, elbow, wrist and other smaller joints of head & neck, upper limb.

V. Head, neck and brain
Head and neck- introduction, scalp, face and lacrimal apparatus, sides of the neck, sub occipital triangle, contents of vertebral canal (brief), meningeal layer, cavernous sinuses and other sinuses in brief, hypophysis cerebri, trigeminal ganglion, middle meningeal artery, contents of the orbit, triangles of the neck, ansa cervicalis, parotid gland, otic ganglion, submandibular gland, sublingual gland, thyroid gland, parathyroid gland, thymus, blood supply of deep structure, cervical ganglion, cervical plexus, styloid apparatus, oral cavity, palate, pharynx, auditory tube, nasal septum, paranasal sinuses, cartilage oflarynx

Parts of nervous system, meninges, ventricles, motor and sensory pathways, cranial nerve, motor and sensory cortex and their blood supply with cross sectional studies in brief morphology of spinal cord. Section of medulla - pyramidal decussation, sensory decussation, upper part of medulla, pons -mid level, midbrain-mid superior colliculus, inferior colliculus, cerebellum-horizontal- mid saggital section, horizontal section at interventicular formation, coronal section at anterior commissure, coronal section at mammillary body. Sensory organs (regionwise)-gross anatomy of eyeball, ear, nose and tongue in brief, blood brainbarrier.

VI. Upper limb
An introduction, breast, clavipectrol fascia, axilla, lumbar triangle, triangle of auscultation, bursa

of upper limb, musculotendinouscuff, intermuscular spaces, cubital fossa, synovial sheath, retinaculum of hand, palmar aponeurosis, spaces of hand, anatomical snuffbox.

VII. Micro anatomy- 12 general topics, 15 systemic topics (separate list attached)

1. Study of microscopes and artifacts.

2. General histology, study of the basic tissues of the body, functional correlation ofthestructural components of theorgans.

3. Systemic histology of concernedorgans.

Course outcome

After completion of the program, the student must be able to:

1. Illustrate normal human anatomy clinically important inter-relationship and functional anatomy of bodilystructures;
2. Understand histological structures of various tissues and organs and co- relate structure and function in order to understand diseasedstates;
3. Correlate basic structure and connections of the central nervoussystem,
4. Explain developmental basis of variations and abnormalities with respect to sequential development of organs and systems, teratogens, genetic mutations and environmentalhazards.
5. Demonstrate and identify body structures including topography of living body;

6. **AssessmentScheme:**

Theory – 70 Marks
Internal Assessment – 30 Marks

Anatomy Paper – 2

Course content (related regional anatomy, histology, embryology, myology, arthrology & osteology of upper limb, head, neck & brain and microanatomy)

I. Thorax

General introduction

Pericardium, thorax wall, position and parts of the heart, conducting system, blood supply and nerve supply of the heart, names of the blood vessels and their distribution in the body, lungs & pleura-general features, surface markings, broncho pulmonary segments, applied anatomy, mediastinum, diaphragm, oesophagus, thoracic duct.

II. Abdomen and Pelvis

Peritoneum-general disposition - horizontal and vertical, parts relation, blood supply, nerve supply of abdominal organs. Pelvic organs-parts position, relation, blood supply, nerve supply.

III. Lower Limb

Deep fascia-modifications, saphaneous veins, lymph nodes, adductor canal muscles-nerve supply, blood supply, action, joints, arches of foot, joints of lower limb.

IV. Embryology in brief:

Definition of embryology , brief account of male and female, ovary; definition of gamete; sperm, ovum, gametogenesis, migration of primordial germ cells into gonadal ridge; structure of sperms growth of ovarian follicles, ovarian and uterine cycles. Principle of family planning (contraception),in-vitro fertilization (for integrated teaching). Systemic embryology (brief): development of the individual organ of digestive system, genital system, urinary system, respiratory system, cardiovascular system, nervous system, special sensory organs (in brief) endocrine glands and mammary gland. Development abnormalities in brief.

Course outcome-

After completion of the program, the student must be able to:

1. Illustrate normal human anatomy clinically important inter-relationship and functional anatomy of bodilystructures;
2. Correlate histological structures of various tissues and organs and co- relate structure and function in order to understand diseasedstates;
   - Deduce basic structure and connections of the abdomen, thorax, lowerlimb
3. Describe developmental basis of variations and abnormalities with respect to sequential development of organs and systems, teratogens, genetic mutations and environmentalhazards.
4. Identify gross congenital anomalies and be familiar with the principles of karyotyping;

Assessment Scheme:
Theory – 70 Marks
Internal Assessment – 30Marks

Anatomy Practical

Total time: 32-34 weeks.
Gross Anatomy: (dissection / demonstration of following parts of body)

Upper limb: dissection: pectoral, scapular, shoulder, arm, forearm (5 wks Prosected parts: joints, palm and dorsum of hand.

Thorax: disssection: chest wall, mediastinum, lungs and heart.

Abdomen: dissection: anterior abdominal wall and inguinal region, viscera and posteriorab dominal wall.

Pelvis: dissection: pelvic viscera and blood vessels and nerve saggital section (m &f) (2wks) prosected parts: sole of the foot andjoints.

Head and neck: dissection: scalp, superficial and dissection of face and neck (8 wks to 10 wks). Prosected parts: orbit, eyeball, submandibular region, temporal and infra temporal fossa, cranial cavity, naso and oropharyngeal regions, ear, larynx and pharynx. Cross sections at c-4, c-6 levels.Sagittal section of head and neck.

Nervous system: section of brain and prosected specimens and major functional areas, gross structure of brain and spinal cord and study of gross sections as mentioned earlier (in brief).

Demonstrations:

- Bones-as described in osteologysection.
- Brain and spinalcord.
-

Specific skills: students should learn the following skills

1. To localize important pulsations and the structure against which pressure can be applied in case of bleeding & trauma of particularartery.
2. To elicit superficial and deepreflexes.
3. To demonstrate muscle testing and movements atjoints.
4. To locate for: lumbar puncture, sternal puncture pericardial tapping, and liver biopsy.
5. To locate veins for venouspuncture.
6. To locate the site for emergency such astracheotomy.

Histology

General histology

1. Microscope
2. Cell
3. Epithelial tissue i
4. Epithelial tissue ii
5. Connective tissue-bones andcartilages
6. Musculartissues
7. Nerve tissues (ts & ls of peripheral nerve, sensory & sympathetic ganglion,optic Nerve)
8. Epithelial glands (serous, mucous and mixed salivary gland)
9. Circulatory system (large artery, medium sized artery, largervein)
10. Lymphatic system (lymph nodes, thymus, tonsils, spleen)
11. Skin &appendages.
12. Placenta & umbilicalcord.

Systemic histology

1. Respiratorysystem.
2. Oesophagus &stomach.
3. Liver, gall bladder, pancreas.
4. Urinary system i(kidney)
5. Urinary system ii (ureter, bladder, urethra).
6. Small & largeintestine
7. Reproductivesystem-female
8. Reproductivesystem-male
9. Upper git (lip, tongue)
10. Hypophysis cerebri, thyroid and suprarenal glands.
11. Eye - cornea and retina.

Course Outcome

After completion of the program, the student must be able to:

1. Illustrate histological structures of various tissues and organs and co- relate structure and function in order to understand diseasedstates;
2. Deduce basic structure and connections of the central nervous system, understand the

regulation and integration of various organs and systems and be skilled in locating lesion sites according to deficits in diseasedstates;

3. Describe developmental basis of variations and abnormalities with respect to sequential development of organs and systems, teratogens, genetic mutations and environmentalhazards.
4. Identify body structures including topography of livingbody;

Assessment Scheme

Practical Assessment	-	90 Marks
Theoryviva	-	60 Marks
Practical viva	-	30 Marks
Practical internal assessment	-	10 Marks

Text books

1.	Text Book Of Anatomy (Vo L-I,Ii,Iii)	–	By B.D. Chaurasia
2.	Text Book Of Anatomy	–	By Hamilton
3.	Practical Anatomy	-	By Cunningham
4.	Human Embryology	-	By Inderbir Singh

Reference Books

1.	Text Book Of Anatomy	-	By Gray
2.	Atlas Of Histology	-	By Diforie
3.	Atlas Of Histology	-	By Poddar
4.	Text Book Of Human Histology	-	By Dr. Veena Bharihoke
5.	Cannigham's Text Book Of Anatomy	-	By Cunningham
6.	Balley's Text Book Of Histology	-	By Balley
7.	Medical Embryology	-	By Langman
5.	A Color Atlas Of Human Anatomy	-	By Mcminn
6.	Grant's Method Of Anatomy	-	By Grant
7.	Regional & Applied Anatomy	-	By R.J.Last

2. PHYSIOLOGY

Course type- Core Course
Course code – BNY 104, BNY 105, BNY 106P **Credits- 4**

Objective

The objective of teaching Physiology to undergraduate students is aimed at giving the student comprehensive knowledge of the normal functions of the organ systems of the body to facilitate comprehension of the physiological basis of health and disease.

THEORY
Physiology paper – 1

I. GENERALPHYSIOLOGY

1. Cell structure
2. Sub-cellularunits
3. Cell membranes and theirproperties

4. Transport mechanisms
5. Bioelectrical potentials
6. Body fluids andhomeostasis

II. **BLOOD** – Physical properties, composition and functions ofblood.

1. **Plasma proteins**
   a) Normal values
   b) Origin and methods ofseparation
   c) Functions and variations in health anddisease.

2. **Bonemarrow**
   a) Formed elements
   b) Composition andfunctions

3. **Erythrocytes**
   a) Morphology and variations in health anddiseases
   b) Development of erythrocytes
   c) Site and stages indevelopment
   d) Necessaryfactors
   e) Regulation of development oferythrocytes
   f) Life-span and fate of erythrocytes
   g) Erythrocytes sedimentation rate (ESR)

4. **Haemoglobin**
   a) Structure, synthesis, function andmetabolism
   b) Types ofhemoglobin

5. **Anaemia –** Definition andclassification

6. **Jaundice –** Definition andclassification
   a) Role and function ofspleen

7. **Leucocytes**
   a) Classification, morphology, development andfunctions
   b) Variation in health anddisease

8. **Thrombocytes**
   a) Origin, morphology andfunctions
   b) Variation in health anddiseaseHaemostasis
   c) Mechanism of haemostasis, coagulation ofblood
   d) Fate of clot and disorders ofclotting

9. **Anticoagulants**
   a) Mechanism of action and clinicalapplications

10. **Blood Groups**
    a) Classification
    b) ABO and RHsystem
    c) Blood transfusion, indication andhazards

11. Lymph and tissuefluids

a) Lymph and reticularsystem
b) Fluid compartments and WaterBalance
c) Principles of immunesystem
d) Cellular and humoralimmunity

III. CARDIO-VASCULAR SYSTEM

Historical perspective and organization of cardiovascular system

1. Heart

a) Structure and properties of cardiacmuscle
b) Cardiacmetabolism
c) Enervation of heart, junction tissue ofheart
d) Regeneration and spread of cardiacimpulse

2. Electrocardiography

a) Enthovan's Law
b) Various ECG leads, normal ECG and itsinterpretation
c) Cardiac arrhythmias and heart block
d) Cardiacvector

3. Cardiaccycle

a) Pressure and volume change (mechanicalevents)
b) Heart sound andstethoscopy
c) Principle ofecho-cardiography
d) Measurement and regulation of cardiacoutput.

4. Heart sounds

a) Description, causation and relation to other events in cardiaccycle
b) Clinical significance of heartsounds

5. Blood pressure

a) Definition, regulation and factors influencingB.P.
b) Measurement of bloodpressure
c) Physiology of haemorrhage andshock

6. Circulation

a) Blood vessels
b) Physical principle of blood flow, regulation of bloodflow
c) Jugular venous pulse tracing, radial pulsetracing
d) Coronary, cerebral, renal and pulmonarycirculation
e) Splanchnic, cutaneous and capillarycirculation

IV. RESPIRATORY SYSTEM

Introduction, internal and external respiration, physiological anatomy of respiratory system.

1. Mechanics ofrespiration

a) Inspiration andexpiration
b) Role of respiratory muscles and thorasiccage

c) Pressure and volume change duringrespiration
d) Work of breathing, lung compliance and its significance in health and diseases.

2. Lung volumes andcapacities
a) Lung volumes and capacities and theirmeasurements
b) Respiratory minute volume and maximum voluntaryventilation

3. Alveolar ventilation Composition of atmospheric, inspired, alveolar and expiredair.

4. Pulmonarycirculation
a) Pulmonary circulation, ventilation-perfusionrelationship
b) Diffusion of gases across pulmonarymembrane
c) Oxygen uptake, transport anddelivery
d) Carbon-dioxide uptake, transport anddelivery

5. Organization of the respiratory centers a)Nervous and chemical regulation ofrespiration
b) Classification and characterstics of hypoxia, cyanosis, asphyxia, hypercapnea, hypocapnea, dyspnoea, apnoea and orthopnea and periodicbreathing.
c) Respiratory aspects of highaltitude
d) Physiology of acclamatisation andhyperbarrism
e) Respiratory / pulmonary functiontests
f) Non-respiratory functions oflungs
g) Artificial respiration

V. DIGESTIVE SYSTEM

1. Introduction, organization and plan of digestivesystem

2. Saliva
a) Composition, functions, regulation ofsecretion
b) Methods of study of above aspects ofsaliva

3. Stomach
a) Functions ofstomach
b) Composition and functions of gastricjuice
c) Regulation of secretion and mechanism of HCLsecretion
d) Gastric emptying time and itsregulation
e) Methods of study of gastric function and its appliedaspect.

4. Pancreas
a) Composition and functions of pancreaticjuice
b) Regulation of pancreaticsecretion
c) Methods of study of pancreaticsecretion

5. Liver
a) Function, formation, storage and emptying ofbile
b) Composition, function and regulation of release ofbile
c) Entero-hepaticcirculation

d) Tests for liver functions

6. Small intestine
a) Succus entericus
b) Composition, function and mechanism ofsecretions

7. Largeintestine
a) Functions

8. Gastro-intestinal Hormones
a) Release and functions

9. Gastro-intestinal movements
a) Mastication, deglutition andvomiting
b) Movements of stomach and smallintestines
c) Movements of large intestine and defecation
d) Regulation of movements and methods ofstudy

10. Digestion and adsorption of carbohydrates, fats, proteins and vitamins, minerals and water.

COURSE OUTCOME-
After completion of the program, the student will be able to:
1. Illustrate the normal functioning of all the organ systems and their interactions for well co-ordinated bodyfunction;
2. Correlate the relative contribution of each organ system to thehomeostasis;
3. Describe the physiological aspects of normal growth anddevelopment;
4. Analyze the physiological response and adaptations to environmental stresses;
5. Classify physiological principles underlying pathogenesis and disease management.

Assessment Scheme:
Theory – 70 Marks
Internal Assessment – 30 Marks

PHYSIOLOGY PAPER- 2

VI. EXCRETORY SYSTEM

1. General introduction organs of excretion with special emphasis on evolutionof excretorymechanisms

2. Renal system-functional anatomy and renalcirculation

3. Nephron
a) Mechanism of urine formation, glomerular filtration, tubular function
b) Concentration and acidification ofurine
c) Composition of normal urine, and abnormal constituents ofurine
d) Renal functiontests

4. Non-excretory functions ofkidney
a) Physiology of micturition and itsabnormalities

5. Skin-Structure andfunctions

VII. ENDOCRINAL SYSTEM

1. Introduction-hormones, evolutionary back-ground and organization of endocrine controlsystems

2. Methods ofstudy
- a) Classification of hormones and mechanism of hormonalaction
- b) Regulation of hormone secretion and feed-backsystem

3. Hypothalamo- hypophyseal system Releasing hormones

4. Activeprinciples
- a) Chemical nature, biosynthesis, role ofaction
- b) Control of secretion , excretion and itsaspect.
- c) Clinical study of their hypo-and hyperfunction
- d) Laboratory diagnosis of pituitary (anterior and posterior) gland, thyroid,parathyroid, adrenal cortex and medulla and islets of langerhans.

VIII. REPRODUCTIVE SYSTEM

1. Physiology ofreproduction
- a) Introduction to physiology ofreproduction
- b) Sex determination and sex differentiation and chromosomalstudy

2. Male reproductivesystem
- a) Growth, development and structure oftestes
- b) Gonadotropins and gonadalhormones
- c) Functions of testes and spermatogenesis
- d) Composition of semen

3. Female reproductivesystem
- a) Ovary,gonadotropins
- b) Structure of ovary and corpusluteum
- c) Function of ovary, ovarianhormones
- d) Physiology of menstruation cycle and physiology ofpregnancy
- e) Physiology of placenta, gestation andparturition
- f) Physiological basic of tests for ovulation andpregnancy

4. Physiology oflactation

IX NERVE MUSCLE PHYSIOLOGY

1. Neurons
   - a) Morphology and measures ofexcitability
   - b) Classification and properties of nervefibers

2. Muscle
   - a) Types of muscles and their properties andmorphology
   - b) Neuro-muscular junction, excitation-contractioncoupling
   - c) Myastheniagravis

d) Starlings law and its applications

X. CENTRAL NERVOUS SYSTEM

1. Structural and functional organization of central nervoussystem

2. Neuron
(i) Neuroglia, functional types ofneurons

3. Cerebro-spinal fluid
(i) Formation, circulation, functions ofCSF
(ii) Methods of collection and clinical significance ofCSF

4. Synapse
(i) Types of synapses and theirstructure
(ii) Sympathetic transmission
(iii) General properties ofneuro-transmitters

5. Sensory Physiology
(i) Classification and general properties ofreceptors
(ii) Sensory modalities andstereognosis

6. Reflexes
(i) Reflex and general properties of reflexes (withexamples)

7. Ascending tracts
(i) Origin, course, termination andfunctions
(ii) Specific reference to pain pathway and physiology ofpain

8. Organisaton of motorsystems
(i) Pyramidal and extra-pyramidalsystem
(ii) Upper and lower motor neurones and theirlesions
(iii) Brown-sequard syndrome
(iv) Syringomyelia

9 Cerebellum
a) Functional anatomy, connections andfunctions
b) Effects of lesions and tests for cerebellarfunction

10. Basal ganglion
a) Functional anatomy, connections andfunctions
b) Diseases of basal ganglion and its clinicalevaluation

11. Vestibular apparatus
a) Functions anatomy, connections andfunctions
b) Effects of lesions and theirassessment
c) Physiology of maintenance and regulation of muscle tone, posture and equilibrium
d) Decerebrated rigidity and rightingreflexes

12. Thalamus
- a) Functional anatomy, connections andfunctions
- b) Effects of lesions ofthalamus

13. Hypothalamus
- a) Functional anatomy, connections andfunctions
- b) Effects of lesions ofhypothalamus

14. Body temperatureregulation
- a) Normal body temperature, pyrexia andhypothermia

15. Cerebral cortex
- a) Functional anatomy
- b) Methods of study of corticalfunctions

16. Limbicsystem
- a) Functional anatomy, connections andfunctions
- b) EEG, Physiology of sleep andwakefulness

17. Higherfunctions
- a) Learning, speech, memory, behaviour andemotions

XI. AUTONOMIC NERVOUSSYSTEM

1. Sympathetic nervoussystem

2. Parasympathetic nervoussystem

XII. SPECIAL SENSE

1. Smell
- (i) Physiology of olfaction and olfactorydiscrimination
- (ii) Olfactory pathway and defects ofolfaction

2. Receptors, primary taste sensation and tastepathway

3. Vision
- (i) Functional anatomy of eye, extra and intra-ocularmuscles
- (ii) Errors of refraction and their correction, visualacuity
- (iii) Physiology of aqueoushumour
- (iv) Cornea, lens, intraoccular pressure,accommodation
- (v) Retina, rhodopsin cycle, dark and light adaptation
- (vi) Visual pathway and effects of lesions in visualpathways
- (vii) Field of vision, perimetry, binocularvision
- (viii) Iris and papillaryreflexes
- (ix) Colour vision, colour blindness and tests for colourblindness
- (x) Formation and circulation of tears, lacrimalglands

4. Hearing
- (i) Functional anatomy of ear, function of externalear
- (ii) Physiological functions of middleear
- (iii) Impedence matching and tympanicreflex
- (iv) Functional anatomy of internal ear, cochlea, organ ofcorti

(v) Auditory pathway and auditorycortex
(vi) Frequency analysis, sound localization, defects ofhearing
(vii) Audiometry, tests for conduction defects,Aphasia

Note: For the purpose of written Theory examination, the syllabus is divided as follows :

Theory Paper-I
Section-A: Consisting of chapters on General physiology, Blood, Cardio-vascular system, Respiratory system and Digestive system.

Theory Paper- II
Section-B: Consisting of chapters on excretory system, Endocrine system, Reproductive system (male and female), Nerve muscle physiology, Central nervous system, Autonomic nervous system and Specialsenses.

COURSE OUTCOME
After completion of the program, the student will be able to:
1. Explain the normal functioning of all the organsystems and their interactions for well co-ordinated bodyfunction;
2. Correlate the relative contribution of each organ system to thehomeostasis;
3. Describe the physiological aspects of normal growth anddevelopment;
4. Illustrate the physiological response and adaptations to environmental stresses;
5. Analyse physiological principles underlying pathogenesis and disease management.

Assessment Scheme:
Theory – 70 Marks
Internal Assessment – 30 Marks

PHYSIOLOGY PRACTICAL

I. HAEMATOLOGY EXPERIMENTS
1. Collection of blood, study of fresh drop of blood, effects of isotonic, hyper tonic and hypo tonic saline onRBCs
2. Enumeration of RBCs (RBScount)
3. Estimation ofhaemoglobin
4. Packed cell volume (PCV) and bloodindices
5. Determination of Erythrocyte sedimentation rate(ESR)
6. Enumeration of WBC (Totalcount)
7. Differential WBC count (Differentialcount)
8. Determination of clotting time and bleedingtime
9. Enumeration of platelets (Plateletcount)

II. HUMAN PHYSIOLOGYEXPERIMENTS
1. Recording of blood pressure in human beings and study the effects of exercise on bloodpressure
2. Electrocardiography (Demonstrations)
3 Clinical examination of CVS and radialpulse
4. Determination of tidal volume, inspiratory reserve volume, expiratory reserve volume, inspiratory capacity, expiratory volume (All experiments are to be arranged

fordemonstration)

5. Stethoscopy, normal body temperature and its physiologicalvariation
6. Pulse, respiration and temperature chart withcorrelation
7. Clinical examination of respiratorysystem
8. Plethysmography (Demonstration)
9. Clinical examination of CNS
   a) Motorfunctions
   b) Sensoryfunctions
   c) Cranial nerves
   d) Reflexes superficial anddeep
10. Determination of vital capacity and maximum ventilator volume with spirometry(Demonstration)

Note:- The above 10 human physiology experiments are to be conducted with demonstration as a joint venture by physiologists and the clinical faculty, if necessary.

Assessment Scheme

Practical Assessment	**-**	**90 Marks**
Theory Viva	**-**	**60 Marks**
Practical Viva	**-**	**30 Marks**
Practical Internal Assessment	**-**	**10 Marks**

Recommended Text Books for Physiology

1. Text book of Medical physiology by A.C.Guyton
2. Review of Medical physiology by W.F.Ganong
3. Concise text book of Medical physiology by S.K.Choudhary
4. Understanding Medical physiology byBijlani
5. Essentials of Medical Physiology bySembulingam

Reference Books

1. Best and Taylor's physiology basis of Medicalpractice
2. Practical physiology byGhai
3. Practical physiology byRanade.

COURSE OUTCOME

After completion of the program, the student will be able to:

1. Conduct experiments designed to study physiologicalphenomena;
2. Interpret experimental/investigative data;
3. Differentiate between normal and abnormal data from results of tests, which he/she has done and observed in the laboratory.
4. Demonstrate the practicals efficiently.

3. BIOCHEMISTRY

Course Type- Core Course

Course code – BNY 107, BNY 108P

Credits- 4

Objective:

The objectives of introducing biochemistry to the undergraduate students is to make them understand the scientific basis of the life processes at the molecular level and to orient them towards the application of the knowledge in solving clinical problems.

