

# 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**

## 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

- Recognize the health needs of the community and carry out professional obligations ethically and in keeping with the objectives of the national health policy;
- Develop the skills in the most of the competencies, and training that are required to deliver the Naturopathy and Yoga health care system
- Become aware of the contemporary advance and developments in the discipline concerned;
- Acquire a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology
- Become proficient in the profession by developing scientific temper and improve educational experience;

- 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
- Plan and devise measure in naturopathy and yoga for the prevention and rehabilitation of patients suffering from disease and disability
- Demonstrate skills in documentation of individual case details as well as morbidity data relevant to the assigned situation
- Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behavior in accordance with the societal norms and expectations;
- Play the assigned role in the implementation of national health programs effectively and responsibly
- Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or field situation;
- Develop skills as a self directed learner recognize continuing educational needs, select and use appropriate learning resources ;
- Demonstrate competence in basic concepts of research methodology and epidemiology and be able to critically analyze relevant published research literature
- To implement all national health policy
- Work towards realization of ‘health of all’ as a national goal through naturopathy and yoga ;
- To follow the medical ethics and to full fill the social and professional responsibilities as a naturopathy and yoga physician through drugless therapies
- Be competent in the practice of holistic medicine with expert knowledge and experience in health promotion prevention curative and rehabilitative aspects of diseases
- Become proficient in their profession by developing scientific temper and improve educational experience.

#### 6. Program Specific outcome

After successful completion of the program an individual will:

- PSO1. 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 & pathological aspects of the diseases & apply the knowledge & manage the disease by educating & making the concepts clear to patients or students
- PSO2. 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
- PSO3. 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

- PSO4.** 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
- PSO5.** 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
- PSO6.** 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

## 