BIOCHEMISTRY THEORY

1. Introduction and Prospects.
2. Hydrogen ion concentration, acids, bases, buffers, Hendarson - Haselbasch Equation.
3. Principles of calorimetry, Paper chromatography andElectrophoresis.
4. Amino Acids - Classification, structure, properties and side chains of amino acids.
5. Peptides - Biological importance of peptides structure ofInsulin.
6. Proteins - Definition, Biological importance, classification and properties, structure of proteins, coagulation and denaturation ofproteins,
7. Elementary aspects of the structure of collagen, Myoglobin andHemoglobin.
8. Enzymes - Definition, classification, specificity, coenzymes, co-factors and activators diagnostic importance of enzymes andiso-enzymes.
9. Carbohydrates - Definition, classification and biological importance of Monosaccharides-classfication, properties and stereoisomerism, oligosaccharides-importance of Disaccharides.
10. Polysaccharides - Functions.
11. Lipids - Definition, classification and biologicalimportance.
    a) Simple lipids: Composition of triglycerol, Waxes.
    b) Compound lipids: Functions of fatty acids - Properties of saturated and unsaturated fattyacids.
12. Nucleic acids - Definition, classification, composition and biological importance of nucleic acids, purines and pyrimidine bases.‟Structure of DNA Structure, function and types of RNA..
13. Vitamins -Definition and classification. Brief account of source, biochemical function deficiency diseases. Vitamin antagonistHypervitaminosis
14. Minerals - Calcium, Phosphorous, iron, copper, zinc, magnesium, manganese, lead, mercury arsenic and metal toxicity fluorine andiodine.
15. Cell and subcellular structures: Cell membrane, its composition, function of subcellular structures, transport across cell membrane, Active and facilitated diffusion.
16. Metabolism-Digestion and absorption of carbohydrates, lipids, proteins and nucleicacids.
17. Carbohydrate Metabolism-Glycogenesis, glycogenolysis and kreb‟s cycle, glycolysis, pyruvate oxidation citric acid cycle, Gluconeogenesis, Metabolism of Fructose and Galactose, regulation of metabolic pathways, disorders of carbohydrate metabolism, regulation of blood sugar, glucose tolerance test, diabetes mellitus.
18. Biological oxidation - Oxidativephosphorylation.
19. Lipid Metabolism -Lipogenesis, synthesis of fatty acids, de-saturation, Phospholipids, Bio-synthesis of lecithine, Cephalin and utilisation of Ketone bodies, Ketosis, synthesis and utilisation of ketone bodies, Ketosis,synthesis and breakdown of cholesterol,

disorders of lipid metabolism, outlines and formation and functions of prostaglandins and leucotrienes, fatty liver and lipotropicfactors.

20. Metabolism of proteins and amino acids - Breakdown of tissue proteins, amino acids pool, general metabolism of amino acids, disposal of ammonia, urea cycle formation of glutamate and glutamine,disorders of amino acidmetabolism.
21. Purine and Pyrimidine metabolism-Outline of synthesis and breakdown of purine and pyrimidine, Disorders of metabolism of purine andpyrimidine.
22. Biochemical genetics and protein synthesis - Replication, transcription, reverse transcription viruses, oncogenes, post transcriptionmodification.
23. Biochemistry of blood - Outline of synthesis and degradation of heme, Function of Haemoglobin, abnormal haemoglobin, Jaundice, importance, functions and separation of plasma proteins, Functions of immunoglobulins, regulation of PH of blood, role of kidney and lungs in maintaining PH of blood, acidosis and Alkalosis.
24. Liver function - Liver Function tests, Detoxificationmechanisms.
25. Kidney Function Tests - Composition of Urine, Urea clearance and creatinine clearance.
26. Energy metabolism (BMR) - Basal metabolic rate and its importance, calorific values of blood, unbalanced diet, protein energy malnutrition (PEM), Essential fatty acids, dietary habits and diseases, biochemistry ofstarvation.
27. Electrolytes and watermetabolism.

COURSE OUTCOME-

After completion of the course, the student shall be able to:

a) Explain the molecular and functional organization of a cell and list its sub cellularcomponents;
b) Correlate the fundamental aspects of enzymology and clinical application wherein regulation of enzymatic activity isaltered;
c) Illustrate digestion and assimilation of nutrients and consequences of malnutrition;
d) Explain biochemical basis of inherited disorders with their associated sequelae;
e) Describe mechanisms involved in maintenance of body fluid and pH homeostasis;
f) Analyse the molecular mechanisms of gene expression and regulation, the principles of genetic engineering and their application inmedicine

Assessment Scheme:

Theory – 70 Marks
Internal Assessment – 30 Marks

Biochemistry Practicals

SECTION – I

1. Indicators
2. Reactions of monosaccharides - Glucose andfructose
3. Reactions of disaccharides - Lactose, Maltose andSucrose
4. Reactions of polysaccharides - Starch anddextrin
5. Reactions of Proteins - albumin, casein,gelatin
6. Coagulation and Precipitation and reactions of Proteins.
7. Reactions of Non Protein Nitrogen (NPN) - Urea, Uric acid andcreatinine.

8. Analysis of Milk
9. Normal Constituents of urine
10. Analysis of abnormalurine.

SECTION –II

1. Determination of
   a. Blood Sugar
   b. Blood urea
   c. Total serum protein
   d. Total serum calcium
   e. Total serum cholesterol
   f. Total serumbillirubin
2. Determinationof
   a. Sugar inCSF
   b. Proteins isCSF
   c. Chlorides inCSF
3. Determination of albumin and urea inurine
4. Determination of SGOT andSGPT
5. Demonstration of principlesof
   a. Calorimetry andcalorimeter
   b. Paperchromatography
   c. Electrophoresis
   d. Glucose Tolerance Test(GTT)
   e. Flamephotometry.

COURSE OUTCOME

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

1. Demonstrate conventional techniques/instruments to perform biochemical analysis relevant to clinical screening anddiagnosis;
2. Analyse and interpret investigativedata;
3. Demonstrate the skills of solving scientific and clinical problems and decision making.
4. The integrated knowledge of biochemistry will help the students to integrate molecular events with the structure and function of the human body in health and disease.

Assessment Scheme

Practical Assessment	**-**	**90 Marks**
Theory Viva	**-**	**60 Marks**
Practical Viva	**-**	**30 Marks**
Practical Internal Assessment	**-**	**10 Marks**

Note:

1. Section - I of practicals shall be conducted by students in biochemistry laboratory.
2. Section - II of practicals shall be conducted by teaching staff as a part of demonstration/ seminar in the laboratory.

Recommended Text Book for Biochemistry

1. Text book of Biochemistry - By Ramkrishna, Prasanna and Rajan

2. Biochemistry for medical students - By Debajyothi Das.
3. Text book of Biochemistry - By Rama Rao.
4. Text Book of Biochemistry - By Sathyanarayan.

ReferenceBook

1. Harper"sre view of physiological chemistry - ByHarper
2. Text BookofBiochemistry - By Lubert Stryer
3. Biochemistry - By AlbertLehninger.
4. Text book of Biochemistry - By West & Todd
5. Laboratory manual of Biochemistry - By Pattabhiraman &Acharya
6. Laboratory manual of Biochemistry - By Rajgopal & Ramkrishanan

4. PHILOSOPHY OF NATURE CURE

Course Type- Core Course
Course Code – BNY 109, BNY110, BNY111P

Credits- 11

Objectives:
The objectives of introducing philosophy of Naturopathy to the undergraduate students is to make them understand philosophical basis of the system of Naturopathy, including concepts of health, causes and pathogenesis of disease and brief introduction to the various therapeutic modalities used inNaturopathy.

THEORY
PNC PAPER -1

1. The evolution of the human body.

2. Philosophy of the body, mind, soul, life, spirit and spiritual body.

3. (a) Composition of the human body, according to Ayurveda, Naturopathy, Yoga, Modern Medicine & Homeopathy.
   (b) History and Fundamental (Basic) principles of Naturopathy.

4. Comparative study of the Naturopathy with other systems of Medicine.

5. Ayurvedic Approach towards Naturopathy.

6. Philosophy of Indian Naturopaths
   - Vegiraj Krishnamraju
   - Vinoba Bhave.
   - Mahatma Gandhi.
   - Dr. S.J.Singh
   - Dr.J.M.Jussawala
   - Dr. Vittal Das Modi
   - Dr.B.Venkat Rao
   - Dr. Dinsha K.Mehta
   - Dr.KulranjanMukherjee

- Dr. K. LaxmanSharma

7. Philosophy of Foreign Naturopaths

1.	Aesculapius	11.	Hippocrates
2.	The School ofSalerno.	12.	Paracelsus
3.	Vincent Priessnitz.	13.	Sebastian Kneipp.
4.	ArnoldRickli.	14.	Louis Kuhne.
5.	AdolfJust.	15.	John H.Tilden.
6.	SigmundFreud.	16.	Henry Lindlahr.
7.	BernarrMacfadden	17.	Bernard Jenson
8.	ArnoldEhret	18.	Edwin Babbit
9.	Herbert M. Shelton	19.	J.H. Kellog M.D.
10.	Benedict Lust		

8. Laws of Nature:
   - Pancha MahaBhutas.
   - Shareera Dharmas - Ahara, Nidra, Bhaya, Maithuna.
   - Inflammation and its differentstages.
   - Natural rejuvenations.
   - Violations of Laws of Nature resulting indiseases
   - Dictum of Cure
     i) Remove the root cause
     ii) Eliminate the toxin
     iii) Supplement of the vital Nutrients
     iv) Conservation of the vital energy or nerveenergy.
9. Catechism of NatureCure

10. Swasthya Vritam:
    a. Dinacharya. b. Ratricharya.
    c. Ritucharya. d. Vegadharanam

11. Unity of disease, unity of cure and way of treatment.

12. How NatureCures?

13. Foreign matter and Toxins accumulation in the body and its importance in elimination through different ways of channels. (Toxemia / Foreign Matter Theory).

14. How to acquire Natural immunity indiseases

15. Difference between functional and organicdiseases.

16. Materia Hygienica
    a) Importance of Physical & Mental Hygiene
    b) Revolution & Evolution of Hygiene
    c) Hygiene not acure
    d) Hygienic care of the sick
    e) Applications of Hygiene

f) Medicine & the Hygiene contrasted
g) Women & Hygiene
h) Hygienists
i) Future ofHygiene

17. The Philosophy of Life:-
a) The Primordial Requisites of Life (Basic Needs of Living)
b) The Laws of life.
c) Mystery oflife
d) Life‟s Engineering
e) Safeguards of life.
f) How long can we live (Increase of average length of life). Are You Shortening Your Life? Why Live Long?

18. The Philosophy of Health
a) Health Standards
b) Health & its Conditions
c) Ancient Man Was Healthier Than We Are.
d) Positive Habits
e) Vital Economy
f) Divine science of Health.
g) Nine Doctors at yourCommand.
h) Health Destroyer (Tea, Coffee, Salt, Sugar, Tobacco Chewing, Smoking, Alcohol, Non-Veg (Animal Food), Excess Fat & Oil, Negative Thinking & attitudeetc.)
i) The Secret of Health - Storing Energy & Enzymes
j) Internal Symbiosis
k) Your Body: Do- it Yourself RepairShop

19. The Philosophy of Disease in Nature Cure:
a) The Essential Nature of Disease
b) The Occasions for Disease
c) The Suppression of Disease
d) Is Disease Friend or Foe?
e) The Rationale of Fever
f) Disease has ManyFaces
g) You under the Doctor‟s Eye
h) Fallacy of Diagnosis
i) Iatrogenic Diseases
j) Physiological Compensation.

20. The Cure Core In Nature Cure:-
a) Living Matter Cures Itself.
b) Reform Vs. Cure
c) The Delusion of Cure
d) To Cure The Incurable.
e) Rest Cure

COURSE OUTCOME-

After completion of the course, the student shall be able to:

1. Illustrate the history of Naturopathy including major contributors to the field and their work;
2. Correlate the evolution and composition of the human body according to different schools of medicine such as Naturopathy, *Yoga*, *Ayurveda*, Homeopathy, Modern Medicine, etc.
3. Concepts of health and disease according toNaturopathy
4. Classify and Correlate Ten basic principles ofNaturopathy
5. Describe Foreign matter, toxin accumulation, theory of Toxemia, Unity of disease and Unity of Cure.

Assessment Scheme:

Theory – 70 Marks

Internal Assessment – 30 Marks

PNC PAPER –II

1. Properties of Water, Mud, Air and Sunlight.
2. Health is positive and disease is Negative.
3. Basic concepts in Nutrition and balanceddiet.
4. Role of diet in nature cure and yoga(Satvic, Tamsic,Rajsic)
5. Outlines on
   a. Regular Habits for health
   b. Rest and Relaxation
   c. Live Food- Natural Raw diet
   d. Fasting
   e. Exercises.
6. Fundamentals ofAyurveda
7. Fundamental of Siddha
8. Fundamentals of Homeopathy
9. Fundamentals of Unani
10. Fundamentals of Allopathy
11. The Diagnostic Procedures in Naturopathy & their Diagnostic Values:
    a. Facial Diagnosis-The Science Of FacialExpression
    b. Iridiagnosis
    c. Chromo-Diagnosis
    d. Spinal Analysis.
    e. Arogya-Rakshaka Panchatantras and Their Importance In Restoration, Maintenance Of Health And Prevention Of Diseases.
12. Treatment Modalities in Nature Cure (in brief):
    a. i) Enema - Colon Flushing
       ii) Colon Hydrotherapy. Hydrotherapy:
    b. Hydrotherapy:
    c. Hip Bath
       i. Spinal Bath
       ii. Spinal Spray
       iii. Foot Bath
       iv. Arm Bath

v. Contrast Arm & Foot Bath
vi. Steam Bath
vii. Sauna Bath
viii. Packs
ix. Full Wet Sheet Pack
x. Jacuzzi
xi. SitzBath
xii. Full Immersion Bath
xiii. Under Water Massage
xiv. Douches
xv. Cold Circular Jet Bath
xvi. Whirlpool Bath
xvii. Gastro Hepatic Pack
xviii. KidneyPack
xix. Oxygen Bath

d. Mud Therapy:
(i) Mud Packs
(ii) Mud Bath.

e. Chromotherapy:- ColourTreatment
i. Heat, Light, Ultra-violet and Infra redrays
ii. Chromothermolium.
iii. Heliotherapy
iv. Sun Bath
v. Athapa-Snana (Banana Leaf Bath)

f. Air-therapy
i) Air Bath
ii) OzoneBath
iii) Magnetotherapy

g. MassageTherapy
h. AromaTherapy
i. Chiropractice
j. Osteopathy
k. Physiotherapy
l. Nutrition & Dietetics.

13. Crises and their Management.
14. Sleep - Repose.
15. Toxins and anti-toxins, their generation & mitigation in nature cure way.
16. Vaccinations and inoculation, their ill effects on the human mind and body.
17. Old age problems and natural rejuvenation.
18. Family planning by Natural therapeutics.

COURSE OUTCOME-

After completion of the course, the student shall be able to:

1. Explain the history of Naturopathy including major contributors to the field and their work;
2. Correlate the evolution and composition of the human body according to different schools of medicine such as Naturopathy, *Yoga*, *Ayurveda*, Homeopathy, Modern Medicine, etc.

3. Analyse naturopathic viewpoints of concepts like hygiene, vaccination, family planning, personal life and prevention of diseases, geriatrics, etc, and implement them in his/herpractice
4. Analyse Principles behind using the diagnostic procedures of Naturopathy, like spinal diagnosis, facial diagnosis, iris diagnosis, and chromodiagnosis.
5. Demonstrate knowledge of recent advances and research in Naturopathy principles/theories.

Assessment Scheme:
Theory – 70 Marks
Internal Assessment – 30 Marks

PNC PRACTICALS

a. Students should be introduced to various treatment procedures used in Naturopathy.
b. Students should have knowledge of giving varioustreatments.
c. Demonstration of:
i) Natural Diet (Live food).
ii) Satvic boiled diet.
iii) Way of serving & various specialdiets.
d. Practicals withrecord.v.Visiting to various nature cure clinics/ hospitals.

COURSE OUTCOME-
After completion of the course, the student shall be able to:

1. Understand Principles behind using the diagnostic procedures of Naturopathy, like spinal diagnosis, facial diagnosis, iris diagnosis, and chromo diagnosis.
2. Demonstrate knowledge of recent advances and research in Naturopathy principles/theories.
3. Demonstrate basic knowledge of the various therapeutic modalities utilised in Naturopathy;
4. Describe the various principles of Naturopathy with respect to the body, health, disease and therapy, diagnosis and management

Assessment Scheme
Practical Assessment - 90 Marks
Theory Viva - 60 Marks
Practical Viva - 30 Marks
Practical Internal Assessment - 10 Marks

Text Books—

1. Philosophy of Nature Cure - By Henry Lindlahr.
2. Practice of Nature Cure - By Henry Lindlahr.
3. Human cultureand Cure - By Dr. E.D. Babbit
4. Practical Nature Cure - By Dr. K.Laxman Sharma.
5. History and Philosophy of Nature Cure - BY S.J. Singh
6. MyNature Cure - By M.K.Gandhi
7. Natural health care- Ato Z - By Belinda Gram
8. Introduction toNatural Hygiene - By Herbert M.Shelton

9.	A Complete Hand book of Nature Cure	- By H.K. Bakhru
10.	Nature Cure - a way of life	- By S.R. Jindal
11.	The cure of advance cancer by Diet Therapy	- Dr. Max Gerson M.D.
12.	Toxemia	- J.H.Tilden
13.	(i) Dainandin rogo ki Prakartik Chikitsa	- Dr. Kulranjan Mukherjee
	(ii) Purane rogo ki Grah Chikitsa	- Dr. Kulranjan Mukherjee
	(iii) Stri rogo ki Grah Chikitsa	- Dr. Kulranjan Mukherjee
	(iv) Shishu rogo ki Grah Chikitsa	- Dr. Kulranjan Mukherjee
	(v) Abhinav Prakartik Chikitsa	- Dr. Kulranjan Mukherjee
	(vi) Khadya kinayi Vidhi	- Dr. Kulranjan Mukherjee
14.	(i) Swasthya keliye Bhojan	- Dr. Bhojraj Chhabaria
	(ii) Binadava Tandurusti	- Dr. Bhojraj Chhabaria
	(iii) Swasthyaavam Sudaulata	- Dr. Bhojraj Chhabaria
15.	How toget well	- Dr. Paavo Airola
16.	The Encyclopedia of health & Physical Culture	- Dr. Bernarr Macfadden
17.	Mywater cure	- Father Sebastian Kneipp
18.	The New Science of Healing	- LouisKuhne
19.	Returnto Nature	- Adolf Just
20.	Diet Reform Simplified	- Dr. Stanley Lief
21.	Rational Fasting	- Dr. Arnold Ehret
22.	The Human Cultureand Cure	- Edwin Babbit
23.	Rogo ki Achook Chikitsa	- Dr. Janaki Sharan Verma
24.	The Greatest Health Discovery	- American Natural Hygiene Society
25.	The History of Natural Hygiene	- Hereward Carrington.
26.	Principles of Natural Hygiene	- Herbert M.Shelton
26.	Health For All	- H.M. Shelton
27.	Integrated Healing Arts	- Dr. J.M. Jussawala
28.	Prakratik Chikitsa Sagar	- Dr. Gaurishankar Mishra
	Speaking of Nature Cure S.Swaminathan	- K. Laxmana Sharma &
29.	Human Life-its Philosophy & Laws	- Herbert M.Shelton
30.	How to Get Rid of The Poisons in Your Body	- Gary Null & Steven Null
31.	Let"s Get Well	- Adelle Davis
32.	Be your Own Doctor	- Ann Wigmore Reference Books
33.	My Nature Cure or Practical Naturopathy	- By S.J. Singh
34.	The Science official expression	- By Louis Kuhne
35.	The Story of my experiment with truth	- BY M.K.Gandhi
36.	Ayurveda for health and longlife	- By Dr. R.K.Garde
37.	Every body's guide to Nature Cure	- BY Harry Benjamin
38.	Prayer	- By M.K. Gandhi
39.	Diet and Diet Reforms	- By M.K. Gandhi
40.	Panchatantra	- By VenkatRao
41.	A. Nature Cure B. Healing from within	- By J.M.J ussawala
42.	Miracle of fasting	- By Dr. Paavo Airola
43.	Raweating	- By Aterhov & By Hira Lal
44.	Vitality fasting & Nutrition	- By Hereward Carrington
45.	Death Deferred	- By Hereward Carrington
46.	Natural Nutrition of Man	- By Hereward Carrington
47.	Mucousless diethealing System	- By Arnold Ehret

48. Natural Hygiene - Pristine wayoflife - By Herbert M.Shelton
49. Better Sight without glasses - By HarryBenjamin
50. Swasthavrittavijyana - By R.H.Singh
51. Fundamentals of Ayurveda - By K.N.Udupa
52. Arogya Prakasha - By Ramnarayana Vaidya
53. Chikitsa Tatva Dipika - By Vaidya Mahaveer Prasad Pandey
54. Padarth Vijanam - By Ram Prakash Pathak
55. Gem of Siddha Medicine - By Dr. Ram Murthy
56. Living life to Liveit Longer - By Herbert M. Shelton
57. Eating for Health with Emphasison Economy - By L. Ramachandran
58. Hand Book of Naturopathy - By Sukhbir Singh
59. Healing Through NaturalFoods - By H. K. Bakhru
60. The Human Body: Nature"sAmazingCreation - By Dr. M.M. Bhamgara.

5. YOGA PRACTICES

Course type- Core Course Course Code – BNY 112, BNY 113P

Credits- 8

Objective:

The objective of teaching *Yoga* to undergraduate students is to familiarize them with basic principles of *Yoga* with respect to history, definitions, philosophy and practices of *Yoga*, with emphasis of *AshtangaYoga*.

THEORY

1. Different definition of yoga, its philosophy &origin.

2. Fundamental outlines of Astanga Yoga.

   a) Yama
   b) Niyama
   c) Asanas : Shirshasana, Vajrasana, Supta Vajrasana Paschimottanasana, Baddha Padmasana, Trikonasana, Ardhakati and Kati Chakrasana, Padahastasana, shavasana,
   d) Pranayama-Suryabhedana, Ujjayi, Bhastrika, Sheetkari, Sheetali, Bhramari, Murcha, Plavini.
   e) Prathyahara
   f) Dharana
   g) Dhyana
   h) Samadhi

3. Kriyas
   i) Neti Jal Sutra Ghrita
   ii) Dhouti Vamana
   Vastra
   Danda
   iii) Nauli Madhya
   Dakshina & Vama
   iv) Trataka Bindu
   Jyoti

v) Kapalabhati

4. Rules & regulations to be followed for practising asanas, difference between exercise and asanas.

5. The life sketches, philosophy of Socrates, Plato, Aristotle, Adisankaracharya, Ramanujan, Maharshi Dayananda Saraswati, Ramakrishna Paramahansa, Swami Vivekananda, Swami Kuvalyanada, Ramana Maharshi, A.C. Bhakti vedanta Prabhupada, Jiddu Krishna Murthy, Shirdi Saibaba, Buddha, Mahavir, Shri Aurabindo, Sant Hirdaram Sahibji, Swami Lilashah, SantKanwarram

COURSE OUTCOME-

After the completion of the course, the student shall be able to:

1. Explain the various definitions of *Yoga*, history of *Yoga* and branches of *Yoga* ;
2. Describe kinds of *Yogasanas*, its importance, methods, rules, regulations and limitations;
3. Illustrate the various limbs of *Ashtanga Yoga*;

Assessment Scheme:

Theory – 50 Marks
Internal Assessment – 15 Marks
Yoga Practicals
Asanas
Kriyas
Pranayama
Dharana
Dhyana-Meditation
Practicals with records.

ASANAS

A. Standing Postures
   1. Tadasana
   2. Ardhakati Chakrasana
   3. Padahastasana
   4. Ardha Chakrasana
   5. Kati Chakrasana
   6. Trikonsana

B. Supine Postures
   1. Shavasana
   2. Matsyasana
   3. Sarvangasana
   4. Halasana
   5. Chakrasana
   6. Pavanmuktasana.

C. Prone Postures
   1. Makarasana
   2. Bhujangasana
   3. Ardha Shalabhasana

4. Shalabhasana
5. Dhanurasana

D. Sitting Postures
1. Vakrasana
2. Ardhamatsyendrasana
3. Paschimottanasana
4. Ustrasana
5. Vajrasana
6. Padmasana
7. BaddhaPadmasana
8. Supta Vajrasana Pranayama
1. Kapalbhati
2. Bhastrika
3. Sheetakari
4. Sheetali
5. Anuloma Viloma
6. Ujjayi
7. Bhramari
8. Plavani Kriyas
1. Neti - Jala -Sutra
2. Dhouti -Vaman
3. Nauli - Dakshina -Madhya
4. Trataka -Jyoti
5. Kapalbhati

COURSE OUTCOME

After the completion of the course, the student shall be able to:

1. Demonstrate knowledge of *pranayamas*, *prana* and lifestyle, breathing and lifespan.
2. Demonstrate various types of *Yogasanas* in their correct method of performance;
3. Demonstrate different*pranayamas*.
4. Explain about the definitions, origin, branches of *Yoga*.

ASSESSMENT SCORE PRACTICAL SCORE- 20 INTERNAL ASSESSMENT - 15

Reference Books

1. SukshmaVyayama - Swami Dhirendra Brahmachari
2. Basis and definitions of Yoga - Vivekananda Kendra
3. RajaYoga - Swami Vivekananda
4. Asanas - Swami Kuvalyananda
5. Glimpses of Divine Light - S.K. Das
6. The Gospel of Buddha - Parul Caruso
7. The Gospel of Sri Ramakrishna - Mahendranatha Gupta
8. Complete works of sri Aurobindo - Sri Aurobindo
9. Asanas, Pranayama, Mudras & Bandhas - Swami Satyananda Saraswati
10. Yoga inDailylife - Dr. A.U. Rahman
11. Yoga- The science of Holistic living - VK Syoga
12. Yogasana Vigyan - Swami Dhirendra Brahmachari

6. SANSKRIT

Course Type – Ability Enhancement Course (NON EXAM)

Course Code- BNY114

Credits: 1

Objective:

CO1 The objective of teaching *Sanskrit* to undergraduate students is to provide a comprehensive knowledge of *Sanskrit* in order to be able to study.

CO2 Understands, comprehend and utilise the knowledge contained in Indian traditional texts in their professional practice, especially in the field of *Yoga*.

Theory

Basic Orientation

Knowledge of Devanagari script - alphabet, i.e. vowels, consonant vowel combination, two consonant combinations, special conjunct consonants and their pronunciation associated with their articulation.

Chapter 1

Verb roots, nine forms for three persons and three numbers; practice all the verb roots and their forms for correct pronunciation; usage of prefixes and how they change the meaning of the verb root and how to find them in the dictionary.

Chapter 2

Noun, masculine and neuter genders; 8 cases and their possible meanings; 24 forms of a noun and its declensions; practice of other similar declensions and usage of the 24 forms of a noun.Introduction to write a sentence; syntax,

Prepositions and their definite requirements of cases; rule how„ ra/sha ‟changes dental„ n‟ tocerebral„ N‟ and its exceptions for this rule; repeatd eclensions for pronunciation.

Chapter 3

Noun- feminine gender; both ā ending and i-ending and practice of similar declensions. Practice of writing sentences with words mainly in feminine gender; exercises mainly for the feminine gender illustration; special declensions where dental „n‟ changes to cerebral „N‟; repeat all feminine noun declensions.

Chapter 4

Madhurashtakam illustrating all the three genders of nouns and study of the adjectives, having all the three genders and changing according to the gender of different qualified nouns; Midterm examination.

Chapter 5

Ex 32-38 ; models of declensions; how to recognize a gender or find the gender using the dictionary and write declensions of new words according to their models of declensions, while applying the rule changing dental „n‟ to cerebral„ N‟; making simple sentences for all the words given there; repeat vowel- ending model declensions.

Chapter 6

Exercises for appropriate use of the cases; irregular verbs; absence of verb root “to have” in Sanskrit; where to *om*it root „AS‟ (to be), use of certain special verbs; repeat model declensions.

Chapter 7
Pronouns: Introduction to pronouns; declensions of pronouns; corresponding translations of pronouns into English; forming sentences with pronouns; Different aspects of pronouns being used as demonstrative pronouns and as interrogative pronouns and details of distance specification.

Chapter 8
Sandhi explanation; three major kinds of Sandhi: Vowel-Sandhi, Visarga-Sandhi and Consonant-Sandhi, and fifteen exercises.
Parasmaipadi (P) and *Atmanepadi* (A) forms of verbs;
Verb and ten *Ganas*; how to find the *Gana* using the *Apte* Samskrta - English Dictionary
Verb and ten *Lakaras*; mastering five *Lakāras* of both *Parasmaipadi* and
Atmanepadi and doing the pertaining exercises for that.

Chapter 9
Vaidhyakeeyasubhashitasahityam:
Ragarogya vijnanam Vyayama vijnanam
Pranayama vijnanam Madhyagunadosha vijnanam.

Text Books:
Dr. Sarasvati Mohan, Samskrta Level-2, Samskrta Academy
Dr. Sarasvati Mohan, Samskrta-English-Samskrta Dictionary, Samskrta Academy.
Dr. Sarasvati Mohan, Samskrta Level-3, Samskrta Academy
Vaman Sivaram Apte, Samskrta-English Dictionary, Samskrita Academy

Reference Books:
Samskrtabhasadipika, Sri Surasaraswati Sabha (R) Sringeri, Bangalore, 2003.

7. English Communication
Course Type – Ability Enhancement Course,
Course Code - AECC 1

Credits: 1 (NON EXAM)

Objective
The purpose of commencing English communication skills course is to develop in students fundamental communication skills being integral to personal, social and professional interactions. One of the significant associations among human beings is the ability to share thoughts, emotions and ideas through various means of communication: both verbal and non-verbal. The present course hopes to address most of these aspects through an interactive approach of teaching learning process; focusing on various dimensions of communication skills. The course also focuses on enhancing the ability to handle casual and formed satiations in terms of personal and intellectual grooming.

SYLLABUS

Module 01 – Self-Introduction
- Introducing self
- Speaking about achievements
- Voicing future aspects

Module 02 – Non-verbal Communication

- Body Language
- Paralanguage skills

Module 03 – Manners and Etiquettes

- Personalgrooming
- Dress code
- Telephoneetiquettes
- Intellectual grooming

Module 04 – Conversation in Real life situations

- Meetingpeople
- Traveling
- Visiting Places
- Shopping

Module 05 – Public Speaking skills

- Extempore
- Role Play
- Group Discussion

Module 06 – Basic Computer Skills

- Compuetrs, Hardware & Software
- Internet,Emails and Search Engine
- MS Office
- Using Internet for Medical Research

Module 07 – Practical Assessment

- Presentations

COURSE OUTCOMES:

1. Projecting the firstimpression
2. Use simple forms of polite expressions to establish basic social contact and to perform everyday functions including making requests and offers, conducting simple phone conversations, asking and telling time, giving simple directions, asking about price, ordering a meal, etc.
3. Students learn to use general, social and professionallanguage.
4. Polishing manners to behave appropriately in social and professional circles.
5. Handling difficulty situations with grace style andprofessionalism.

Books Recommended:

1. An introduction to Professional English and Soft Skills by B. K. Das et al., Cambridge UniversityPress
2. Technical Communication: Principles and Practice, Second Edition by Meenakshi Raman and Sangeeta Sharma, OxfordPublications.

3. Effective Technical Communication by M Ashraf Rizvi, The McGraw-Hill companies.
4. Understanding Body Language by AlanPease.
5. Communicative Grammar of English by Geoffrey Leech and IanSvartik.
6. Better English Pronunciation byJ.D.O‟Connor.
7. English Grammar by Wren and Martin.
8. Strengthen Your English, M. Bhaskaran and D. Horsburgh, Oxford University Press, Delhi 1973.

SECOND YEAR 1.PATHOLOGY

Course type- Core Course Course code–BNY 201, BNY202P

Credits- 4

Objective:

The objective of teaching pathology to undergraduate students is to provide a comprehensive knowledge of the mechanisms and causes of disease, so that he/she is able to comprehend fully the natural history and clinical manifestations ofdisease.

THEORY

General Pathology

1. History and Scope ofPathology
   a) Definition and various branches in Pathology.
   b) Scientific study of disease and methodology.
2. The cell and the reaction of cell, tissue and organ to injury.
   a) Structure of cell and itsfunction.
   b) Causes and nature of cell injury.
3. Reaction of cell to Injuriousagents.
   a) Lethal injury- Necrosis andgangrene.
   b) Cloudyswelling.
      i) Fatty changes in Liver, heart and kidney.
      ii) Glycogen infiltration and hyalinedegeneration.
      iii) Lipoiddegeneration.
      iv) Mucoiddegeneration.
   c) Pathological Calcification
4. Inflammation and Repair:
   a) Definition, Classification and nomen clature.
   b) AcuteInflammation.
      Vascular and cellular phenomenon, cell of exudate chemical mediators and tissue changes in acute inflammation Cardinal signs of acute inflamation, Fat, types and systemic effects of acute Inflammation.
5. Chronic Inflammation :
   a) Difference between acute and chronic inflamation.
   b) Definition of Granuloma.
6. Wound healing:
   a) Regeneration and Repair.
   b) Repair of epithelial and mesenchymalt issue.
   c) Primary union and secondary union.
   d) Mechanism involved and factors modifying repair process.

7. Gangrene - Causes, Dry Gangrene, Moist gangrene, Gasgangrene
8. Granulomas:
   a) Classification ofgranulomas.
   b) Tuberculosis- Genesis and fate of tubercle, primary and secondary tuberculosis.
   c) Definition, Classification and Pathology of Leprosy.
   d) Acquired, Primary, Secondary and Tertiary stages of syphilis.
   e) C.N.S.syphilis, C.V.S.syphilis and Gumma, congenitalsyphilis.
   f) Actinomycosis, maduramycosis andrhinosporidiosis.
9. Fluid and Hemodynamic Changes (circulatorydisturbances):
   a) Hyperemia, congestion andhemorrhage.
   b) Thrombosis, embolism, DIC.
   c) Ischemia, infarction andshock.
   d) Edema.
10. Immunopathology:
   a) Basic Pathological mechanism in autoimmunedisorders.
   b) Concept of immunodeficiencydisorders.
   c) Pathology ofAIDS.
11. Growth and its disorders:
   a) Definition ofagenesis, aplasia, atrophy, hyperplasia, hypertrophy, hypoplasia, metaplasia.
   b) Concept of dysplasia, anaplasia andcarcinoma-in-situ.
12. Neoplasia:
   a) Definition, Classification andNomenclature.
   b) Characteristic features of benign and malignanttumours.
   c) Route of spread of malignanttumors.
   d) Grading and staging of cancers and pre-cancerousconditions.
   e) Carcinogenesis andcarcinogens.
   f) Laboratory diagnosis of cancer-Biopsy, exfoliative cytology and prognostic prediction incancer.
   g) Description of common tumours like-Fibroma, Lymphoma, Angioma, Liomyoma and Fibrosarcoma, Lymphosarcoma, Angiosarcoma and Leiomyosarcoma..
   h) Tumours of infancy andchildhood.
13. Mineral and pigment metabolism:
   a) Pathology of melaninpigment
   b) Pathology of hemoglobin and itsderivatives
   c) Hemosiderosis andhemochromatosis
14. Genetic disorders: Klinefelter‟ssyndrome,turner‟ssyndrome,Down‟ssyndrome.

SYSTEMIC PATHOLOGY

1. Disorders ofRBC
   a) Definition, morphologic and etio-pathologic classification of anemias. Iron deficiency anemia-B12 and folate deficiency anemia, sideroblastic anemia, post-hemorrhagicanemia.
   b) Concept and classification of hemolyticanemias.
   c) Laboratory investigations inanemia.
2. Disorders ofWBC
   a) Leukopenia &Leukocytosis.
   b) Agranulocytosis and TropicalEosinophilia.

3. Coagulation and bleedingdisorders
   a) Structure, function and pathology of platelets.
   b) Definition and classification of blood dyscrasias.
   c) Laboratory investigations in bleeding disorders.
4. Diseases of Cardiovascular System
   a) Arteriosclerosis andAtherosclerosis.
   b) Aneurysm.
   c) Rheumatic heart disease, Endocarditis, Myocardial Infarction.
   d) Congenital heartdiseases.
   e) Congestive cardiac failure.
5. Diseases of Respiratory System
   a) Lobar Pneumonia, bronchopneumonia, pulmonary Tuberculosis.
   b) Bronchiectasis and Pneumoconiosis.
   c) Tumors of lung.
6. Diseases of Gastro-intestinal system
   a) Pleomorphic adenoma of salivarygland.
   b) Barrat‟sOesophagus.
   c) Gastritis and peptic ulcer and tumors of stomach.
   d) Inflamatory bowel diseases- crohn‟s disease, ulcerative colitis, typhoid ulcer.
   e) Megacolon and Tumors ofcolon.
   f) Malabsorption syndrome, tropical sprue and Coeliacdisease. Amoebiasis, bacillary
   g) dysentry and intestinaltuberculosis.
7. Diseases of liver, biliary tract and pancreas:
   a) Liver function tests and hepatic failure, viralhepatitis.
   b) Cirrhosis of liver. tumors ofliver.
   c) Alcoholic liverdiseases.
   d) Indian childhood cirrhosis.
   e) cholecystitis and Gallstones.
   f) Pancreatitis and Diabetes Mellitus.
8. Diseases of Kidney:
   a) Renal function tests, Renal failure, Polycystickidney.
   b) Acute glomerulonephritis, Cresentric glomerulonephritis, Membranous glomerulonephritis, Nephroticsyndrome.
   c) Chronic glomerulonephritis, acute tubularnecrosis.
   d) Pyelonephritis, Kidney inhypertension.
   e) Tumors of Kidney.
9. Diseases of Male Genitalsystem
   a) Orchitis and testiculartumors.
   b) Nodular hyperplasia of prostate, carcinoma of prostate.
   c) Carcinoma ofpenis.
10. Diseases of Female Reproductive Systems
   a) Endometrial hyperplasia, adenomyosis and endometriosis.
   b) Carcinoma of cervix, tumors of ovary.
   c) Carcinoma and other diseases of vulva and uterus.
11. Diseases of Breast
   a) Fibrocystic disease and tumors of breast.
   b) Gynaecomastia,
12. Endocrine Pathology

a) Endocrinal lesions in brief mainly stressing on thyroid and Pheochromocytoma.

13. Musculo-skeletal Pathology
    a) Osteomylitis andOsteoporosis.
    b) Rickets andOsteoporosis.
    c) Tumors of Bone.
    d) Rheumatoid Arthritis, Gout.
    e) Myasthenia gravis and Progressive musculardystrophy.
14. Diseases of Nervous System
    a) Meningitis, tumors of CNS.
    b) Tumors of Peripheral Nerves.
    c) Encephalitis.
15. Diseases of Lymph nodes and Spleen
    a) Lymphadenopathy.
    b) Malignant Lymphoma, basal cellcracinoma.
16. Pathology of Skin
    a) Squamous cell carcinoma, Basal cell carcinoma.
    b) Malignant melanoma.
    c) Warts, Molluscumcontagiosum.
    d) Fungal diseases.
17. Pathology of Eye.
18. Pathology of ENT.
19. Clinical Pathology Including Clinical Hematology & Clinical Bio-Chemistry.
20. Sample Collections for various hematological and clinical pathological investigations and anticoagulantsused.
21. Theoritical aspects of HB estimation; hematocrit, blood indices, ESR and normal values in Hematology.
22. Blood grouping concept of bloodgroups.
    a) Selection of donor, major andminor-cross-matching.
    b) BIood transfusion, diseases transmitted bytransfusions.
    c) Goomb‟stest.
23. CSFAnalysis.
24. Semen Analysis.
25. Urine analysis and microscopy.
26. Liver Function tests.
27. Renal function tests.
28. Glucose tolerance test.
29. Exfoliative cytology.

COURSE OUTCOME-

After the completion of the course, the student shall be able to:

a. Explain the structure and ultra-structure of a sick cell, mechanism of cell degeneration, cell death and repair and be able to correlate structural and functionalalterations.
b. Describe the pathophysiological processes which govern the maintenance of homeostasis, mechanisms of their disturbance and the morphological and clinical manifestations associated withit;
c. Analyse the mechanisms and patterns of tissue response to injury such that he/she can appreciate the pathophysiology of disease processes and their clinical manifestations;
d. Correlate normal and altered morphology (gross and microscopic) of different organ

systems in common diseases to the extent needed for understanding of disease processes and their clinicalsignificance.

Assessment Scheme:
Theory – 70 Marks
Internal Assessment – 30 Marks

PATHOLOGY PRACTICALS

I. Hematology

1. Blood groups (A.B.O.System)
2. Estimation ofhemoglobin.
3. Enumeration of RBCs (R.B.C. Count)
4. Total leucocyte count (totalcount)
5. Differential leucocyte count (D.L.C.)
6. Peripheral Smear staining andreporting
7. Absolute eosinophil count.
8. Demonstration of
   a) Hemograms inanemia
      i) Iron deficiencyanemia
      ii) Macrocyticanemia
   b) Hemograms inLeukaemias
      i) Acutetypes
      ii) Chronictypes
9. Slide study of:
   a) Acute myeloid leukaemia
   b) Chronic myeloidleukaemia
   c) Chronic lymphaticleukaemia

II. SPOTTERS:

A. HAEMATOLOGYSLIDES
   1. Mirocytic Hypochromic Anaemia.
   2. Macrocytic Anaemia.
   3. Dimorphic Anaemia.
   4. Acute Leukemia.
   5. Chronic Myeloid and Chronic Lymphatic Leukemia.
   6. Eosinophilia.

B. HISTO- PATHOLOGY SLIDES FORDISCUSSION
   1. Acute Appendicitis.
   2. Lobar Pneumonia.
   3. T. B. Lymphadenitis.
   4. Lipoma, Fibroma, Squamous Papilloma.
   5. Squamous Cell Carcinoma.
   6. Adenocarcinoma,
   7. Osteosarcoma, Osteoclastoma.
   8. Pleomorphic Adenoma.
   9. Teratoma, Seminoma of Dysgerminoma.
   10. Cystoglandular Hyperplasia.
   11. Proliferative Hyperplasia.
   12. Secretory Endometrium.

C. INSTRUMENTS FOR SPOTTING

1. Wintrobes Tube.
2. Westergreen.
3. RBC pipette.
4. WBC Pipette.
5. Lumbar Puncture Needle.
6. Liver biopsy Needle.

III. MORBID ANATOMY

1. Acute Appendicitis.
2. Lobar Pneumonia.
3. TB Lung.
4. Gastric Ulcer.
5. Carcinoma Stomach.
6. Carcinoma Breast
7. Atherosclerosis.
8. Dermoid Cyst of Ovary
9. Seminoma Testis.
10. Chronic Pyelonephritis.

IV. CLINICAL PATHOLOGY

1. Examination of urine for:
   A) Sugar, Ketone Bodies.
   B) Protein and Blood.
2. Semen Analysis
3. Pregnancy Tests.
4. Liver Functions Test.
5. Fractional Testmeal.
6. Glucose tolerance Test.

COURSE OUTCOME-

After the completion of the course, the student shall be able to:

1. Elaborateonprinciples, procedures and interpretation of results of diagnostic laboratorytests;
2. Perform with proper procedure simple bedside tests on biological fluid samples like blood, urineetc.
3. Prepare investigation flow-charts for diagnosing and managing common diseases;
4. Identify biochemical and physiological disturbances indiseases;

Assessment Scheme

Practical Assessment	-	**90 Marks**
Theory Viva	-	**60 Marks**
Practical Viva	-	**30 Marks**
Practical Internal Assessment	-	**10 Marks**

Recommended Text Books for Pathology:-

1. Pathological Basis of Disease - By Robbins, Cotran and Kumar
2. Text Book of Pathology - By N.C. Dey
3. Text Book of Pathology - By Harsh Mohan

Reference Books-

1. Text Book of Pathology - By Anderson
2. Systemic Pathology - By Symmers
3. Madical Laboratory Technology - By Ramnik Sood
4. Pathology - By Boyd
5. Oxford Text Book of Pathology
6. The science and fineart of Disease Process (Orthopathy) - Herbert M. Shelton

2. MICROBIOLOGY

Course type- Core Course Course code–BNY 203, BNY 204P

Credits- 5

1. OBJECTIVE:

The objective of teaching microbiology to undergraduate students is to provide a comprehensive knowledge of the natural history, mechanisms and causes of infectious disease, including etiology, pathogenesis, laboratory diagnosis, treatment and control of diseases in the community.

THEORY

1. General Bacteriology:

a) Historical Introduction
b) Morophology and Physiology of Bacteria.
c) Sterilisation and Disinfection
d) Cultivation of Bacteria
e) Bacterial Growth and Multiplication
f) Basic Principles of Bacterial Genetics

2. Immunology

a) Infection andImmunity
b) Immunoglobulins and Immune Response
c) Immune System and Antigen-Antibody Response
d) Compliment and other Serological Tests
e) Hypersensitivity
f) Basic Principles of Auto-Immunity.

3. SystemicBacteriology

Streptococcus, Staphylococcus and Pheumococcus, Gonococcus, Meningococcus, Corynaebatterium, Clostridium, Hemophilus, Bordetella, Mycobacterium, Spirochaetes, Yersinia, Chalamydia.

4. Parasitology

a) Protozoalogy Entamoeba andPlasmodium
b) Helminthiology-. Ankylostoma. Ascariasis, Taenia, Wucheraria.

5. Virology

a) General properties- of Virus and theirdiagnosis.
b) Herpes, Adenovirus, Picorna, HepatitisVirus
c) Poxvirus, Rabies Virus, Poliovirus, HIV, Bacteriophage

6. Mycology

a) General Characters and methods used of study and diagnosis of fungal infections. b) Superficial mycoses, systemic mycoses, Candidiasis, Aspergillosis, Mycetoma, Rhinosporidiosis.

7. Applied Microbiology

a) Normal bacterial flora of human body.
b) Diagnostic methods in commondiseases
   i) Meningitis, UTI, PID. Gastroenteritis, Respiratory Infection.
   ii) Urogenital Infections, Pyogenic Infections, NosocomialInfections, Infections of Ear, Eye and Oral Cavity
c) Bacteriology of Water.

COURSE OUTCOME-

After the completion of the course, the student shall be able to:

1. Describe all the infectious micro-organisms of the human body and host-parasiterelationship
2. Describe parasitic micro-organisms (viruses, fungi, bacteria, parasites) with the pathogenesis of the diseases theycause;
3. Illustrate sources and modes of transmission, including insect vectors, of pathogenic and opportunisticorganisms;
4. Describe the pathways and mechanisms of immunity toinfection
5. Correlate knowledge about different vaccines that are available for the prevention of communicable diseases;

Assessment Scheme:

Theory – 70 Marks
Internal Assessment – 30 Marks

MICROBIOLOGY PRACTICALS

1. Microscopes & Microscopy
2. Sterilization & Disinfection
3. Morphology of Bacteria
4. Culturemedia
5. Culturemethods
6. Staining of Bacteria
   a) Grams staining
   b) Albertsstaining
   c) Z-Nstaining
7. Stools Examination
8. Identification ofBacteria
9. Demonstration of V.D.R.L. test
10. Demonstration of Widal test.

COURSE OUTCOME-

After the completion of the course, the student shall be able to:

1. Illustrate and Effectively use sterilization and disinfection to control and prevent nosocomial and community acquiredinfections;
2. Analyse and Order laboratory investigations for bacteriological examination of food, water andair.
3. Analyse and Prescribe and interpret laboratory investigations for diagnosis of communicable diseases and identify infectious agents by clinical manifestations;
4. Demonstrate common bed-side tests to detect and identify pathogenic agents, such as

blood film for malaria, filaria, gram stain and Acid Fast Bacilli (AFB) staining and stool sample for ova cyst, etc.

Assessment Scheme

Practical Assessment	**-**	**90 Marks**
Theory Viva	**-**	**60 Marks**
Practical Viva	**-**	**30 Marks**
Practica linternal assessment	**-**	**10 Marks**

Text Books

1. Text Book of Microbiology – By R.Anantha Narayana & C.K. Jayaram Paniker
2. Parasitology – By JayaramPanikar
3. Bacteriology – By Dey
4. Text Book of Mircobiology – By Chakravarthy

Reference Books

1. Parasitology – By Chattarjee
2. Practical Microbiology – By R. Cruick Shank
3. Clinical Microbiology – By Bailey & Scott
4. Medical Laboratory Manual – By Monica Cheesbrough

3. COMMUNITY MEDICINE

Course type- Core Course

Course code–BNY 205, BNY 206P

Credits- 4.5

Objective:

The objective of teaching Community Medicine to undergraduate students is to prepare them to function as community and first level physicians in accordance with the institutional objectives.

THEORY

1. Evolution of Medicine Ancient Medicine, Scientific Medicine, Modern Medicine, Medical Evolution.
2. Concepts in Community Health Concepts of Health, Health & Development, Indicators of Health, Concepts of Disease, Concepts of Prevention, Disease Control & Eradication, Public Health, Social Medicine, Community Medicine, Health Services, Planning & Management, Risk Approach, Evaluation of Health Services.
3. General Epidemiology Introduction, Measurement of Mortality & Morbidity, Epidemiologic Methods Descriptive Studies, Analytical Studies, Intervention studies, Association & Causation, Uses of Epidemiology, Infection Diseases Epidemiology, Disease Transmission, Immunity, Immunizing Agents, Disease Preventions & Control, Disinfection, Investigation of an Epidemic.
4. Genetics.
5. Screening of Diseases Concepts, uses, criteria for screening, sensitivity & specificity
6. Epidemiology of communicable Diseases
   a. Respiratoryinfections-smallpox,varicella,measles,rubella, Mumps, influenza, Diphtheria, Pertusis, Tuberculosis

b. Intestinal Infections - Polio, Viral hepatitis, Cholera, Acute Diarrhoeal Diseases, Typhoid, Food Poisoning, Ameobiasis, Ascariasis, Ancylostomiasis,Taeneasis
c. Arthropod-borne infections Yellow fever, Japanese Encephalitis, Malaria, Filaria.
d. Surface Infections- Rabies, Trachoma, Tetanus, Leprosy, STD, AIDS.

7. Epidemiology of non-communicable diseases Cancer, Cardio-Vascular Diseases, Diabetes, Obesity, Blindness, Accidents, Hypertension, Stroke, Rheumatic Heart Disease.
8. Demography & Family Planning Demographic cycle, Population trends, Fertility related Statistics, Health aspects of Family planning, Contraceptive methods and Delivery System, National Family Welfare Programme.
9. Preventive Medicine in Obstetrics, Paediatrics & Geriatrics Antenatal, Intranatal, Postnatal Care, Low Birth Weight, Infant Feeding, Growth & Development, Growth Chart, Under fives clinic, National Health Policy, Indicators of MCH care, School Health Services, Behavioral Problems, Geriatrics.
10. Environment & Health and Occupational HealthPurification of water & water Quality Standards, Air, Ventilation, Lighting, Noise, Radiation, Air Temperature & Humidity, Housing, Solid Wastes Disposal & Control, Excreta Disposal, Water Carriage System, Modern Sewage Treatment, Entomology Mosquito, Housefly, Lice, Itch mite, Cyclopes, Rat Flea, Rodents, Insecticides - Hazards, Diseases, Preplacement Examination, Measures for General Health, Protection of Workers, Prevention of Occupational Diseases, Legislation.
11. Basic Medical Statistics Censes, Vital Events, Legislation, SRS, Notification of Diseases, Measures of Dispersion & Centring, Sampling, Tests of Significance, Correlation & Regression.
12. Health Educations and Communication Objectives, Principles, Aids, Practice of Health Education, Planning andEvaluation.
13. Health Planning - Management - International Health Organizations. Planning Cycle, Management Methods & Techniques, National Health Policy, Health Planning in India, Five Year Plans, Health Systems in India- at Centre, State and District Levels, Panchayat Raj, Rural Development Schemes.
14. Health care of Community - Health Systems and National Health Programmes. Levels of Health care, Health for All, Primary Health Care, Health Care Delivery, Health Problems, Health Care Services and Systems, Voluntary Agencies, National Health Programmes.

COURSE OUTCOME

After completion of the course, the student shall be able to:

1. Describe the health care delivery system including rehabilitation of the disabled in the country;
2. Describe the National Health Programmes with particular emphasis on maternal and child health programmes, family welfare planning and population control;
3. Classify and List epidemiological methods and describe their applications to communicable and non-communicable diseases in the community or hospital situation;
4. Illustrate the demographic pattern of the country and appreciate the roles of the individual family, community and socio-cultural environment in health and disease;
5. Explain the health information systems;
6. Correlate the principles and components of primary health care and national policies to

achieve the objective of „Health administration, Health education in relation to community".

Assessment Scheme:
Theory – 70 Marks
Internal Assessment – 30 Marks

COMMUNITY MEDICINE PRACTICALS

1. Insecticides - 10 + Models.
2. Universal Immunization Programme - 10 + Models.
3. Communicable Diseases - 10 + Models.
4. Insect Borne Diseases - 10 + Models.
5. Microscope Slides - 10 + Models.
6. Environment and Sanitation - 10 + Models.
7. Statistical Charts
8. Field Visits
   a) Rural Health Centres.
   b) Sewage Disposal Plant.
   c) Water Filtration Plant.
   d) Nature Cure Hospitals.
   e) Yoga Institutes etc.

COURSE OUTCOME-

1. Illustrate epidemiology as a scientific tool for making national decisions relevant to community and individual patientintervention;
2. Analyse, interpret and present simple community and hospital baseddata;
3. Deduce, Diagnose and manage common health issues and emergencies atthe individual family and community levels with existing healthcare resources, respecting socio-cultural beliefs.
4. Demonstrate, Design, implement and evaluate health education program using simple audio-visualaids

Assessment Scheme
Practical Assessment - 90 Marks
Theory Viva - 60 Marks
Practical Viva - 30 Marks
Practical Internal Assessment - 10 Marks

TEXT BOOKS:

1. Text Book of preventive and Social Medicine-By J.E. Park & K.Park
2. Text Book of preventive and Social Medicine-By B.K. Mahajan & M.C. Gupta

REFERENCE BOOKS:-

1. Preventive Medicine by Dr. Ghosh.
2. Preventive Medicine by Dr. Yashpal Bedi. REFERENCE PAPERS:-
   - World Health Organization Programmes papers.
   - National Health Programmes papers.
   - Voluntary Health Programmes Papers.

- Red Cross Programmes Papers.
- UNICEF Programmes papers.

4. YOGA PHILOSOPHY

Course Type- Core Course
Course Code–BNY207, BNY 208P

Credits- 5

Objective:
The objective of teaching *Yoga* philosophy to undergraduate students is to understand the intricacies of *Yoga* as a philosophy, its relation to ancient texts, other religious thoughts like Buddhism, with reference to *nyaya*, *vasistha*, *samkhya*, *mimamsa*, *Vedanta* and *PatanjaliYogasutras*.

THEORY

1. Yoga, its definition, its basis, purpose, its relation to philosophy and its application.
2. Histrorical highlights of Yoga- Practices and literature from the ancient to modern times with special refernce to nature of yoga upanishads, smrithis & puranas.
3. The philoshpical Nature of Man and his essence, destiny in concept of Yoga.
4. The theory of Body, Mind, Life and Nature of soul, and evidence for the existence of soul.
5. The existential situation of man as reflected in European and Indian thought.
6. Basic concepts of Indian Psychology-definition a brief history of psychology, contemporary psychology according to Freud, Mr.Woodsworth and varioud psychologists, yogic science in relation to Psychology.
7. AstangaYoga (8-Limbs ofYoga-patanjali)
8. Streams of Yoga-Jnana Yoga, Karma Yoga, Raja Yoga and Bhaktiyoga.
9. Asanas - their importance, methods, rules, regulations and limitations.
10. Spiritual values of pranyama & kriyas, their methods, importance, rules and regulations, difference between breathing exercises & Pranayama.

COURSE OUTCOME
After the completion of the course, the student shall be able to:

1. Illustrate the basic understanding of *Yoga* as aphilosophy
2. Explain the various schools of philosophy which had aninfluenceon *Yogic text* like buddhism, *samkhya*, *mimamsa* etc.
3. Correlate the concept of *brahman*according to *Vedanta*.
4. Describe spiritual values of pranayama and kriyas.

Assessment Scheme:
Theory – 70 Marks
Internal Assessment – 30 Marks

YOGA PRACTICAL
Loosening exercises (Shitikarana Vyayama) & Breathing exercises- allexercises from “Asanas” pranayama Kriya.-Vivekananda Kendra Publication.

I) Yogasanas

1. Siddhasana
2. Padmasana.
3. Bhadrasana.
4. Samasana.

5. Swastikasana.
6. Vajrasana
7. Simhasana
8. Gomukhasana.
9. Virasana
10. Ardha Matsyedrasana
11. Vakrasana
12. P. aschimottasana
13. Ustrasana
14. Uttitapadasana
15. Shalabhasana.
16. Pavanmuktasana.
17. Viparitakarani Asana.
18. Sarvangasana
19. Dhanurasana.
20. Halasana
21. Matsyasana
22. Kurmasana
23. Kukkutasana
24. Mayurasana
25. Sirsasana
26. Trikonasana
27. Ardha Katichakrasana
28. Parshava Konasana
29. Konasana
30. Katichakrasana
31. Padhastasana
32. Savasana
33. Makarasana
34. Baddhapadmasana
35. Naukasana
36. Chakrasana
37. Garudasana
38. Akarna Dhanurasana
39. Janusirshasana
40. Suptavajrasana
41. Padangusthasana
42. Karnapidasana
43. Tolangulasana
44. Garbhasana
45. Yoganidhrasana

II) Pranayama

1. Anuloma Viloma
2. Nadi Suddhi
3. Ujjayi
4. Sheetali
5. Shitakari
6. Bhastrika
7. Bhramari
8. Suryabhedana
9. Chandrabhedana
10. Sadanta

iii) Kriyas

1. Neti - Jal and Sultra.
2. Dhouti - Vamana anddanda
3. Trataka - yoti and Bindu
4. Kapalabhati

IV) Meditation (Dhyana)

1. Cyclic Meditation
2. Omkara Meditation

COURSE OUTCOME-

After the completion of the course, the student shall be able to:

1. Demonstrate knowledge of *pranayamas*, *prana* and lifestyle, breathing and life span.
2. Demonstrate various types of *Yogasanas* in their correct method of performance;
3. Demonstrate different *pranayamas*;
4. Describe various philosophies of *Yoga* and apply them therapeutically, relatingto a

patient‟s life situation or personality.

Assessment Scheme

Practical Assessment	-	**90 Marks**
Theory Viva	-	**60 Marks**
Practical Viva	-	**30 Marks**
Practical Internal Assessment	-	**10 Marks**

Books Recommended:

1. The History of Yoga-VivianWorthintion
2. The psychology of yoga-Taimini
3. The Science of Yoga-Taimni
4. Yoga & Indian Philosphy-Karel Werner
5. The Basis and application of Yoga Dr. Nagendra (Vivekananda Kendra Publication)
6. Jnana Yoga, Bhakti Yoga, Karma yoga, Rajaj Yoga By Swami Vivekananda (Vivekananda Kendra Publication)
7. Narada Bhakti Sutras.
8. Asanas
9. Pranyama (Kaivalyadhma Lonavala Publications)
10. Asana, Pranayama, Kriyas
11. Pranayama- Vivekananda KendraPublication
12. Yoga philosophy in relation to other system of philosophy - S.N. Das Gupta
13. Yoga Deepika - B. K. S.lyengar.
14. Psychology - Florance C. Kerip
15. Asana why and how - O.P. Tiwari (Kaivalyadham)
16. Yogank - Kalyan - Gita Press,Gorakhpur
17. Light on The Yoga Sutras of Patanjali - B.K.S. Iyenger
18. Light on Yoga - B.K.S.Iyenger
19. Light on Pranayama - B.K.S.Iyenger
20. Hatha Yoga Pradipika - SwamiMuktibodhananda
21. Asana, Pranayama, Mudra, Bandha – Swami Satyananda Saraswati Bihar School of Yoga

5. MAGNETOTHERAPY AND CHROMO THERAPY

Course Ttype- Core Course

Course code–BNY 209, BNY 210P

Credits- 6

1. Objective:

The objective of teaching Colour therapy and Magneto biology to undergraduate students is to provide them with comprehensive understanding of philosophy, science and modes of applications of colours and magnets in preventive, curative and rehabilitative therapy.

THEORY

1. Introduction
   a) Definition of Magetotherapy
   b) Historical highlights
   c) Use of magnets upheld by Naturopathy
2. Magnetism in the Universe

a) Earth a huge naturalmagnet
b) Nature of EarthMagnetism.
c) Earth magnetic effects on the humanbeings.

3. Effects of Magnetism on living organisms.
4. Bio-magnets- Biological experiments withmagnets
5. Medical influence of magnetic field Rheumatoid arthritis, hemiplegias, arthralgia, Neuralgias, Stimulation of nervous system, endocrine glands etc.
   Magnetotherapy, symptomatic relief, Combined treatments i.e. Magnetotherapy, Hydrotherapy, Massage, Diet & Yoga and the result of these combined treatments.
6. Magnets and theircomposition
   a) Natural magnets and artificialmagnets
   b) Permanent magnets - classification of magnetic materials, Power of magnets- various qualities of magnets- low, medium and high power magnets and magnetic beltsetc.
   c) Electro magnets - electro magnetic field on human behaviour, Electro magnets- for medical purpose -Electro magnetic treatment, bed and hand Magnetiser, foot magnetiser, vibroelectro massager, electro-magnetic chair etc. Non-Pulsating clinical Electromagnet.
7. Technique of application of magnets - North and South pole, local & general treatment and the Technique of application of Magnets in treatment of various commondiseases.
8. Magnetised water and Magnetisedoils Magnetised water in Nature, influence of magnetic field on the properties of water, method and preparation of magnetised water, dosage and therapeutic effect of magnetised Water. Method of preparation of magentised oils and their application and therapeutic effects.
9. Advantages of Magneto Therapy, Magnetotherapy is a natural treatment - Use of Magnets as a preventivedevice.
10. Clinical Reports from Indian and Foreign MagnetoTherapists.
11. Magneto therapy and Acupressure- Acupuncture Points- Certain clinical case reports. Utilisation of Acupuncture points in Magnetotherapy
12. Terminology - Technical terms related toMagnetotherapy.
13. Recent developments inMagnetotherapy.

Text Books

1. Magneto therapy - Dr. H.L. Bansal
2. Magnetic cure for common diseases - Dr. R.S. Bansal, Dr. H.L. Bansal
3. The text book on Magneto therapy - by Dr. Nanubhai Painter
4. Magnetotherapyand Acupuncture - Dr.A.K. Mehta

Reference Books—

1. Electromagnetic treatment - Dr. H.L.Bansal
2. Magentic fields or healing by magnets - Dr. A.R. Davis and Dr. A.K. Bhattacharya of Naihati of WestBengal.

CHROMOTHERAPY

Theory

1. Introduction
   a) Historical Highlights
   b) Harmonic laws of theuniverse

c) SolarFamily

2. Theory of light andforce
3. Chromophilosophy-Reflection, Refraction,Absorption
4. The Source of light- the sun forming sources, the solar atmosphere- sun power- how the colour effects are produced - influence of sun light on skin, muscles, digestive organs, Bones.
5. Chromo-Chemistry- character of spectrum analysis, materials discovered by the spectroscope, the spectrum - spectrum of grey and natural colour elements- spectra of elements of positive colours, chromatic repulsion andattraction.
6. Chromo-diagnosis andchromo-hygiene.
7. Chromo - therapeutics - the healing power of colour, healing power of red, yellow, orange, blue, Green and Violet, non-spectral colours, sun stroke action of sun light onmicroOrganisms.
8. Practical instruments for colour healing –Blue, Green, Red, pink, Violet, Yellow, Orange glasses- the solar thermoleum- the electro thermoleum, chromodisc, the chromolens- chromo lighteradiator.
9. Directions to be followed during treatment withlight.
10. Healing by means of substances charged with different coloured light- method of solarization of water, oils and food substancesetc.
11. Chromo therapy prescriptions for differentdiseases.
12. Chromo - Mentalism.
13. Bordeauxmedicine.Chomoth.

AIRTHERAPY

1. Composition of Air -Night and Daycomposition.
2. Ozone in the atmosphere.
3. Air Pollutants, their acceptablevalues
4. Physiology of Respiratorysystem.
5. Air baths (Cold andHot)
6. Theory of Panchapranas andNadis.

SUN THERAPY (HelioTherapy)

1. History
2. Physiological and Chemical properties of Sunlight.
3. Effect of sunlight on vegetation and Micro-organism.
4. Rejuvenation duringdiseases.
5. General SunBath.
6. Dr.Rikli‟smethod of SunBath.
7. Dr. Kuhne‟s method of Sun Bath.
8. Sun Bath through wetpack.
9. Sun bath of children and agedpersons.
10. Sunbath withleaves-Atapasnana.
11. Oil sun bath (Abhyangasnana)
12. Sun Stroke.
13. Practice of Exercise inSunlight.

COURSE OUTCOME

After the completion of the course, the student shall be able to:

1. Correlate basic understanding of principles along which colours and magnets can be used as therapeutic agents, along with history of therapeutic uses of colours andmagnets;
2. Explain bio-magnetism, electro-magnetism, properties of magnets, mechanisms of action of magnets on the human body, magnetic overload, charging, modes of application, etc. and apply this knowledge to therapeutically usemagnets;
3. Illustrate classification of colours, physics of light, electromagnetic spectrum, pathway of vision, human aura, chakras, heliotherapy, colour breathing, chromo charging, and latest research, applying the same to diseasemanagement;
4. Deduce various diseases and disorders of the body and mind using the principles of colourdiagnosis;
5. Analyse the therapeutic values of colours and magnets in treatment of various diseases
6. Analyse latest research finding in improving his/her professionalpractice

Assessment Scheme:
Theory – 70 Marks
Internal Assessment – 30 Marks

CHROMO MAGNETO THERAPY PRACTICALS
Students should, have demonstration classes in various chromotherapeutic devices and their clinical application, various types of Magnets, equipment and their clinical application.

1. Case studies withrecord
2. Cases with bio-chemicalreports
3. Demonstration of colour glasses & bottles.
4. Demonstration of instruments andequipments.

COURSE OUTCOME
After the completion of the course, the student shall be able to:

1. Correlate various diseases and disorders of the body and mind using the principles of colourdiagnosis;
2. Illustrate and implement a plan of treatment using colours and magnets as therapeutictools
3. Explain the therapeutic values of colours and magnets in treatment of various diseases
4. Analyse latest research finding in improving his/her professionalpractice

Assessment Scheme
Practical Assessment - 90 Marks
Theory Viva - 60 Marks
Practical Viva - 30 Marks
Practical internal assessment - 10 Marks

TextBooks

1. The principles of lightand colour - By Dr. E.D.Babbit
2. Human Culture and Cure in five parts - By Dr. E.D.Babbit
3. Colourtherapy. - By R.S.Amber
4. HealingthroughColour - By Thea-Gimbel

REFERENCE BOOKS

1. The power of therays - By S.G.J.Oseley
2. Colour Meditations - By S.G.J.Oseley
3. Colour and healing - By GladyaMayer
4. Colour healing(Chromo therapy) - By Health Reserch Foundation (USA)
5. Practical colour Magic - By Raymond Buckl and

ReferenceBooks:

1. All You Wanted to Know About Sun Therapy - VijayaKumar
2. Colour Therapy-Miracle of Sunrays - Rashmi Sharma and Maharaj Krishan Sharma
3. Science of Natural Life - RakeshJindal
4. Prakratik Chikitsa Sagar - Dr.Gaurishankar Mishra
5. Dhanwantari-prakrtik Chikitsank - Ganga Prasad Gaud "Nahar

THIRD YEAR 1.

MANIPULATIVETHERAPY

Course type- Core Course Course code–BNY 301, BNY 302P

Credits- 4

1. Objective:

The objective of teaching Manipulative Therapies to undergraduate students is to provide them with comprehensive understanding of science and modes of applications of different manipulative modalities like Massage, Chiropractic, Osteopathy, Aroma therapy in preventive, curative and rehabilitative therapy.

THEORY

1. Introduction and History of Massage.
2. Rules, Regulations and Characteristics of Masseur
3. Structures especially concerned in massage and parts of the body to be specially studied for the purpose is as follows:
   a) Skin
   b) Muscular System
   c) Heart and Circulation
   d) Nervous System
   e) Skeletal System Including joints
4. Effects of the pressure of hand and lubricants on the following systems :-
   a) Skin
   b) Muscular System
      Nutrition and Development Excitation of "M" & contraction of "M", Increase of muscularelectro-excitability, removal of the fatigue from muscle. On the ligaments and skeletal system
   c) On the Circulatorysystem
   f) On Respiration - Increase of respiratory activity and increase of tissuerespiration.
   g) On GIT-Improvement in appetite, improvement in secretion of digestive fluids, absorption and improvement in peristalsis.
   h) Excretory System

i) Powder Massage - merits and demerits.

5. Getting crisis through massage (Side effects and benefits)
6. Basic the rapeutic massage techniques, indications and contraindications of massage while applying to the patients.
7. Massage and its effects:-.
   a) Nutrition
   b) Haematogenesis
   c) Phagocytosis
   d) Increase in the number of blood corpuscles.
   e) Absorption of increased inflammatory exudate, change in the weight of the person, obese oremaciated.
8. i) Different Massage manipulations, classification and their detailed explanation, uses and contra-indications.
   ii) Manipulative treatments in stress management
   iii) Shiatsu in manipulative therapy (Acupressure)
   iv) Manipulations and life extension.
   v) Dry brush Massage
9. Movements of Joints:-
   i) Flexion
   ii) Extension
   iii) Abduction
   iv) Adduction
   v) Supination & Pronation
   vi) Circumduction
   vii) Deviations - Medial andLateral
   viii) Opposition
10. Massaging in local areas under special circumstances-
    a) Massage to Abdomen
       i) Massage to liver
       ii) Massage to Stomach
    b) Massage to heart
    c) Massage to head
    d) Massage to spine
    e) Special types of Massage in different diseases
11. Massage to women
12. Massage to infants and children
13. Massage for prevention of diseases and maintenance of natural beauty
14. Ayurvedic Massage-Terminology, Methods and Manipulations
15. Chiropractic:-
    Origin & aims of Chiropractic.
    X-Ray Technique and Chiropractic. Importance of spine in Chiropractic. Physiological effects of Chiropractic. Spinal Manipulative Therapy Chiropractic Examination. Chiropractic treatments in various Diseases
16. Osteopathy :-
    Definition & the Basic principles of osteopathy, Relation of osteopathyto Musculo-skeletal system.
17. Aromatherapy:-
    A. Definitions, Origin and History of Aroma therapy.

B. Essential Oils and Its types, extraction of essential oils, distillation, cold pressing or expression, sloven extraction, storage, recognition, selection and mechanism of essential oils.
C. Carrier oils - Almond, Apricot, Avocado, carrot, corn, primrose, grapeseed hazelnut, Jojoba, Olive, Peanut, safflower, sesame, Soyabean & sun flower oil.
D. Different methods of using essential oils- inhalation, diffusers, vaporizers, massage, baths, foot bath, pot pouri, compresses, oral intake, beauty treatment, room sprays, insect repellentsetc.
E. Description of different essentials oils & theirbenefits.
F. The best essential oils - The five fragrance categories - green, floral,citrus, Woody & Spicy and mixing of Aroma Oils & Equipment required for Mixing Oils.
G. Aroma Oils for common problems and their the rapeutic properties.
H. Precautions, ill effects and careful handling of essentialoils
I. Contraindications- Oils to be avoided in particular problems

COURSE OUTCOME-

At the end of course, a student should be able to –

1. Understand the principles and history of manipulativetherapy.
2. Description and therapeutic uses of different types ofoils.
3. Analyse the application of manipulative therapy in clinicalpractice.
4. Analyse the research based new development in manipulativetherapy.

Assessment Scheme:

Theory – 70 Marks
Internal Assessment – 30 Marks

MANIPUALTIVE PRACTICALS

1. 35 demonstrationc lasses
2. 10 demonstrations in Panchakarma
3. Each student should do 35 massages

COURSE OUTCOME

After the completion of the course, the student shall be able to:

1. Demonstrate different types of massage and manipulative therapies, such asOsteopathy. Chiropractic, Aromatherapy, Swedish massage, Kellogg‟s massage, Shiatsu, Geriatric Massage, Pediatric massage, Antenatal massage, Ayurvedic massage, etc;
2. Analyse therapies such as Reflexology and Zone therapy in their professional practice for musculoskeletal disorders, etc.
3. Explain the disease and relevant treatment to the patient.
4. Correlate and study the disease and the manipulative practices.

Assessment Scheme

Practical Assessment - 90 Marks
Theory Viva - 60 Marks
Practical Viva - 30 Marks
Practical Internal Assessment - 10 Marks

Text Books:-

1. Massage Books - By George Downing
2. Massage - By Constant Young
3. Massage Therapy - By Dr. J.H. Kellog
4. The Complete Book of Massage - By Clare Maxwell Hudson
5. Step by Step Massage - By Carole Me. Gilvery and Gini Reed
6. The Book of Massage - By Luinda Lidell w ith Sarathomas, Carola Berb Ford Cooke and Anthony Porta
7. The Complete step-by-step guide to eastern and western
8. Baby Massage - The Magic of Loving Touch - By Auckett, Anelia D
9. Natural Healing from Head to Toe - By Aihara, comellia - Aihara, Herman
10. Massage Works - By D. Baloti Lawrence and LewisHarrison
11. Manual of osteopathy Practice - By Alan Stoddard
12. Alternative Chiropathy Practice - By Susan Moore
13. Massage (Ayurvedic) - By Achanta Laxmipathy

Reference Books:-

1. The Panchakarama Treatment of Ayurveda - By T.L. Devraj
2. Chiro therapy: A-Text of Joint Movements - By Hesse P.De.
3. Massage Therapy: the Holistic Way to Physical and Mental Health - By Juckson Richard
4. Book of Massage and Aromatherapy - By Facroix Nity and (Achieving complete relaxation & seager, Shoron well being with massage and essential oils)
5. Brain Massage, Revitalize mind body - By Howell, Kelly. Massage to Common Ailments - By Penny Rich
6. All you wanted to know about Aromatherapy - By Lalita Sharma
7. Aromatherapy - By JulieSadler
8. Health and Beauty through Aromatherapy - By Blossom Kochhar
9. Ayurveda & Aromatherapy - By Dr. Light Miller & Dr. Bryan Miller

2. ACUPUNCTURE
Course Type- Core Course
Course code–BNY 303, BNY 304P

Credits- 4

1. Objective:

The objective of teaching acupuncture to undergraduate students is to provide them with a comprehensive understanding of the science and art of Acupuncture, Acupressure and related therapies.

THEORY

1. Definition, concepts of Acupuncture.
2. Traditional and modern theories of Acupuncture.
3. Materials and Methods of Acupuncture.
4. Principles of Acupuncture.
5. Rules for selection of Acupuncture points.
6. Contraindications and complications of Acupuncture.
7. The concept of Meridians:-
   a) Lung Meridian (Lu)
   b) Large intestine Meridian (LI)

c) Spleen Meridian (SP)
d) Stomach Meridian (ST)
e) Heart Meridian (H)
f) Small intestine Meridian (SI)
g) Urinary bladder Meridian (UB)
h) Kidney Meridian (K)
i) Triple warmer Meridian (TW)
j) Gall bladder Meridian (GB)
k) Liver Meridian (Liv)
l) Governing vessel Meridian (GV)
m) Conceptional vessel Meridian (C.V)
n) Eight extra Meridians

8. The extra-ordinarypoints.
9. Diagnostic methods (both- Acupuncture andModern)
10. AuriculoTherapy 11Moxibustion
12. Stimulation inAcupuncture.
13. AcupunctureTherapeutics
14. AcupunctureAnaesthesia
15. Reflexology & ZoneTherapy:-
    What is Reflexology, history and development. How does reflexology work Body & its reflex zones.
    Applications, indications and contra-indications Preventive effects of reflexology
16. Acupressure :- What is Acupressure Its origin & development Physiological effects of Acupressure Therapeutic uses of Acupressure
17. Acupuncture/pressure in Acute disorders andemergency
18. PranicHealing.
19. Reiki

COURSE OUTCOME

1. Illustrate the definitions ofAcupuncture.
2. Description of the principles and historical highlights ofAcupuncture;
3. Classify and Correlate the concepts and theories mechanism behind Acupunctur.e
4. Demonstrate basic understanding of procedures of different styles of Acupuncture and related therapeuticmodalities.
5. Deduce basic and advanced tools used inAcupuncture;
6. Analyse the application of Acupuncture in clinicalpractice.

Assessment Scheme:
Theory – 70 Marks
Internal Assessment – 30 Marks

ACUPUNCTURE PRACTICALS

1. Demonstration of Needling techniques and Electro-stimulation, Moxibustion.
2. Each Student should give treatments to atleast 20 patients during the practicals.

COURSE OUTCOME

1. Demonstrate basic understanding of procedures of different styles of Acupuncture and related therapeutic modalities, such as Traditional Acupuncture, Scalp Acupuncture, Auriculotherapy, Acupuncture Anaesthesia, Reflexology, Zone Therapy,

Acupressure,etc;

2. Illustrate case discussion and the techniques to be used.
3. Analyse evidence based acupuncture and its application.

Assessment Scheme

Practical Assessment - 90 Marks
Theory Viva - 60 Marks
Practical Viva - 30 Marks
Practical Internal Assessment- 10 Marks

REFERENCE BOOKS-

1. Clinical Practice of Acupuncture - By A.L.Agrawal
2. Clinical Acupuncture - By Dr. Anton Jayasurya
3 Principles and practice of Acupuncture - By Dr. J.K. Patel
4. Health in your hands - By DevendraVora
5. Shiatsu - By Ohashi

3. YOGA APPLICATION

Course type- Core Course Course code–BNY 305, BNY306P

Credits-11

1. Objective:

The objective of teaching *Yoga* and its applications to undergraduate students is to provide them with comprehensive understanding of*Yoga* with reference to traditional texts like *Patanjali Yogasutras*, *Hatha Yoga Pradipika*, *Shiva samhita*, *Gheranda samhita* and *Swara Yoga*; various streams of *Yoga*, advanced meditative techniques like *Yoganidra*, *Omkar*, C*yclic*, V*ipassana* and learn about benefits of *Yoga* as compared to exercise.

THEORY

1. Patanjali yoga sutras - 1st two chapters. (ie., Samadhi Pada & Sadhana Pada, brief summary of Vibhutipada & Kaivalyapada)
2. Hatha Yoga Pradipika-full text with necessary reference to Gheranda Samhita & Siva Samhita.
3. Introduction to other streams of Yoga-Kundlini and TantraYoga.
4. Yoga Nidra-Methods, application, effects and benefits.
5. Meditation-Types of Meditation-Omkar, Cyclic, Vipassana etc. Methods of application. benefits, precaution, its influence on health and disease.
6. Different relaxation techniques.
   a) Instant relaxation,
   b) Quick relaxation,
   c) Deep relaxation techniques-their methods, effects & benefits.
7. Yoga-in relation to personality and education.
8. Yoga-in relation to sports and games, social and political life.
9. Eye exercises- Benefits, methods, precautions.
10. Physiological aspects ofAsanas.
11. Physiological, Neuro-Physiological aspects of pranayama. Shat Kriyas-Comparative study of Shat Kriyas with other system of Medicine.
12. Physiological aspects of exercises

13. Physical exercises for health & fitness
    (a) Introduction
    (b) Who should stretch
    (c) When to stretch
    (d) Why to stretch.
    (e) How to stretch
    (f) Relaxing stretches for
        i. Back, legs, feet and ankles.
        ii. Hips, hamstring, lowback.
    (g) Stretching exercises forelderly.
    (h) Stretching exercisesfor
    Abdominal muscles, Arms, Chest, Ankles, Legs, knee, thigh, fore arm etc.(i) Techniques of walking, running, Cycling etc.
    (j) Caring back.
14. Swara -Yoga

COURSE OUTCOME

After the completion of the course, the student shall be able to:

1. Illustrate the knowledge of traditional texts like *PatanjaliYogaSutras*, *Hatha Yoga*, *Shiva Samhita* and *Gheranda Samhita*;
2. Explain the principles behind various meditative practices like *Yoganidra*, *Om*meditation, *cyclic* meditation, V*ipassana* and so on;
3. Explain about *Yoga* in relation to its application in education, sports;
4. Demonstrate basic understanding of procedures of stretching and exercises;
5. Describe basic physiological changes of *asanas* and shat *kriyas*and their adverse effects
6. Describe the concept of *Yoga* as explained in the traditional texts;
7. Deliver a meditative session using any of the meditative styles;

Assessment Scheme:

Theory – 70 Marks
Internal Assessment – 30 Marks

YOGA PRACTICALS

I. Asanas
    1. Including all asanas of I year adding some advanced postures from Yoga Deepika.
    2. All loosening (Shitilikarana Vyayama) and breathing exercises.
II. Pranayama (as 1st B.N.Y.S.)
III. Kriyas- (including Portion of 1st B.N.Y.S.)
    1) Dhouti-Vastra
    2) Gajakara ni - (Vari sara Dhouti)
    3) Nauli- (all threetypes).
    4) Shankha Prakshalana-
        - Laghu.
        - Maha
    5) Basti
IV. Meditation-

1) Omkara
2) Cyclic
3) Vipassana

V. Techniques Like:-
1) Self Management of Excessive Tension (SMET).
2) Pranic Energisation Technique (PET).
3) Mind Sound Resonance Technique (MSRT).
4) Yoga Nidra (Short and long session).

COURSEOUTCOME

After the completion of the course, the student shall be able to:

1. Explain the knowledge of traditional texts like *PatanjaliYogaSutras*, *Hatha Yoga*, *Shiva Samhita* and *GherandaSamhita*;
2. Illustrate the principles behind various meditative practices like *Yoganidra*, *Om*meditation, *cyclic* meditation, V*ipassana* and so on;
3. Demonstrate basic understanding of procedures of stretching and exercises;
4. Deliver a meditative session using any of the meditative styles;

Assessment Scheme

Practical Assessment	**-**	**90 Marks**
Theory Viva	**-**	**60 Marks**
Practical Viva	**-**	**30 Marks**
Practical Internal Assessment	**-**	**10 Marks**

Books Recommended-

1. The Science of Yoga - By Taimini (commentary on patanjali Yoga Sutras).
2. Hatha Pradipika - By (Kaivalyadhama Publication-Lonavla).
3. Yoga Nidra - By (Bihar School of yoga, Munger publications).
4. Kundalini Yoga.
5. Tantra Yoga.
6. Asana.
7. Pranayams - By Vivekananda Kendra Publications.
8. Psychology - By Horensce C. Kenipp.
9. Religiousness in Yoga theory & Practice - By TKV Desikachar.
10. Research papers – By Kaivalyadhama.
(Publication inYoga Mimamsa- all papers relating to physiological effects of Yoga.)
11. Yoga in Education - By Dr. Nagendra (Vivekananda Kendra Publication)
12. Vipassana-By S.Goenka.
13. Anatomy & Physiology of Yoga -By Dr.M.M. Gore.
14. An over view on research papers. - By SVYASA, Banglore
15. Patanjali yoga sutra - By Dr P.V. Karmavelkar (Kaivalyadham)
16. Patanjali yog pradeep - By Swami Omanand Teerth (Gita - press, Gorakhpur)
17. Hatha Yoga Pradipika - By Swami Muktibodhananda (Bihar School of Yoga)
18. Light on Yoga – By B.K.S.Iyenger
19. Light on Pranayama - ByB.K.S.Iyenger
20. Light on The Yoga Sutras of Patanjali – By B.K.S. Iyenger

4. FASTING THERAPY

Course Type- Core Course

Course code– BNY 307,BNY308P

Credits-4

1. Objective:

The objective of teaching Fasting Therapy to undergraduate students is to provide them with comprehensive knowledge of Fasting therapy and utilisation of the same for therapeutic purposes.

THEORY

II. Introduction :-
- 1. Theory of Fasting
  - a) Fasting in Animals
  - c) Your Tongue Never Lies
  - b) Miracles of Fasting
- 2. History of Fasting
  - a) Fasting in AncientIndia
  - b) History of Fasting inIndia
  - c) History of Fasting in Foreign Countries
  - d) Historical Highlights of Fasting
- 3. Science of Fasting

III. The Philosophy of Fasting
- 1. The Philosophy of SaneFasting
- 2. Philosophy of TherapeuticFasting
  - A) Life & its existence in connection with health and diseases
  - B) Nature ofdisease
  - C) The No-BreakfastPlan
  - D) Objections commonly raised in Fasting Therapy
  - E) Pros and cons ofFasting
  - F) Difference between Fasting and Starvation
  - G) Difference between Hunger and Appetite

IV. Physiology of Fasting:-
- 1) General Physiology.
- 2) Source and Metabolism of Carbohydrates, Fats and Proteins During Fasting &Starvation.
- 3) Chemical and Organic changes during Fasting.
- 4) Repair of Organs and Tissues During Fasting.
- 5) Changes in the Fundamental Functions While Fasting.
- 6) The Mind & Special Senses During aFast.
- 7) Secretions and Excretions.
- 8) Bowel Action During aFast.
- 9) The Influence of Fasting on Growth and Regeneration.
- 10) Gain and Loss of strength WhileFasting.
- 11) Gain and Loss of weight DuringFasting.
- 12) Autolysis
- 13) Fasting and Sex.
- 14) Rejuvenescence Through Fasting.

V. Facts Explained About Fasting:-
   1) Fasting Does Not Induce Deficiency “Disease”.
   2) Death In The Fast.
   3) Objections To The Fast.
   4) The Quantity of Food Necessary to Sustain Life.

VI. Practice ofFasting:-
   1) Does Fasting Cure Disease?
   2) The Rationale of Fasting.
   3) The Length of The Fast.
   4) Contraindications ofFasting.
   5) Fasting in Special Periods and Conditions of Life.
   6) Symptomatology of The Fast.
   7) Progress & Hygiene of The Fast.
   8) Breaking the Fast.
   9) Gaining Weight after The Fast.
   10) Living After The Fast

VII. Rules and regulations of Sane Fasting and Therapeutic Fasting.

VIII. Definition and Classification of fasting
   1) Definition of fasting in different aspects.
   2) General classification of fasting (Religious, Political and Therapeutic.)
   3) Methods and types of therapeutic fasting (Dry, whey, Juice, Salad, Monodiet (Kalpa), Fruits Intermittent, Preventive, Weekly etc.

IX. Hygienic Auxiliaries of Fasting-
   1) Air and Breathing
   2) Enema
   3) Bathing
   4) Clothing
   5) Water Drinking
   6) Exercise
   7) Mental Influence

X. Study of Patients During and After Fasting-
   1. Crises during fasting and their management.
   2. Physiological effects of fasting.
   3. Biochemical aspects.
   4. Study of the tongue, the breath, the temperature and pulse etc.
   5. The loss and the gain of weight.
   6. How and when to break the fast.
   7. Diet after the fast.

XI. Indications and Contrain dications of fasting.

XII. Therapeutic aspects of Fasting
   1. Fasting in acutediseases.
   2. Fasting in chronic diseases.
   3. Role of fasting in various diseases.
   4. Obesity and fasting.
      a. Definition and assessment of obesity.
      b. Epidemiology.
      c. Etiology.
      d. Clinical Features

e. Treatment.

5. Fasting for preservation of health and prevention of diseases.
6. Fasting in Drug Addiction.
7. Fasting Versus Eliminating Diets.

XIII. Results of Fasting.

COURSE OUTCOME-

After the completion of the course, the student shall be able to:

1. Illustarte definitions and historical highlights of fasting therapy through the centuries, including fasting employed in different religions, the concept of dietetic principles inNaturopathy.
2. Classify fasting according to duration, purpose, type, etc.
3. Explain the metabolism of fasting, Calorie Restriction: Concept, Method, Prevailing basic- Clinical-appliedevidence.
4. Describe importance of various components of diet, such as dietary fiber, vitamins, minerals, etc.
5. Analyse fasting therapy in managing various diseases.

FASTING PRACTICALS

Study of 50 fasting cases Case Study of 25 with record

COURSE OUTCOME-

After the completion of the course, the student shall be able to:

1. Illustarte definitions and historical highlights of fasting therapy through the centuries, including fasting employed in different religions, the concept of dietetic principles in Naturopathy.
2. Classify fasting according to duration, purpose, type, etc.
3. Explain the metabolism of fasting, Calorie Restriction: Concept, Method, Prevailing basic- Clinical-appliedevidence.
4. Demonstrate usage of the rapeutic diets and fasting therapy in promotive, preventive, curative and rehabilitativetherapy.

Assessment Scheme

Practical Assessment	-	**90 Marks**
Theory Viva	-	**60 Marks**
Practical Viva	-	**30 Marks**
Practical Internal Assessment	-	**10 Marks**

Text Books -

1.	Fasting for Healthy and Long Life	-	By Hereward Carrington
2.	The Fasting Cure and Vital Economy	-	By Lakshamana Sharma.
3.	Fasting can save your life	-	By Herbert M. Shelton
4.	The Effects of Fasting	-	By Donald Upton
5.	Fasting as a way of life	-	By Allan coli M.D.
6.	Fasting can Renew your life	-	By Herbert M.Shelton
7.	Scientific Fasting	-	By Hazzard, Linda Burfield
8.	Fasting for Rejuvenation	-	By Seaton, Julia
9.	The Science & Fine Art of Natural Hygiene	-	By Herbert M Shelton
10.	The Science & Fine Art of Food & Nutrition	-	By Herbert M. Shelton

11. The Hippocrates Diet and Health Programme - By Ann Wigmore
12. The Juicing Book - By Stephen Blauer
13. Live Food Juices - By H.E. kirschner

ReferenceBooks-

1. The Philosophy of Fasting - By Edward Eaul Purintion
2. Vitality, Fasting and Nutrition - By Hereward Carrington
3. The Fasting Cure - By Upton Sinclair
4. The Fast – Way of Health - By Harold R.Brown
5. Fasting - The Master Remedy
6. Fast for Health - By John Joseph Picker
7. The Biology of Human Starvation - By Keys, Ancel
8. Fasting Story NO.1 - By Health Research
9. Fasting Story NO.2 - By Health Research
10. Rational Fasting - By Prof. Arnold Ehret
11. Explaining Fasting - By Forster, Roger
12. Hints on Fasting Well - By Carrington, Here wardetc.
13. The Science and Fine Art of Fasting - By Herbert M Shelton
14. Miracles of Fasting - By Dr. Paavo Airola
15. No Break fast Plan - By Edward Hook Dewey
16. Thus Speakeththe Stomach - By Prof. Arnold Ehret
17. The Physiologically Correct Fast - By Dr. Are Waerland

5. NATUROPATHY DIAGNOSIS
Course Type- Core Course
Course code–BNY 309, BNY310P

Credits-4

1. OBJECTIVE:

The objective of teaching Diagnostic Methods in Naturopathy to undergraduate students is to provide them with comprehensive knowledge of diagnostic methods employed by traditional Naturopaths that can be used efficiently to diagnose various diseases without the use of sophisticated technology.

THEORY FACIAL DIAGNOSIS

1. Introduction to the science of facial expression.
   a) Historicalhighlights.
   b) Definition and scope of the science of facial expression.
2. Characters of the Healthy Body.
   a) Normal functions.
   b) Normal Figure.
3. Foreign matter theory:-
   a) Definition of foreign matter.
   b) The process of accumulation of foreign matter in thebody.
   c) Encumbrance.
   d) Changes caused in the body due to the accumulation of foreign matter.
   e) General pathology of foreign matter.
4. The nature: origin and cure of diseases of children and theirunity.
5. Bad habits supports the accumulation of foreign matter in the body-tobacco, alcoholic

drinks, coffee, tea, opium etc. Drug addictions-Pethedine, Heroin, Injection etc., Suppression of diseases viz elimination of morbid and diseased germs from thesystem.

6. Types of encumbrance - Front encumbrance, - back encumbrance front and right side Encumbrance, left side encumbrance and mixed or whole encumbrance, their description, general characters and possible diseases in the concerned encumbrance and theirtreatment.
7. Diseases of the internal organs and their treatment.
8. Process of elimination of foreign matter.
   a) Importance of Nature Cure treatments.
   b) The digestive process-natural dietetics.
   c) Artificial outlets of elimination
9. Methods to be followed to increase the vitality of the body.
10. The importance of Nabhi Pareeksha, the methods of Nabhi Pareeksha & the techniques of correction.

IRISDI AGNOSIS:-

1. Introduction of iridology:
   a) Definition of Iridology
   b) Historical highlights.
   c) Comparison of other systems - Allopathy, Homeopathy, Ayurveda, Unani etc. Diagnosticmethods.
   d) Anatomy of theIris.
   e) Theory inapplication.
   f) The theory of healingcrisis.
   g) A unit form division and classification ofdiseases.
   h) Philosophicalphase.
   i) Theoreticalphase
2. I. Instructions in Methods of Application:-
      a) Technique in Irisreading.
      b) The normal and abnormal Iris, colour of the Iris.
      c) The Vibratorytheory.
   II. Study of density of theIris.
   III. Key toIridiology.
      a) Iris charts brought up todate.
      b) Zoneareas.
      c) Sectoral Division.
3. Comparison of fermentation vizinflammation.
4. Interpretations of Irismanifestations.
   I. a) Types of inflammation
   b) Inherent (Lesions and weakness)
   c) Acidity and Catarrh
   d. Toxicsettlements
   e. Nerve Rings
   f. The Lymphaticrosary
   g. Injuries and operations
   h. Itch or Psora spots in the iris - the surfrim
   i. The radii-solaris
   j. Tumours

k. The sodiumring
l. Anaemia in the extremities and in the brain.
M. Drugs and chemicals appearence on the Iris and their poisonous effects in the body Arsenic, Bismuth, Bromides, Coaltar products, Ergot, Glycerin, Iodine, Iron, Lead, Mercury, Opium, Phosphorous, Quinine, Salicylic acid, Sodium, Strychnine, Sulphur, Turpentine, Vaccines etc.
II. The iris reveals the cause of disease.

5. Case histories according to Iridology.
6. Advance research in Iridology.
   a) Reflex areas and remotesymptoms.
   b) Stomach and intestinal disorders, the principle causes, the principle disorders & remedial Measures.

COURSE OUTCOME:

After the completion of the course, the student shall be able to:

1. Illustrate historical significant developments in diagnostic procedures used in Naturopathy and the characteristics of a Healthy Body with respect to NaturopathicPrinciples
2. Describe philosophical theories of causation of disease according to Naturopathy
3. Analyse knowledge of theory of encumbrances, their types and interpretation, along with naturopathic ways to therapeutically correctthem.
4. Describe in detail Iris Diagnosis, with respect to history, techniques, iris signs, interpretations and tools used, and use the same to diagnosediseases;
5. Explain the techniques and interpretations of stool and urine diagnosis, correlating modern medical knowledge and Ayurvedic *sthoola* and *muthra pariksha*;
6. Analyse and apply different diagnostic procedures in Naturopathy to effectively and accurately diagnose various diseases, such as Iris Diagnosis, Facial Diagnosis, Stool and Urine Diagnosis, etc.

Assessment Scheme:

Theory – 70 Marks
Internal Assessment – 30 Marks

NATUROPATHY PRACTICALS

1. Clinical classes
2. Demonstrations in the Nature Cure Hospital.
3. Case Studies 25 with Record.
4. Demonstration ofEquipments.

COURSE OUTCOME:

After the completion of the course, the student shall be able to:

a) Illustrate historical significant developments in diagnostic procedures used in Naturopathy and the characteristics of a Healthy Body with respect to Naturopathic Principles
b) Explain philosophical theories of causation of disease according to Naturopathy
c) Deduce knowledge of theory of encumbrances, their types and interpretation, along with naturopathic ways to therapeutically correctthem.
d) Demonstrate the techniques and interpretations of stool and urine diagnosis, correlating modern medical knowledge and Ayurvedic *sthoola* and *muthra pariksha*;

Assessment Scheme

Practical Assessment	**-**	**90 Marks**
Theory Viva	**-**	**60 Marks**
Practical Viva	**-**	**30 Marks**
Practical internal assessment	**-**	**10 Marks**

Recommended Text Books:-

1. Science of Facial Expression - By Louis Kuhne
2. The New Science of Healing - By Louis Kuhne
3. The Science and Practice of Iridology - By Bernard Jensen
4. Iridiagnosis and other Diagnostic Mehods. - By Henry Lindlahr

REFERENCE BOOKS:-

1. Iridology : A Guide to Iris Analysis and Preventive Health Care – By Adam J. Jackson
2. Iridology: How to Discover Your Own Pattern of Health and well being Through the Eye - By Dorothy Hall
3. Iridology: A Complete Guide to Diagnosing Through the Iris and all related forms of treatment - By Davis andFarida.
4. I ridology : Alternative Health Series - By Adam J.Jackson
5. Vision of Health : Understanding Iridology - By Jensen, Bernard and Booden, Donald.
6. Eyes Talk: Through Iridology Better Health - By Vriend Joha.

6. MORDERN DIAGNOSIS
Course Type- Core Course
Course code–BNY 311, BNY312P

Credits-5

1. **Objective:**
The objective of teaching Diagnostic Methods in Conventional Medicine to undergraduate students is to provide them with comprehensive knowledge of diagnostic methods employed by conventional doctors that can be used efficiently to diagnose various diseases, for diagnosis as well as prognosis.

THEORY

Section A-Clinical Diagnosis

I. Examination of Patients :-
   1. Approach to apatient
   2. History taking and case sheet writing
   3. Symptomatology
   4. Examination of VitalData
   5. Importance of height, weight, abdominalgirth
   6. General physicalexamination
   7. Examination of breasts, back, spine and genitals
   8. Systemic examination of thepatient
      a) Abdomen (Digestive system)
      b) Cardiovascular System
      c) Respiratory System

d) Renalsystem
e) Central Nervous system
f) Locomotor system
g) Examination of ear, nose andthroat
h) Gynaecological examination

9. Provisional Diagnosis

II. Routine and special Investigations:-

1. Laboratory Investigation
   a) Urineanalysis
   b) Stool examination
   c) Blood examination

i) Peripheral smear, Total WBC Count, Differential WBC Count
ii) Erythrocyte sedimentation rate (E.S.R), HbEstimation
iii) Blood Sugar, Blood Urea, Serum uric acid, Serum cholesterol, Serum lipid profile, Serumcreatinine.

2. Radiological Investigation:-
   a) Plain chest X-Ray
   b) K.U.B.
   c) Lumbar and cervicalspine
   d) Skull and paranasalsinuses
   e) Joints
3. Contrast Radiography :-
   a) Cholecystography
   b) Pyelography
   d) Angiography
   e) Bronchogram
4. Electrocardiography
5. Echo-Cardiography
6. Coronaryangiography
7. Electro-Encephalography
8. Bio-chemical investigations-
   a) Liver functiontests
   b) Creatinine clearancetest
   c) Vanillo-mandellic acid (VMA) excretion test inurine
   d) SGOT and SGPT
   e) LDH
   f) CPK
9. Diagnostic Paracentesis
10. Diagnostic Thoracocentesis
11. Lumbar Puncture and CSF analysis
12. Radio-active Iodine up-take studies
13. Thyroid T3, T4 estimation
14. Diagnostic skintests
15. Endoscopicprocedures
16. Ultra-sonography
17. Computerised tomographic scan (CT Scan)
18. Magnetic Resonance technique (MRI)
19. Positron Emission Tomography (PET)

20. Doppler Study

III. Final Diagnosis Section B- FIRST AID
1. General principles of First Aid
2. Wounds Control of hemorrhage, Epistaxis
3. Shock- Classification and treatment
4. Dog bite, Snake bite, Scorpionsting
5. Burns and Scalds
6. Heat exhaustion, heat stroke and fainting, frostbite
7. Fractures, dislocations, sprains and strains
8. Poisoning
9. Epileptic fits, convulsions in children
10. Aspiration of foreign body
11. Artificial respiration
12. Bandages of differenttypes
13. Unconsciousness and general principles oftreatment Section C-Recognition, Evaluation of Clinical Emergencies.

I. Cardio Vasular System:-
1. Acute myocardial infarction
2. CardiogenicShock
3. Cardiacarrhythmias
4. Cardiacarrest

II. Respiratroy System-
1. Hemoptysis
2. Status asthmaticus
3. Spontaneouspneumothorax
4. Acute respiratory failure

III. Gastro Intestinal System:-
1. Acute Vomiting
2. Perforation of Peptic Ulcer
3. Hemetemesis
4. Hepatic Precoma and coma.

IV. Central Nervous System:-
1. Unconscious patient
2. Cerebrovascularcatastrophes
3. Convulsions
4. Status epilepticus

V. Renal System:-
1. Acute renal failure
2. Renal colic
3. Hematuria

VI. Endocrine and Metabolism:-
1. Thyroid crisis
2. Adrenal Crisis
3. Diabetic Keto acidosis and coma
4. Hypoglycemia

VII. Miscellaneous Emergencies-
1. Syncope
2. Acute peripheral circulatory failure

3. Acutereaction
4. Hypothermia

RECOMMENDED TEXT BOOKS:-

1. Hutchinson's Clinical Methods - By Chamberlin
2. Clinical Methods - By P.S. Shanker
3. Manual of Clinical Methods - By JaiVakil
4. Clinical Diagnosis - By P.J.Mehta
5. Modern Diagnosis - By Red Cross Society
6. Oxford's handbook of Clinical Medicine - By St. John Ambulance Association.
7. First Aid - By L.C. Gupta and others

COURSE OUTCOME-

After the completion of the course, the student shall be able to:

a) Understand the procedures and nuances in approaching a patient and taking a detailed history and writing a case report;
b) Illustrate examination procedures and techniques generally as well as for specific systems and make provisional diagnoses of common diseases;
c) Describe laboratory investigations used for supporting the provisional diagnosis made after history taking and examinations;
d) Analyse and interpret radiological investigations, biochemical investigations, sonography, EEG, ECG, EMG, echocardiography, CT, PET, MRI, etc for diagnostic and prognostic purposes.
e) Analyse and interpret any further investigations required for the provisional diagnosismade.

Assessment Scheme:

Theory – 70 Marks
Internal Assessment – 30 Marks

MORDERN DIAGNOSIS PRACTICALS

1. History taking and physical examination ofcases.
2. Case sheet writing in different general cases(25)
3. Demonstration of equipments and instruments used for investigation in modern diagnostics
4. Demonstration tour of an ultra modern super-speciality Hospital to see the latest techniques of modern investigations.

COURSE OUTCOME-

After the completion of the course, the student shall be able to:

1. Illustrate the procedures and nuances in approaching a patient and taking a detailed history and writing a case report;
2. Correlate examination procedures and techniques generally as well as for specific systems and make provisional diagnoses of common diseases;
3. Deleniate laboratory investigations used for supporting the provisional diagnosis made after history taking and examinations;
4. Analyse and interpret radiological investigations, biochemical investigations, sonography, EEG, ECG, EMG, echocardiography, CT, PET, MRI, etc for diagnostic

and prognostic purposes.

5. Demonstrate knowledge of invasive tests such as paracentesis, thoracocentesis, lumbar puncture, laparoscopy, endoscopy, biopsy, etc., take a case history with examinations and prepare a detailed case report.
6. Analyse and interpret any further investigations required for the provisional diagnosis made.

Assessment Scheme

Practical Assessment - 90 Marks
Theory Viva - 60 Marks
Practical Viva - 30 Marks
Practical Internal Assessment- 10 Marks

Subject: HUMAN VALUE
Subject: HPEV-01
Course: BNYS

COURSE CONTENT:

UNIT I: Introduction to Value Education

1. Value Education- Definition, Concept and Need..
2. The Content and Process of Value Education
3. Basic Guidelines for Value Education.
4. Self exploration as a means of Value Education.
5. Happiness and Prosperity as parts of Value Education.

UNIT II: Harmony in the Human Being

1. Human Being is more than lust the Body.
2. Harmony of the Self CI') with the Body.
3. Understanding Myself as Co-existence of the Self and the Body.
4. Understanding Needs of the Self and the needs of the Body.
5. Understanding the activities in the Self and the activities in the Body.

UNIT III: Harmony in the Family and Society and Harmony in the Nature

1. Family as a basic unit of Human interaction and Values in Relationships.
2. The Basics for Respect and today's Crisis: Affection, Guidance, Reverence,Glory,
3. Gratitude and Love.
4. Comprehensive Human Goal: The Five Dimensions of Human Endeavour.
5. Harmony in Nature: The Four Orders in Nature.
6. The Holistic Perception of Harmony in Existence.

UNIT IV: Social Ethics

1. The Basics for Ethical Human Conduct.
2. Defects in Ethical Human Conduct
3. Holistic Alternative and Universal Order.
4. Universal Human Order and Ethical Conduct.
5. Human Rights violation and Soda! Disparities.

UNIT V: Professional Ethics

1. Value based Life and Profession.
2. Professional Ethics and Right Understanding.
3. Competence in Professional Ethics.
4. Issues in Professional Ethics - The Current Scenario.
5. Vision for Holistic Technologies, Production System and Management Models.

TEXT BOOKS

1. A.N Tripathy. New Agc International Publishers. 2003.
2. Bajpai. B. L .New Royal Book Co. Luanow. Reprintal. Z304

7. SPA THERAPY
COURSE TYPE- SKILL ENHANCEMENT COURSE
COURSE CODE - BNY 313

1. INTRODUCTION TO ANATOMY & PHYSIOLOGY

Skeletal System Muscular System Nervous System Lymphatic System Cardiovascular System Digestive System Skin System

2. HISTORY AND INTRODUCTION TO SPA

Club spa Cruise ship spa Day spa Destination spa Medical spa
Mineralspring's spa
Resort/hotel spa

3. Special Massage Therapy like Swedish Massage, Ayurveda Massage, Thai Massage, Aroma therapy

4. Spa Product Knowledge

Herbs Essential Oils Aromatic Oils Preservatives
Active Ingredients
Carrier Oils & Base Creams Pre Blended Oils
Pre Blended Creams, Soaps, Shampoos, Lotions Licensing (Drug Control)
Product Testing Efficacy Shelf Life Storage Contamination Allergies
Product Handling Dispensing Self-Protection.

FINAL YEAR
1. NUTRITION DIETETICS AND HERBS
Course Type- Core Course
Course Code–BNY 401, BNY402P

Credits-4

OBJECTIVE:

The objective of teaching Nutrition and Medicinal Herbs to undergraduate students is to enable them to analyse nutritional profiles of their patients and prescribe diets to them based on nutritional requirements, as well as use herbs in the management of various diseases.

THEORY

I. Introduction ofNutrition:-

1) History of Nutrition
2) Progress in Food Science
3) Basic Principles of Nutrition
4) Food , Nutrition & Health
5) Need of Complete Nutrition
6) Nutritional Basis of Life and Life in Connection with Food
7) Composition of Body in Relation to Nutrition

II. Components of Food and their Classification:-
1) Carbohydrates
2) Proteins
3) Lipids
4) Vitamins
5) Minerals and Trace Elements
6) Water and Electrolytes
7) Metabolism and Energy Needs of the body
8) Energy Balance and the regulation of the body weight
9) Enzymes

III. A. FoodGroups:-
1) Cereals
2) Millets and Coarsegrains
3) Pulses
4) Green leafyVegetables
5) OtherVegetables
6) Roots &Tubers
7) Fruits
8) Milk & Milk Products
9) Sugar &Jaggery
10) Honey
11) Nuts &Oil-seeds
12) Spices &Condiments

B. Nutritive Values of Food ingredients Commonly used in India

IV. The Science & Fine Art of Food & Nutrition:-
1) Philosophy of Nutrition
2) Calories: Measuring what weeat.
3) Law of the Minimum
4) Organic foods & Organic acids
5) Organic Vs. Inorganic Foods
6) Salt Eating, Salt Stimulation Vs. Good Diet
7) Fruitarianism and Vegetariansm
8) Nature‟s Food Refinery
9) The Digestibility of Foods
10) Mental Influences in Nutrition
11) Enjoying our Food
12) Absorption ofFood
13) Uses of Food
14) How much shall we eat?
15) How to Eat?
16) Correct Food Combining - Food Combining Charts

17) Effects Of Cooking
18) Uncooked Foods (Raw Eating)
19) Salads
20) Conservative Cooking
21) Effects of Denatured Foods
22) Under Nutrition
23) Hypo-Alkalinity
24) Diet Reform Vs. Supplemental Feeding
25) Beginning the Reform Diet
26) Building theteeth
27) The Eliminating Diet
28) Feeding In Disease
29) The Three Year Nursing Period
30) Cow's Milk
31) Pasteurization
32) Mother's Milk
33) Should Baby Beweaned?
34) No Starch forInfants
35) Three Feeding aDay
36) Feeding ofInfants
37) Feeding Children From Two to Six Years
38) Man Shall Not Diet With Food Alone
39) Our Denatured Soil

V. Food as Medicine – Known Facts
1) Proteins are Body Builders
2) Proteins can be Body Killers
3) Fats -Concentrated Body Fuels
4) How Foods May Poison?
5) Vegetables as Do It- Yourself Therapy
6) Solid Foods: When, What Kind, How Much?
7) Vitamins and Supplements for allages
8) The Vitamins: Proof of natural foodinstincts
9) Facts about common foods
10) The Stimulant Delusion

VI. Food &Toxins
1) Infective agents & Toxins infood
2) Food Adulteration and Consumer Protection.
3) Food additives
4) Health hazards of added chemicals infoods
5) Nutrition & Infection
6) Study about adverse effect of Alcohol &Tobacco

VII. Nutritional Diagnosis

VIII. Public Health and Nutrition-
1) Education in Nutrition
2) Nutritional Program
3) Nutrition Survey and Methodology
4) Balanced Diets
5) Nutritional assessments, Social aspects of the Nutrition

6) Fortification and Enrichment
7) Exercise in Balanced Diet
8) Nutrition in relation to disaster management
9) Nutritional requirements of special groups

IX. Nutrition in Health-
1) Human Nutritional requirements
2) Nutrition in Pregnancy, Lactation, Infancy, Childhood, Adolescence and Old Age
3) Nutrition andImmunity

X. Nutritional deficiency diseases, Preventive and Curativeapproach

XI. The Optimum Nutrition Program for Correcting Disease & Restoring , Building and Maintaining Health

DIETETICS

THEORY

1. Concept of Health inNaturopathy
2. Dietetic principles inNaturopathy
3. Concept of wholesomediet
4. Medicinal values of Foods
5. Natural qualities / properties / character foods in Naturopathy / Ayurveda / Modern Nutrition
6. Natural food andhealth-
   a) Importance of Green Vegetables, other vegetables, fruits and theingredients
   b) Chemical Composition of different raw juices, their effects and uses- Ginger, Raddish, Bottlegourd,Wheat grass, Beetroot, Cabbage, Carrot, Cucumber, Lettuce, Garlic, Onion, Lemon, Papaya,Knol-kol,Pineapple, Mango, Tomato, Pomegranate, Grapes, Apple, Bittergourd, Ashgourd, Bael fruit, Spinach,Pumpkins, Watermelon, Indian Gooseberry, Orange, Sweet Lime, whey water & Neeraetc.
   c) Sprouts, their Nutritive Values and Methods ofSprouting
   d) Food Values in Raw states, germinated form and Cookedform
   e) Comparison with raw and cookedfoods
7. Diet for Physical Labor & Mentalwork
8. Arguments from comparative Anatomy , Physiology, Chemistry &Hygiene
9. Naturopathic Hospital dietetics and theirclassification
10. Disease management withdiet
    Diabetes, Renal diseases, Anaemia, PEM, Peptic Ulcer, Constipation, Malabsorption syndrome,Liver diseases like Jaundice, Fatty liver etc. HBP, LBP, Atherosclerosis, Gall Bladder disease, Cancer and arthritis
11. Food allergy and dietarymanagement
12. Diet for Weight Reduction & Weight Gaining
13. Dietary modification for specific condition
14. Dietary reaction for a different population groups with special reference to pregnancy, lactation, Infancy
15. Seasonal changes in the dietary pattern inAyurveda/Naturopathy and Modern nutrition
16. Food ,Sanitation, hygiene andhealth
17. Naturopathic approach towards vegetarian and non-vegetarian food

18. Harmful effects of the food colours, preservatives, pesticides, artificialmanures
19. Dietary fibre and its therapeutic effects (e.g. constipation, ano-rectal disorders, colonicdisorders, GIT disorders, D.M. etc.)
20. Geriatric nutrition anddiet
21. Diet in exercise, sports, games andathletics
22. Paediatric Nutrition
23. Nutrition and life Span: How to Prolong Life & Postpone Death?
24. Diet, Fasting and Disease.
25. Vegetarianism: Its Positive and Negative aspects in Naturopathy
26. Customs and manners of eating: Different views, Effect of emotional state on food utilisation
27. Kalpa therapy in Naturopathy: Grapes, Mango, Matha, Milk etc.
28. Ideal Diet, China study & Genuine Health Care
29. Food, Eating, Self-Healing, Recovery of vigor
30. Drugs Increase Nutritional Requirements
31. Toxicless Diet, Body Purification & Healing System
32. How Vitamin-C keeps you Young, Natural Anti-oxidants
33. Question of Quality & Quantity of Food
34. Hygienic Food & Hygienic Cookery
35. Physio-Pharmacology of Foods:-
    - A) Anti- Bacterial / Anti-Septic Foods
    - B) Anti- Coagulant Foods
    - C) Anti- Depressant Foods
    - D) Anti- Diabetic Foods
    - E) Anti- Diarroheal Foods
    - F) Anti-Inflammatory Foods
    - G) Anti-Oxidant Foods
    - H) Anti-Viral Foods
    - I) Anti- Hypertensive Foods
    - J) Calming & Sedative Foods
    - K) Anti-Cancerous Foods
    - L) Carminative Foods
    - M) Cholesterol Lowering Foods
    - N) Diuretic Foods
    - O) Immunity Enhancing Foods
    - P) Life Prolonging Foods
    - Q) Memory Enhancing Foods
    - R) Expectorant Foods
    - S) Oestrogenic Foods
    - T) Analgesic Foods
    - U) Aphrodisiac Foods
    - V) Anti-Ulcer Foods
    - W) Anti-Pyretic Foods
    - X) Anti-Spasmodic Foods
    - Y) Spoliative & Sudorific / Diaphoretic Foods
    - Z) Eliminative Foods
    - Aa) Cooling & Heating Foods
    - Ab) Anti- Emetic Foods

Ac) Purgative & Laxative Foods

1. HERBOLOGY

THEORY

a. Introduction to Herbology. The following herbs are to be studied with respect to their source and therapeuticuses.
b. Botanical details shall be avoided.
c. Botanical Name :-

1. Emblica Officinalis.
2. CassiaFistia.
3. Ficus Glomerata.
4. Veliverta Zizanodies
5. Cinnamomum Camphora
6. MonardicaCharantia
7. Tribulus Terrestris
8. Myristiba Fragrans
9. Cuminim Cyminum
10. Sesamum Indicum
11. Ocimumsanctum
12. Punica Granatum.
13. Coriandrum Sativum.
14. Azadirachta Indica.
15. Allium Cepa.
16. Piper Longum
17. Psoralea Corylifolia
18. Taxus Baccata .
19. AegleMarrnelos
20. Semecarpus Anacardium
21. Phyllanthus Niruri
22. Piper Nigrum
23. Santhalum Album
24. Santhalum Album
25. Allium Sativam
26. Mimosa Pudica
27. Acorus Calamus
28. Asparagus Racemosus
29. Rauwoffia Serpentina
30. Curcuma Longa
31. Terminalia Chebula
32. Ferula Narthex
33. Syzygium Aramaticum
34. Terminalia Belerica
35. Gingiber Of ficinalis

COURSE OUTCOME-

After the completion of the course, the student shall be able to:

a) Describe fundamentals of nutrition, with respect to different nutrients and foodgroups;
b) Illustrate details of nutritional requirements for different age groups, as well as

pregnant and lactatingwomen;

c) Classify modern nutrition to traditional Naturopathicdiets;
d) Illustrate the use of specific herbs in common diseases, with therapeutic values.
e) Analyse the nutritional status of a patient; Plan, implement and evaluate nutritional advice for people of different ages and patients of different diseases, including the use ofherbs.

Assessment Scheme:
Theory – 70 Marks
Internal Assessment – 30 Marks

NUTRITION DIETETICS AND HERBS PRACTICALS

1. Visits to the dietetic department of thehospital
2. Menu planning using natural foods and raw foods in generalpatients
3. Demonstration ofsprouts
4. Preparation of low cost balanced diet for different population groups using natural foods
5. Modification of normal diet in consistency-liquid fullsoft
6. Canteen duties at nature curehospital
7. Knowledge of Sathvic food preparation at nature curehospital
8. Visit to different nutrition centres like NIN - Hyderabad, CFTRI (Mysore)

COURSE OUTCOME-

After the completion of the course, the student shall be able to:

a) Understand the procedures and nuances in approaching a patient and taking a detailed history and writing a casereport;
b) Illustrate examination procedures and techniques generally as well as for specific systems and make provisional diagnoses of commondiseases;
c) Describe laboratory investigations used for supporting the provisional diagnosis made after history taking andexaminations;
d) Analyse and interpret any further investigations required for the provisional diagnosismade

Assessment Scheme
Practical Assessment - 90 Marks
Theory Viva - 60 Marks
Practical Viva - 30 Marks
Practical Internal Assessment - 10 Marks

Recommended Text Books-

1. Davidson and Passamore Human Nutrition and dietetics-By Passmore, East wood.
2. Cinical Dietetics and Nutrtion- By F.P.Antia
3. Normal and Therapeutics nutrition" - By Corinne H. Robinson Marilyn R.Lawler.
4. Essentials of Food and Nutrition-BySwaminathan
5. Foundations of Normal and Therapeutic Nutrition-By Randall Teltal.
6. Nutrition and dietetics-By Subhangini Joshi.
7. Sprouts-By J.D. Vaish, Yoga Samsthan
8. Medical Secrets of Your Food-By Aman.

9. Mucusless Diet healing System - By Prof. Arnold Ehret
10. Raw Eating - ByAterhov
11. The Science and Fine Art of Food & Nutrition. - By Herbert M.Shelton.
12. Nutritive value of Indian foods - By NIN B.S. Narsinga Rao.
13. Text book of Nutrition And Dietetics - By Sri Lakshmi
14. All publications of NIN, Hyderabad

Reference Book-

1. Foodand Nutrition - By Gupta
2. Modern Nutrition in Health and Disease - By Shills
3. Human Nutrition - By Maxine E.Mc. Divit and Sumati Rajgopal
4. Superior Nutrition - By Herbert M.Shelton
5. All publications on Nutrition - By National institute of Nutrition, Hyderabad.
6. Periodicals of Indian Journal of Medical Research.
7. Indian Journal of Nutrition and Dietetics
8. Nutrition survey of India
9. A Complete Guideto Vitamins - Edited By J.I. Rodeleand Staff.
10. Nutrition - By Chaney and Ross.
11. The Complete Book of Foodand Nutrition - By J.I. Rodele and staff.
12. FoodRemedies - By S.J.Singh.
13. TheSproutingBook - By Ann Wigmore
14. Dictionary ofNaturalFoods - By William L.Esser
15. Healing throughNaturalFoods - By H.K. Bakhru
16. Food Combining MadeEasy - By Herbert M.Shelton
17. Encyclopedia of Fruits, Vegetables, Nuts & - By Joseph M.Cadans Seeds for HealthfulLiving
18. Nutritive Value of Indian Food Stuffs - By S.J. Singh
19. Diet&Nutrition - By Rudolph Ballentine
20. Nature's Healing Grasses - By H.E. Kirschner
21. Diet to DissolveKidneyStones - By Dr. S.J. Singh
22. The Vitamin &HealthEncyclopedia - By Jack Ritchason
23. Food is YourBestMedicine - By Henry G.Bieler
24. Natural Dietetics - By Dr. J.M.Jussawala
25. The Grape Cure - By JohannaBrandt
26. Aahar hi Aushadhihai - By Dr. Hiralal
27. The Hippocrates Diet and Health Program - By Ann Wigmore
28. The Natural Food of Man - By Hereward Carrington
29. Sugar - The CurseofCivilization - By J.J.Rodale
30. Foods That Heal - By H.K.Bakhru
31. AnubhavaurSar - By Dr. Sohanlal Nishkam Karmyogi
32. Protective Foods in Health&Disease - By KulranjanMukherjee
33. MiracleofGarlic - By Dr. Paavo Airola
34. Old age, its causes&prevention - By Sanford Bennett
35. The Encyclopedia of Health and Physical Culture(Vol2) - ByBernarr Macfadden

HERBOLOGY BOOKS

1) Fundamentals of Ayurveda - By K.N.Udupa

2) Fundamentals of Ayurveda (ISM, Bangalore Publication) - By Mahadev Shastri M.
3) Swastha Vriptta Vignana - By R.H.SINGH
4) Arogya Prakash - By Ramnarayana Vaidya
5) Astaanga Hirudaya - By Vagbhatta
6) Charak Samhita - By Charak
7) Sushrut Samhita - By Sushrut
8) Herbs that Heal - By H.K.Bakhru

2. OBSTRETRICS ANDGYNAECOLOGY

Course Type- Core Course
Course Code–BNY 403, BNY404P

Credits-6

OBJECTIVE:

The objective of teaching Obstetrics and Gynecology to undergraduate students is to provide them with the comprehensive knowledge of anatomy, physiology and pathophysiology of the reproductive system and gain the ability to optimally manage common problems.

- **Objectives:**
- **Knowledge:**

After the completion of the course, the student shall be able to:

1. Delineate the anatomy, physiology and pathophysiology of the reproductive system and the common conditions affectingit;
2. Detect normal pregnancy, labor, andpuerperium;
3. Elucidate the leading causes of maternal and perinatal morbidity and mortality;
4. Understand the principles of contraception and various methods employed, methods of medical termination of pregnancy, sterilization and their complications;
5. Recognize the use, abuse and side effects of drugs in pregnancy, pre- menopausal and post-menopausalperiods;
6. Explain the national programmes of maternal and child health and family welfare and their implementation;
7. Assess different gynecological diseases and describe principles of their management;
8. Explain the indications, techniques and complications of procedures like Caesarean section, laparotomy, abdominal and vaginal hysterectomy, and vacuum aspiration for Medical Termination of Pregnancy (MTP).

- **Skills:**

After the completion of the course, the student shall be able to:

1. Examine a pregnant women, recognize high risk pregnancies and make appropriatereferrals;
2. Recognise complications of delivery and provide postnatalcare;
3. Recognize congenital anomalies ofnewborn;
4. Advise a couple on the use of various available contraceptivedevices;
5. Perform pelvic examination, diagnose and manage commongynaecological problems including early detection of genitalmalignancies;
6. Interpret data of investigations like biochemical, histopathological, radiological, ultrasoundet.

- **Integration**
  At the completion of training, the student should be able to integrate knowledge of Obstetrics and Gynaecology to manage related ailments and educate masses on family planning norms.

THEORY

Section-A

1. Basic Anatomy & Physiology-;
   a) Anatomy and Physiology of female genital organs andpelvis.
   b) Maturation and fertilization ofovum.
   c) Development ofplacenta.
   d) Embryology ofuterus.
2. Physiology of Pregnancy :-]
   a) Maternal changes due topregnancy
   b) Diagnosis of pregnancy
   c) Differential diagnosis ofpregnancy
   d) Foetus in normalpregnancy
   e) Ante-natal care.
3. Physiology of Labour :-
   a) Causation and stages oflabour
   b) Mechanisms oflabour
   c) Conduct of Delivery - the Naturalmeans.
4. Physiology ofPuerperium
   a) Phenomena of normal puerperium
   b) Care ofPureperium
   c) Care of new-bornchild
5. Pathology ofPregnancy
   a) Hyperemesisgravidarum
   b) Anaemia in pregnancy
   c) Diseases of urinarysystem
   d) Diabetes inpregnancy
   e) Abortion
   f) Ectopicpregnancy
   g) Ante-partumhaemorrhage
   h) Placentaprevia
6. Pathology ofLabour
   a) Occipito - posteriorposition
   b) Breechpresentation
   c) Multiplepregnancy
   d) Contracted pelvis
   e) Management of labour in contractedpelvis
   g) Complications of 3rd stage of labour
7. Affection of New-Born
   a) Asphyxianeonatorum
   b) Pretermbaby
8. Obstetrical Operations
   a) Forceps

b) Cessarean section
c) Induction of abortion andlabour

9. Pathology of Puerperium Puerperal infections
10. Miscellanencous
    a) Perinatal mortality and Maternalmortality
    b) Post-datedpregnancy
    c) Placenta insufficiency.
    d) Control ofcontraception
    e) Medical Termination ofPregnancy.
    f) Pre-termlabour.
11. NaturopathicApplication:
    a) Hydrotherapy inPregnancy
    b) Importance of Naturopathic Diet in Pregnancy &Puerperium
    c) Underwaterdelivery
12. Yogicapplication:
    a) Exercises in - st I Trimester IInd Trimester Illrd Trimester Puerperium
    b) Pelvic FloorExercises
13. NaturalChildbirth
14. Birth Control: Natural andUnnatural
15. Holistic Approach to menstrualProblems
16. Vaginitis: A NaturalApproach
17. Breast Cancer Can Be Prevented
18. Vericose Veins: Prevention and Treatment
19. Understanding the Pregnancy: The Miracle of Creation
20. What Smoking Does to Women?
21. Depression : A NewEpidemic
22. What Woman Should Know About Anaemia?
23. Overweight: Must It Be A Lifetime Struggle?
24. Menopause: Dreadful Affliction or Glorious Experience?
25. Uterine Tumors can Be Prevented

Section - B

1. Gynaecologicaldiagnosis
2. Malformation of Female genitalorgans
3. Diseases ofvulva
4. Diseases ofvagina
5. Sexually transmitted diseases infemale
6. Diseases of urinarysystem
7. Trophoblasticdiseases
8. Disorders of menstruation
9. Prolapse ofuterus
10. New Growths ofuterus
11. Endometriosis andadenomyosis
12. Diseases ofovary
13. Pelvic inflammatorydiseases

COURSE OUTCOME

After the completion of the course, the student shall be able to:

a) Illustrate the anatomy, physiology and pathophysiology of the reproductive system and the common conditions affecting it, Detect normal pregnancy, labor, andpuerperium;
b) Classify the leading causes of maternal and perinatal morbidity and mortality;
c) Understand the principles of contraception and various methods employed, methods of medical termination of pregnancy, sterilization and their complications;
d) Describe the national programmes of maternal and child health and family welfare and theirimplementation;
e) Analyse different gynecological diseases and describe principles of their management, differenttechniques.
f) Analyse a pregnant women, recognize high risk pregnancies and make appropriatereferrals;

Assessment Scheme:
Theory – 70 Marks
Internal Assessment – 30 Marks

PRACTICALS

1. History taking of ante-natal and gynaecologicalcases
2. Demonstration of physical examination of ante-natal and gynaecologicalcases
3. Demonstration of conductive labour, normal delivery and use of minor instruments during Delivery
4. Demonstration of various equipments used in obstetrics and gynaceology
5. Case -history writing of ante-natal and gynaecological cases(25)

COURSE OUTCOME

After the completion of the course, the student shall be able to:

a) Illustrate the anatomy, physiology and pathophysiology of the reproductive system and the common conditions affecting it, Detect normal pregnancy, labor, andpuerperium;
b) Classify the leading causes of maternal and perinatal morbidity and mortality;
c) Understand the principles of contraception and various methods employed, methods of medical termination of pregnancy, sterilization and their complications;
d) Describe the national programmes of maternal and child health and family welfare and theirimplementation;
e) Analyse different gynecological diseases and describe principles of their management, differenttechniques.
f) Analyse a pregnant women, recognize high risk pregnancies and make appropriatereferrals;

Assessment Scheme
Practical Assessment - 90 Marks
Theory Viva - 60 Marks
Practical Viva - 30 Marks
Practical Internal Assessment - 10 Marks

Recommended Text Books -

1. Clinical Obstetrics - By Mudaliar and Menon
2. Text Book of Obstetrics - By C.S. Dawn
3. Shaw's Text Book of Gynaecology - By Shaw
4. Text Book of Gynaecology - By Dr. Dutta

5. Text Bookof Obstetrics - By Dr.Dutta
6. Text Bookof Gynaecology - By Nina & Michael Shandler
   Yoga for Pregnancy & Natural Child Birth
7. Women Disease & Easy Child Birth - By J.H. Tilden
8. Everywomen‟sbook. - By Dr. Paavo Airola

Reference Books-

Illustrated Book of Obstetrics & Gynaecology - By Dr. Gevan

3. YOGA THERAPY

Course Type- Core Course

Course Code – BNY 405, BNY 406P

Credits-5

1. Objective

The objective of teaching *Yoga* Therapy to undergraduate students is to provide them with comprehensive knowledge of *Yoga* and the physiological effects of various *yogic* practices and utilisation of the same for therapeutic purposes.

THEORY

1. Introduction to Yogic Therapy / Basis of Yogic Therapy
2. Role of Asanas in curing various diseases
3. Specific importance of Pranayama in curing various diseases
4. Vital role of Bandhas, Mudras, Drishtis, in curing various diseases
5. Role of Shat-kriyas in curing various diseases particularly digestive disorders
6. Role of general exercises
7. The effects of various Yogic practices on different systems Viz: Skeletal system, Endocrine System, Nervous system, Digestive System, Respiratory system, Excretory system, Cardio-vascular system, Muscular system, Reproductive system
8. Research methods in yogic therapy, statistical analysis etc.
9. Yogic therapy for:
   a. Cardio-Vascular diseases
   b. Psychiatric diseases
   c. Mental retarded diseases
   d. Neuro-Muscular diseases
   e. Gastro-intestinal diseases
   f. Hormonal diseases
   g. Respiratory disorders
   h. Metabolic disorders
   i. Opthalmologic disorders
   j. Paediatric disorders
   k. E.N.T. Disorders
   l. Obstetrics & Gynecology disorder
10. Meditation and its applications on psycho-somatic disorders
11. Yoga & RelaxationTechniques
    a. QRT-Quick Relaxation Technique
    b. IRT - Instant Relaxation technique
    c. DRT-Deep Relaxation technique
12. Teaching methods of Yoga to Public, Students and patients. Model lesson planning and

adoption of Yoga in education system, limitations, vidhi and Nisheda (right and wrong)

13. Workshop on Yogic therapy
14. Dessertations
15. Advanced techniques of Yoga therapy
16. Pranic Healing & Reiki Therapy
17. Yoga and Mental health-Total integration of personality, correct mental behaviour and attitude, harmonial relationship of body and mind, self content tranquilising effect, psychology of spiritual growth and spiritual value, toning judgement, pure consciousness, mode of living and disciplined life.
18. Applied psychology:-
    a. Stress -Its causes, effects and control
    b. Historical perspective, Identifying psychological disorders
        i. Anxiety Disorders
        ii. Dissociative Disorders
        iii. Somato form Disorders
        iv. Sexual Disorders
        v. Mood Disorders
        vi. Personality Disorders
        vii. Schizophrenia
    c. Therapy for psychologicaldisorderspsychotherapy, therapy of Interpersonal relations, behavioral therapy

COURSE OUTCOME

After the completion of the course, the student shall be able to:

1. Describe the physiological effects of various *yogic* practices like *kriyas*, *asanas*, *pranayamas*, *mudras*, *bandhas* , *drishtis*, Guided relaxation and Meditation;
2. Dfine rules and regulations of *Yoga* to be followed;
3. Understand the therapeutic aspects of *Yoga* as applied to different disease conditions;
4. Illustrate the concept of health and disease in *yogic* lore and role of stress in disease causation and management of the same with *Yoga*;
5. Analyse knowledge of *Yoga* therapy in managing various diseases;
6. Demonstrate usage of therapeutic aspect of *Yoga* in promotive, preventive, curative and rehabilitative therapy.

Assessment Scheme:

Theory – 70 Marks

Internal Assessment – 30 Marks

1. YOGA THERAPY PRACTICAL

2.

Demonstration and instructions of advanced yoga posture, kriyas, meditation, and advanced yoga practices.

Case discussion -25

COURSE OUTCOME-

After the completion of the course, the student shall be able to:

1. Demonstrate basic understanding of procedures of stretching and exercises;

2. Deliver a meditative session using any of the meditative styles;
3. Describe fundamentals of yoga, with respect to its principles;
4. Analyse the patient, and modulate a yoga session for the same.

Assessment Scheme

Practical Assessment	**-**	**90 Marks**
Theory Viva	**-**	**60 marks**
Practical Viva	**-**	**30 marks**
Practical Internal Assessment-		**10 Marks**

REFERENCE BOOKS:-

1. Yogictherapy - By Dr. Vinekar, Govt. of India.Publication.
2. Yogictherapy - By Dr. Giarde
3. Treatmentofcommon - By Swami Satyananda Saraswati. Diseases Through yoga
4. Seminars on Yoga, Science & Man - By CCRYN, Delhi Publication.
5. Yoga Nidra - By Swami Satyananda Saraswati Bihar School of Yoga
6. The Ancient Science and Art of Pranic Healing. - By Choa Kok Sui.
7. Pranic Psychotherapy - By Choa Kok Sui.
8. Psychology - By Robert A Baron.
9. Garifeld Special Psychotherapy - By John Wiley & Sons.
10. Hand Bood of Behavior Modification & therapy - By Plenumpress.
11. Stress & Mental Disorders. - By Crarrett J.E. Raven Press, Newyork.
12. Counselingandevidences - By Adams J.T. moe. Millionco.
13. Stress Management Research papers. - By V.K. Yoga Bangalore.

5. HYDROTHERAPY

Course Type- Core Course

Course Code – BNY 407, BNY 408, BNY 409P

Credits-4

OBJECTIVE:

The objective of teaching Hydrotherapy and Mud Therapy to undergraduate students is to provide them with comprehensive knowledge of treating diseases using water and mud, and the physiological effects of various kinds of such applications, and utilisation of the same for therapeutic purposes.

Objectives:

- **Knowledge:**

  After the completion of the course, the student shall be able to:

  a. Describe the properties and chemical composition of water andmud used for therapeutic purposes, physiology of the skin, production of heat and body temperature regulation, which are essential as a foundation forhydrotherapy.

  b. Illustrate physiological effects of hot and cold water upon thedifferent systems of the body and applications to reflexareas**;**

  c. Explain action and reaction mechanisms and physiology, withtheir effects anduses

d. Demonstrate use of water in preservation, acute diseases,chronic diseases;

e. Show in-depth knowledge of general principles of hydrotherapy, therapeutic applications of water, along with therapeutic actions, indications and contra-indications; and classification of mud, storing of mud, modes of mud treatment, cosmetic uses of mud andresearch updates in hydrotherapy and mudtherapy;

f. Demonstrate techniques and procedures of various types of hydriatic applications;

- **Skills:**

After the completion of the course, the student shall be able to:

1. Utilise knowledge of hydrotherapy and mud therapy in managing various diseases;
2. Demonstrate usage of therapeutic aspect of hydrotherapy and mud therapy treatments in promotive, preventive, curative and rehabilitativetherapy.
3. Institute and evaluate remedial measures in hydrotherapy for various disease conditions in clinical as well as researchsettings.

- **Integration**

At the completion of training, the student should be able to integrate knowledge of hydrotherapy in various diseases and efficiently utilise the same for therapeutic purposes.

THEORY
PAPER-I

1. Introduction andHistory
2. Physical properties and chemical composition of water
3. Physiological basis of Hydrotherapy:- The Skin and its anatomical construction, functions of thebody
4. Production of heat and its distribution in the body, regulation of the body temperature, conditions that increase and decrease heat production in thebody, body heat and bodytemperature
5. Importance of water to humanbody.
6. Physiological effects of water on different systems of thebody
   - i) General and Physiological effects of heatupon:-
     - a. Skin
     - b. Respiration
     - c. Circulation
     - d. Nervous System
     - e. Heat and its production, dissipationetc.
     - f. Tactile and temperaturesense
   - ii) General and physiological effects of cold upon skin, respiration, circulation, nervous system, G.I.T., Body temperature and itsmaintenance.
7. Reflect areas of the body, results of the application of hot and cold over reflex areas
8. Action and reaction, incomplete reaction, Conditions that encourage and discourage reaction, internal reaction, thermic reaction, modified thermicreaction
9. Place of water inpreservation
10. Place of water in Acutediseases
11. Place of water in Chronicdiseases
12. Magnesium sulphate - use in Hydrotherapy

Assessment Scheme:
Theory – 70 Marks
Internal Assessment – 30 Marks

PAPER - II

1. General Principles of Hydro therapy
   a) General rules of hydro therapy
   b) Therapeutic significance of reaction
   c) Adaptation of individual cases
   d) Exaggeration of symptoms under treatment, the untoward effects and how to avoid them
   e) General indications and contra-Indications
2. Therapeutic actions and use of Hydrotherapy:
   a) Classification of Hydriatic effects, General principles excitation andDepression
   b) Primary excitant effects when to apply and when not to apply
      1. Local haemostatic effects
      2. Cardiac effects Hydratic hearttonics
      3. Uterinc excitations, emanogogic effects
      4. Vesicalexcitations
      5. Intestinal excitations, peristalitic effects
   c) Secondary excitant effects:-
      1. Restorative effects.
      2. Tonic effects of cold water, physiological effects of cold water, Cold water Vs. Medical tonics, application diseases.
      3. Anaemia, Neurasthenia, Hypochondria Cerebral congestion, Rheumatism, Diabetes mellitus, Valvular heart diseases.
      4. Calorific effects.
      5. Diaphoretic effects.
         Importance of attention to the skin in Chronic diseases - alternative & qualitative effect - Hot bath in brights diseases, Sweating baths in dropsy and obesity, Depurative or eliminative effects, Toxemia inRheumatism.
      6. Expectorant effects.
      7. Diuretic effects - Brights disease, Uremia-eclampsia.
      8. Atonic Dyspepsia,Hyperacidity
      9. Revulsive and derivative effects, flexion, revulsive methods for Combating superficial anaemia and for relief of deep congestion method adopted to anaemia of deep seated organs revulsion on analgesicmeasure.
   d) Resolvent effects, sedative effects- general sedatives-localsedatives.
      i) Sedatives of the circulatory system-antiphlogestic effects, inflammation, pneumonia, pleurisy and other acutedisorders.
      ii) Nerve sedatives, hypnotic, calmative analgesic, anesthetic, antispasmodic, insomnia, chorea, spastic paralysis, exophthalmic goiter, mania, epilepsy and various painfulconditions.
      iii) Anti- thermic and antipyretic effects, relation of heat production andheat elimination to antipyretic methods, principles that govern the application of hydriatic measures for the reduction of temperature in fevers, methods that may be efficiently employed in various morbid conditions

and effects, indications and contra- indications.

iv) Secretory and sedative effects - prophylacticuses.

a. Cold bathing in infancy and early childhood.
b. The cold bathing forAdults.
c. The cold baths forwomen.
d. The cold bath in old age-precautions.

3. The techniques of Hydrotherapy:- Plain water bath:-
Coldhip bath - Kellog's & Kuhne's sitz bath
Shallowbath - for males, females hand and arm
Graduatedbath bath, foot bath, hot and cold
Naturalbath alternative legbath
Non revulsive bath
Immersion bath
Cold plunge bath
Whirl pool bath
Aeration bath
Vichy spray massage
Rapid bath, Brand -bath, Fever bathing, Sea bathing.

4. Various baths and air baths, Russian bath, Turkish bath, Steam inhalation, Hot air bath, Local hot air bath, Super hot air bath, Cold air bath, Indoor and out-door baths.

5. Pool Therapy:-
a) Introduction
b) Principles of treatment Part I and Part II.
c) Physiological and Therapeutic effects of exercise in warm water.
d) Indications and contra -indications.
e) Dangers andprecautions.

6. Douches :- Cold Douche
Hot Douche
Neutral Douche
Alternative Douche
Under water Douche
Contrast Douche
Horizontal Jet
Cephalic Douche
Lumbar Douche
Fan Douche
Rain Douche or Shower Douche
Heptic Douche
Circular Douche and Semi Circular
Douche Cerebrospinal Douche
Plantar Douche
Percussion Douche
Scotch Douche
Revulsive Douche
Ascending Douche
Calliper Douche
Filiform Douche
Fog Douche

Massage Douche
Shoulder Douche
Thoracic Douche
Abdominal Douche
Anal Douche
Perineal Douche
Pulmonary Douche
Cardiac Douche
Gastric Douche
Enteric Douche
Renal Douche
Articular Douche
Vapour Douche

7. Fomentation and Stupes:-
The hot water bag, the siphon hot water bag, the thermopore, the mustard Fomentation, clay and glycerin poultice, charcoal poultice, cotton poultice.

8. Compresses and Packs:-
The wet sheet pack, cooling pack, cold shower pack, sweating pack, very cold compress, proximal compress, neutral compress, alternate compress, repulsive compress, compress of ten days for injuries and eruptions, alternative ten applications to the head and spine, local packs, wet girdle pack, dry abdominal bandage.
Abdominal heating compress, Head pack, Spinal pack
Hot and cold heat compress, Hot and cold lung compress
Hot and cold gastro-hepatic compress
Hot and cold renal compress
Hot and cold intestinalcompress
Hot and cold pelvic compress
Hot and cold abdominal pack
Hot and cold spinalpack
Hot and cold pancreatic pack

SPECIAL FORMS OF COMPRESS:-
Cephalic compress, Chest pack, Triangular chest Pack, Half chest compress, Joint compress, Pelvic pack, Foot pack, Cold spinal compress, Towel chest Pack, Pericardial or cardiac compress, Hip pack, Perineal compress, Prone Packs , Lumbar compress.

9. Internal Use of Water:-
Irrigations and enema (Colon Flushing)
Cold water drinking, Hot water drinking.
Water emetic, irrigation of ear, Nasal Irrigation,
Vaginal irrigation, Intra-uterine irrigation, rectal
irrigation. Enema :- Hot, warm, Cold, graduated enema.
Coloclyster, Retentive enema, Tonic Enema.

Hydriatic Prescription Making:-
a. The natural defense of the organism.
b. Procedures for increasing vitalresistance.
c. Procedures which excite the central ganglia.
d. Procedures that increase oxidation.

e. Measures that encourage general and local metabolic activity.
f. Procedures that increase general blood movement and local bloodsupply.
g. Measures that increase heatproduction.
h. Measures that increase the elimination ofheat.
i. Measures that combat bacterial development ofblood.
j. Measures that increases/ lessen heatelimination.
k. Hydraticincompatibility.
l. Hydrotherapy as a means of rehabilitation and health promotion.
m. Emergency treatments in Hydrotherapy.

10. Mud Therapy:-

a) Introduction to MudTherapy.
b) Classification of mud for therapeuticuse.
c) Precautions for storingmud.
d) Methods of treatment of mud - applications, packings hot poultices, effect of mud on different system ofbody.
e) Natural mud bath, full and partial mud packs, mud plaster, thermalbath, dry pack, sand pack and sandbaths.
f) Cosmetic uses ofmud.

COURSEOUTCOME

After the completion of the course, the student shall be able to

1. Describe the properties and chemical composition of water and mud used for therapeutic purposes, physiology of the skin, production of heat and body temperature regulation, which are essential as a foundation forhydrotherapy.
2. Illustrate physiological effects of hot and cold water upon the different systems of the body and applications to reflexareas**;**
3. Explain action and reaction mechanisms and physiology, with their effects and uses
4. Demonstrate use of water in preservation, acute diseases, chronicdiseases;
5. Corelate general principles of hydrotherapy, therapeutic applications of water, along with therapeutic actions, indications and contra-indications; and classification of mud, storing of mud, modes of mud treatment, cosmetic uses of mud and research updates in hydrotherapy and mudtherapy;
6. Demonstrate techniques and procedures of various types of hydriatic applications.

Assessment Scheme

Theory – 70 Marks
Internal Marks – 30 Marks

HYDROTHERAPY PRACTICALS

Demonstration of various therapeutic Procedure and treatments in Hydrotherapy during clinical classes at the hospital.

At the end of final B.N.Y.S. Course, candidate should be in a position to give treatments independently.

COURSE OUTCOME

After the completion of the course, the student shall be able to

a) Demonstrate use of water in preservation, acute diseases, chronicdiseases;

b) Correlate general principles of hydrotherapy, therapeutic applications of water, along with therapeutic actions, indications and contra-indications; and classification of mud, storing of mud, modes of mud treatment, cosmetic uses of mud and research updates in hydrotherapy and mudtherapy;

c) Demonstrate techniques and procedures of various types of hydriatic applications.

Assessment Scheme

Practical Assessment - 90 Marks
Theory viva - 60 Marks
Practical viva - 30 Marks
Practical internal assessment - 10 Marks

TEXTBOOKS:-

1. Baths - ByS.J.Singh.
2. My Water Cure - By Sebastian Keneipp.
3. Rational Hydrotherapy - By Dr. J.H. Kellogg.
4. The Healing Clay - By Michel Adserra.
5. Our Earth and Cure - By Raymond Dextroit.

REFERENCE BOOKS

1. Hand Book of Hydrotherapy - By Shew, Joel.
2. Hydrotherapy in Practice - By Davis, B.C.& Harrison, R.A.
3. Medical Hydrology - By Sideny Licht.

5. PHYSIOTHERAPY

Course Type- Core Course
Course Code – BNY 410, BNY 411P

Credits-1.5

Objective:

The objective of teaching Physical Medicine and Rehabilitation to undergraduate students is to provide them with the knowledge and skills needed for utilisation of Physical medicine for therapeutic, rehabilitativepurposes.

THEORY

I. Basic Physics in excercisetherapy:-
   1. Mechanics: Force. Gravity, Line of gravity, center of gravity in human body, base, Equilibrium. Andplanes.
      Mechanical Principles:- Lever, Order of Lever, examples in human body, Pendulum, Spring.
   2. Introuduction to ExerciseTherapy:-
   3. Starting Position:- Fundamental Starting positions, derived position, Muscle work for all the fundamental starting positions.
   4. Classification of movements in detail :-
      a) Voluntary movements.
      b) Involuntary movements
   5. Active movements
   6. Passive movements

7. Muscle strength :-
   Anatomy and physiology of muscle tissue, causes of muscle weakness/paralysis, preventing of muscles weakness/ paralysis, types of muscle work and contractions, range of muscle work, muscle assessment.
   Principles of muscle strengthening / re-education, early re-education of Paralyzed muscles
8. Joint movement:-
   Classification of Joint movements, causes for restriction of joint movement, prevention ofrestriction of joints range of movements, Principles of mobilizations of joint in increasing the range of motion. Technique of mobilization of stiff joint.
9. Relaxation:-
   Techniques of relaxation, Principles of obtaining relaxation in variouspositions.
10. Posture:-Types, factor responsible for good posture, factor for poor development of goodposture.
11. Co-ordinadion exercises:- Definition of co-ordinated movements, in-coordinated movements.
    Principles of co-ordinated movements, technique of co-crdination exercise.
12. Gait- Analysis of normal gait with muscles work, various pathologicalgaits.
13. Crutch Gait :- Introduction, crutch measurement, various types of crutch gait (indetails)
14. Neuro- musculer facilitation techniques, functionalre-education.
15. Suspension Therapy :- Principles of suspension, types of suspension therapy, effects and uses of suspension therapy, their application either to mobilize a joint or to increase joint range of motion to increase muscle power, explaining the full details of the components used for suspensiontherapy

ELECTROTHERAPY

THEORY

1. Electrical fundamentals, physical principles, structure and properties of matter, molecular atom, proton, neutron, electron, ion, etc., Electrical energy: Nature of electricity current, static electricity current, Electric potentials generated by cell, ohm‟s law, joule‟s law, Magnetic Energy: Nature and property of a magnet, magnetic induction, Show rule, maxwell's cork-screw rule.
   Electro magnetic induction, principle and working of choke, coil, transformer, rectification of A.C. to D.C., Metal oxide Rectifier, semiconductor, Diode and triode, valves, principles of working in a capacitor, details of charging and discharging etc.
   Transistors, measurement of current intensity,EMS and power, moving coil milometer and voltmeter.
2. Low FrequencyCurrents:-
   Nature and principle of production of muscles stimulating currents, types of low frequency currents used for treatment, Therapeutic electric stimulation, Intophoresis.
3. Preparation for electro therapy, preparation of apparatus, patient treatment technique. Stimulating the muscles of extremity, back and face through the motorpoints.
4. Faradic and galvaniccurrents.
5. High frequency current treatments:-
   Physics of high frequency currents, production of high frequency currents, principles,

Bio Physics of heat, Physiology of heat and cold, Production, Physiological and therapeutic effects and uses. Technique of Treatments, Dangers and precautions, contra-indications of the following.

a) ShortwaveDiathermy
b) MicrowaveDiathermy
c) UltrasonicTherapy

6. Principles of radiation therapy, physics of radiation therapy, laws governing radiation, Production. Physiological and therapeutic effects, uses, techniques of treatment, dangers and precautions, contraindication, etc. of the following.
   a) Infrared radiationtherapy.
   b) Ultraviolet radiationtherapy
   c) Basic principles of transcutaneous nerve stimulation and interferential therapy.
   d) Wax therapy-physics-physiological and therapeutic effect and uses, Techniques of application.

COURSE OUTCOME

After the completion of the course, the student shall be able to:

1. Illustrate principles of basic physics that act as a foundation for physical medicine
2. Describe exercise therapy in detail, including starting positions, movements and their types, muscle strength, joint movement, relaxation, posture, co-ordination, gait, walking aids, neuromuscular facilitation, suspension therapy and their therapeutic applications, including allied modalities like heat treatments andcryotherapy;
3. Understand electrotherapy in terms of fundamentals, principles, laws of electricity and magnetism, practical and theoretical aspects of electrotherapeutic applications, such as faradic and galvanic currents, high frequency currents, laser, ultrasound, radiation therapy (IR & UV), TENS and IFT.
4. Demonstrate usage of therapeutic applications of physical medicine in promotive, preventive, curative and rehabilitative therapy, focusing on rehabilitation.
5. Analyse remedial measures in *Yoga* for various disease conditions. PRACTICALSI
   (1) Interrupted/modified D.C.
      (a) Stimulation of musclesdirectly.
      (b) Diagnostictests
   (I) F.G.Test.
   (II) S.D.Curve
   (III) FatigueTest.
   (2) Uses of surged faradism and interrupted galvanism in various peripheral nerve lesions.
   (a) Neuroproxia
   (b) Axonotomosis.
   (c) Neurotomosis

PRACTICALS II

(High frequency current treatment)

(a) Shortwave diathermy-setting up of apparatus including selection of method and electricity, Techniques, preparation of patient, checking, contra indications, application of SWD for various conditions and various parts of the body. Those must be practiced by thestudents.

(b) Microwave diathermy-setting up of apparatus including selection of method and

electricity, Techniques, preparation of patient, checking, contra indications, application of MWD for various condition and various parts of the body. Those must be practiced by thestudents.

(c) Ultraviolet radiation: setting up of apparatus including selection of lamps technique of application of UVR for various conditions like test dose, general body bath, acne vulgaris, alopecia areata and total is, ulcers, psoriasis, rickets and general debilitypatients.

(d) Ultrasonics: setting up of apparatus, selection of dose, technique of application in various Condition and to various parts of thebody.

PRACTICALS III

(1) Demonstration and practice of Active and passivemovements.

(2) Demonstration and practice of putting suspension to shoulder joint, Elbow joint in upper limb, hip joint and knee joint in lower limbs for all movements. Demonstration of totalsuspension.

(3) Muscle strength: Demonstration and practice of strengthening, re-education of weak/paralysed muscles of both upper and lower extremity, individual group muscles, abdominal muscleexercises.

(4) Joint movements: Demonstration and practice of techniques to improve joint range of motion of hip joint, knee joint, ankle and foot in lower limb, shoulder joint, elbow joint, radio-ulnar joint, wrist joint & upperlimb.

(5) Demonstration and practice of free exercise to improve joint range of motion (Small joints, eg. hand, finger, toes etc.) Demonstrationandpracticeof all crawlingexercises, faulty posture. Correctingtechniques.

(6) Demonstration of various pathologicalgaits.
Measurement of crutches, walking aids, strengthening of crutch muscles, crutch balance, Demonstration and practice of all crutch gaits.

(7) Breathing Exercises: Demonstration and practice of Diaphragmatic breathing, localised expansionexercises.

(8) Passive stretching: Techniques of passive streching to sternomastoid muscle, shoulder abductors. flexors elbow flexors, supinator, wrist and finger flexors in upper limbs passive streching to hip flexors,Adductors, ilio-tibialband, tensor fascia lata, quadriceps, knee flexors, tendoachilliesetc.

COURSE OUTCOME

After the completion of the course, the student shall be able to:

1. Illustrate principles of basic physics that act as a foundation for physical medicine
2. Describe exercise therapy in detail, including starting positions, movements and their types, muscle strength, joint movement, relaxation, posture, co-ordination, gait, walking aids, neuromuscular facilitation, suspension therapy and their therapeutic applications, including allied modalities like heat treatments andcryotherapy;
3. Understand electrotherapy in terms of fundamentals, principles, laws of electricity and magnetism, practical and theoretical aspects of electrotherapeutic applications, such as faradic and galvanic currents, high frequency currents, laser, ultrasound, radiation therapy (IR & UV), TENS and IFT.
4. Demonstrate usage of therapeutic applications of physical medicine in promotive, preventive, curative and rehabilitative therapy, focusing on rehabilitation.
5. Analyse remedial measures in *Yoga* for various diseaseconditions.

Assessment Scheme:

Theory	**– 70 Marks**
Internal Assessment	**– 30 Marks**
Practical Assessment	**- 90 Marks**
Theory Viva	**- 60 Marks**
Practical Viva	**- 30 Marks**
Pratical Internal Assessment	**- 10 Marks**

BOOK REFERENCE (BOTH THEORY AND PRACTICALS)

1. Principles of Exercise Therapy - By DenaGardiner.
2. Tidy‟sphysiotherapy.
3. Cash text book ofphysiotherapy.
4. Clayton‟sElectrotherapyandActinotherapy.
5. Kisner‟s Theraupetic Exercise Foundation andtechniques.
6. Maggie‟s text Book of Physiotherapy

6. HOLISTIC PREACTICES OF NATUROPATHY & YOGA

Course type- Core Course

Course code – BNY 412, BNY 413P

Credits-3.5

1. Objective:

The objective of teaching Holistic practices of naturopathy & yoga to undergraduate students is to train them to provide well integrated clinical service in Naturopathy.

THEORY

Diseases of System:-

1. Cardiovascular Disorders
2. Gastrointestinal Disorders
3. Blood related Disorders
4. Respiratory Disorders
5. Neurological Disorders
6. Psychiatric Disorders
7. Musculoskeletal Disorders
8. E.N.T.Disorders
9. OphthalmologyDisorders
10. Obstetrics & Gynaecology Disorders
11. Paediatric Disorders
12. Metabolic Disorders
13. Hormonal Disorders
14. Neuromuscular Disorder
15. Mental Retardation Disorder
16. Psychological Disorder
17. Sexual Disorder
18. Post surgical Rehabilitation
19. Post Chemo therapy Rehabilitation
20. Skin Disorders

21. Tumors & Cancers
22. Affections due to Parasites
23. Affections due to Physical agents & Intoxicants
24. Care of Wounds, Burns, Bites & Stings
25. Accidents & Emergencies

Cure of Surgical Disorders:-

1. Deviated Nasal Septum
2. Tonsillitis
3. Appendicitis
4. Uterine Fibroid
5. Uterine Prolapse
6. Hernia
7. Intervertebral Disc Prolapse
8. Cervical Spondylosis & Slipdisc
9. Calcaneal Spur
10. Osteoarthritis
11. Hydroceleetc.
12. Prostate
13. Hemorrhoids (Piles)
14. Fistula
15. Pyorrhea
16. Gall Stone & Renal Stone
17. Breast tumor.

COURSE OUTCOME

After the completion of the course, the student shall be able to:

a. Illustrate decision making in Naturopathy;
b. Understand the basic principles of screening and prevention of disease;
c. Comprehend the scope of practice- patterns of use, fields of practice, regulations,limitations;
d. Understand the concept of healing and disease crises and management of thesame.
e. Understand the pathogenesis of the disease in Naturopathy basis and preventive measures of thesame;
f. Deduce and form a specific module of therapy for the particular patient with variedpresentations.

Assessment Scheme:

Theory	**–**	**70 Marks**
Internal Assessment	**–**	**30 Marks**
Practical Assessment	**-**	**90 Marks**
Theory viva	**-**	**60 Marks**
Practical viva	**-**	**30 Marks**
Pratical internal assessment	**-**	**10 Marks**

7. HOSPITAL MANAGEMENT AND RESEARCH METHODOLOGY

Course Type- Core Course

Course Code – BNY 414, BNY 415P

Credits-5.5

Objective:
The objective of teaching Research Methodology and Recent advances to undergraduate students is to provide them with the latest updated scientific, knowledge in the field of Naturopathy and *Yoga* and introduce them to research methodology.

THEORY

I - Medical Jurisprudence, Forensic Medicine & Toxicology

A. FOR ENSICMEDICINE:

1. Definition of Forensic medicine and itsscope.
2. Procedure of giving medical evidence with reference to Indian evidenceact.
3. Methods of identification of living and dead body, race, age, sexetc.
4. Death:- Medico-legal aspects, certification of death, sudden death, causes, Medico- legal importance, sign of death, changes due to death and calculating time of death.
5. Medico legalautopsy.
6. Medico-legal wounds, their classification and study and medico-legalaspects.
7. Examination of blood stains, hairs and seminalstains.
8. Miscellaneous causes of death from heat, cold, electricity, Starvationetc.
9. Violent asphyxia deaths:- Hanging, Strangulation, Suffocation anddrowning.
10. Sexual Offences: - Impotency and sterility, Virginity, legitimacy, un-natural Offences, Medico-legal aspects, Anesthetic death.
11. Infanticide.
12. Medico-legal aspects of insanity.
13. Forensic Psychiatry.
14. Definition, Police inquest, difficulties in detection of crime, legal procedure in Criminal courts and their powers, oath, medical evidence, medical certificate, Dying declaration.
15. Rules of giving evidence, professional secrecy.
16. Post mortemexaminations.
17. Death - signs of death cadaveric rigidity and spasm, putrefaction, estimation of Time sincedeath.
18. Death from asphyxia, differences between hanging and strangulation, suffocation and Drawing.
19. Death from burns and scalds andlighting.
20. Rape and unnaturaloffences.
21. Abortion, pregnancy and delivery, miscarriage.
22. Law in relation to a medical man, medical ethics, duties, professional privilege and responsibilities.

B. TOXICOLOGY:

1. General considerations of poisoning andclassification.
   a) Actions of poisons, factors modifying theiraction.
   b) Diagnosis of poisoning.
   c) Treatment of poisoning inGeneral.
2. Poisons:-
   a) Corrosives b) Nonmetallicpoisons
   c) Insecticides and weedkillers d) Metallicpoisons

e) OrganicIrritantpoisons
f) Somniferous poisons.
g) Inebriantpoisons
h) Delibriant poisons
i) DrugDependence
j) Food poisoning
k) Spinalpoisons
1) Cardiac poisons
m) Asphyxiants
n) Miscellaneous

3. Legal responsibilities: Medicalethics.
4. Responsibilities and duties of the medical practitioners to the state, Professional secrecy and privilegedcommunication.
5. Un-professional conduct andmalpractice.
6. The rights and privilege and duties of medicalpractitioners.
7. The functions of state-medical council and its relationship to Indian Medical Council.
8. Medical ethics approved by Indian Medical council. PRACTICALS

1. Ageestimation.
2. Autopsies
3. Skeleton remains.
4. Spotters.
5. Examination ofinjured.
6. Alcoholic.
7. Psychiatric.
8. Toxicology.

TEXT BOOKS:-

1. Medical jurisprudence – By Modi
2. A Text Book of Forensic Medicine - By Narayana Reddy
3. A Text Book Of Forensic Medicine - By M.R.K.Krishna

REFERENCE BOOKS:-

1. The essential of forensic medicine - By Dr. C.J.Polson, D.J. Gee and B. Knight
2. Forensic Medicine - By Corden and Shapiro
3. Principles and practice of Medical jurisprudence – By Taylor's
4. Legal Boundaries of Nature Cure - By Advocate (Dr.) Ashok Kumar Sharma

III - Hospital Management (Naturopathy & Yoga) (Hospital Administration)

SECTION 1
HOSPITAL ADMINISTRATION

1. The Hospital administrator - Role and Responsibilities
2. Profile of an effective Hospital Administrator

SECTION-2

MANAGERIAL SKILLS

1. Planning
2. Information System
3. Communication
4. Decision Making

5. Monitoring and Evaluation
6. Managing Time
7. Meetings

SECTION-3

HOSPITAL ORGANISATION

1. Hospital Organisation - Structure and Function
2. HospitalCommittees

SECTION-4

THE HOSPITAL

l. Role of Hospital in Health Care
2. Hospital Planning anddesign
3. Special Features of Nature cure Hospital, Qualities of Therapist, Hospital Atmosphere, Scientific Attitudes, Awareness of Scope, Limitations of nature cure.
4. Newer Technology in Treatment ThroughNaturopathy

SECTION 5

THE CLINICALSERVICES & CLINICALSUPPORTIVE SERVICES

1. The Medical Staff Organisation, interaction with patients.
2. Radiological Services
3. LaboratoryServices

SECTION6
THE NURSING SERVICES

SECTION7
SPECIALISED SERVICE AREAS

1. Casualty Services
2. Disaster Services
3. Out-patient Services
4. Day Care
5. Diagnostic Services
6. Medical Records

SECTION 8
HUMAN RESOURCES

1. Personnel

SECTION 9
MATERIALS MANAGEMENT

SECTION 10
FINANCES

1. Finances
2. Activity based costing inHospital
3. Economics of H.M.

SECTION 11
QUALITY ASSURANCE

1. Quality Management in our Hospitals
2. Medical Audit

INFECTIONCONTROL

1. Control of Hospital acquired infection.

ETHICS & LAWS

1. Ethics
2. Law applicable to Hospitals
3. Consumer Protection act 1986

SECTION-I2

1. Indian Health Policy

PRACTICAL

1. Visit to the different Hospitals.
2. Project work in Planning & Designing the Hospital

REFERENCE BOOKS

1. Hospital Planning & Administration - By Llewellyn Davies Macaulay, H.M.C.
2. Hospital Administration - By Francis C.M & Maria C.Desouza
3. Hospital ward Management - By KusumSamant
4. Text Book of Social & Preventive Medicine - By Park.K.
5. Economics of Health care - By MartinGreen
6. Hospital Planning - By Dr. AshokSahni
7. Principals of Hospital Administration & Planning - B.M.Sakharkar

IV. Research Methodology in Naturopathy & Yoga

1. Introduction
2. Planning a researchProject
3. Design of thestudy
4. Statistics
5. Parameters to be recorded for specificdiseases
   Obesity
   Diabetesmellitus
   Hypertension
   Asthma
   Lumbago
   Rheumatoid Arthritis

6. Project Preparation for Clinical Research
7. Bioethics
8. Ethical Issues in Clinical Trials
9. Recent Research Update in Naturopathy&Yoga
10. Psychological Aspects in YogaResearch
11. Status of Research in India on naturopathy andyoga

RECOMMENDED BOOKS

1. Research Methods - By Dr. H.R. Nagendra
2. Fundamentals of Evidence based Medicine - By KamleshwarPrasad
3. Research Reports From 1981 to 2006 - By INYS(Jindal Nature CureInstitute)

COURSE OUTCOME-

After the completion of the course, the student shall be able to;

a. Describe research methodology under process, materials and methods, design of a study, literature review, ethics, sampling, measurement tools, data organisation, statistics, data analysis, reliability and validity, etc, and implement this knowledge in practically designing, conducting, evaluating and publishing a study.
b. Illustrate statistics and probabilitytheory;
c. Use technological aids for preparing research reports;
d. Demonstrate knowledge about inter-disciplinary research

Assessment Scheme:

Theory	–	**70 Marks**
Internal Assessment	–	**30 Marks**
Practical Assessment	-	**90 Marks**
Theory Viva	-	**60 Marks**
Practical Viva	-	**30 Marks**
Pratical internal assessment	-	**10 Marks**

7. PSYCHOLOGY AND BASIC PSYCHIATRY

Course Type- Core Course

Course Code – BNY 416, BNY 417P

Credits-1.5

Objective:

The objective of teaching Psychology and Basic Psychiatry to undergraduate students is to provide them with comprehensive knowledge of normal and abnormal psychology and assessment of the same for therapeuticpurposes.

THEORY

I. Definition and brief history of Psychology.
II. Biology of Behaviour: Typical behaviour patterns, Sociobiology, Brainand Behaviour.
III. Sensory process andPerception.
    1. Vision, Hearing, Smell, Taste, Skinsenses.
    2. Perceptional Process - Attention from perception, visual depth perception, Consultancy, Movement perception, Plasticity, individualdifference.
IV. Principles of Learning: Classical conditioning, Instrumental conditioning, cognitive

learning etc.

V. Memory: Theories about memory, Forgetting and Amnesia, Improving your Memory.

VI. Thinking and Language: The thinking process, concepts, Problems solving, Decision making, Creative thinking, LanguageCommunication.

VII. Motivation: Theories of motivation, Biological motivation, Social motives, Motives to know and to be effective, Frustration and conflict ofmotives.

VIII. Emotion and Stress: Expression and perception of Emotions, physiology of emotion, Stress Theories ofEmotion.

IX. Social Perceptions, Influence and Relationship: Social perception social influence, social relationship.

X. Attitudes: The Nature of attitudes, the measurement of attitudes, attitude theories, Factor in attitude change, attitudes and behaviour, behaviour &Attitudes.

XI. Development during infancy and childhood: Methods of studying development, infancy, early childhood and laterchildhood.

XII. Development during Adolescence, Adulthood and Old age: AdolescI ence, Youth, Early and Middle adulthood, Oldage.

XIII. Psychological Assessment and Testing: Psychological tests, The Nature of intelligence and assessing intelligence, Individual difference in intelligence, Testing for special aptitudes, Personality Assessment, BehaviouralAssessment.

XIV. Personality: Type and Trait theories of personality, Dynamic personality theories, humanistic theories, learning and behavioural theories ofpersonality.

XV. Abnormal Psychology:(Psychiatry)

1. Abnormality in everydaylife
2. The language ofAbnormality
3. General causes of abnormalBehaviour
4. Classifying Psychological Disorders: Clinical syndromes, Brain Syndrome, Psychoses, Neuroses, and Personalitydisorders
5. Psychoneuroses
6. Hysteria, Anxiety state andNeurasthenia
7. Other forms of Psychoneuroses (OCD, Phobiasetc.)
8. Treatment of Psychoneuroses - Psychotherapy and its procedures, Other therapies.
9. Psychoanalysis and relatedschool.
10. Psychoses
11. Schizophrenia
12. Mania - DepressivePsychoses
13. Involutional Melancholia and Paronia
14. Alcoholic MentalDisorders
15. Toxic and Organic Psychoses
16. Epilepsy
17. Mental Deficiency
18. Antisocial personalities andcrime.

XVI. Therapy for Psychologicaldistress:

1. Positive Psychotherapy & other Psychotherapies: Psychoanalysis, Behaviour therapy, Logo therapy, Conversation therapy, Gestalt therapy and Primal therapy, Transactional analysis.
2. Positive Psychotherapy and its practical application for variousconditions.

XVII. Co-relation of Psychology, Mental health andYoga.

COURSE OUTCOME-

After the completion of the course, the student shall be able to:

1. Describe the evolution of Psychology from speculation toscience;
2. Illustrate mechanisms of sense and perception, states of consciousness and theirfunctions;
3. Understand basic and complex functions such as learning, memory, thinking, language, motivation, emotion, intelligence, development of psychology across lifespan, personality, stress coping, social psychology, attitudes,etc.
4. Explain abnormal psychology and describe aetiology and psychopathology along with classification ofdisorders;
5. Demonstrate knowledge of therapies aimed at psychological health, such as psychotherapy, *Yoga*,etc;

BOOKS RECOMMENDED:

1. Introduction to Psychology - By Clifford T. Morgan & Richard A.King
2. Abnormal Psychology - By James DPage
3. Positive Psychotherapy - By NossratPesseschkian
4. Psychologies, Mental Health and Yoga - By A.S. Dalal
5. General Psychology - By J.P.Guilford
6. A brief Introduction to Psychology - By Clifford T. Morgan

SPA MANAGEMENT
COURSE TYPE – SKILL ENHANCEMENT COURSE C
OURSE CODE - BNY 419

1. SPA MARKETING

- Developing a Marketing plan
- Essentials of selling to women, men and teen
- Generating Good Publicity
- Building and Maintaining contacts
- Using Technology in business' aid
- Building and Managing a Result Oriented Team Effective financial management
- Corporatetie ups

2. ROLE OF A SPA MANAGER

- Effective financial management
- Understanding spa concepts and its operations
- Effective planning – short term as well as long term Leadership & management
- Human resources
- Financial planning and management Therapy designing
- Menu designing
- Live spa training
- Spa recruitment
- DevelopmentOperations Spa and Hospitality

3. FRONT OFFICE & GUEST HANDLING

- Telephone handling
- Guest appointments & booking procedures
- Guest orientationGuest intake forms Guest comments.

4. SPA AS A CAREER

- Basic Requirements
- Remuneration/Earning Drive & Motivation Commitment
- Spa Career Options Typical Career Path.
- How to Start Your Own Spa Business
- Job Opportunities -India and a broad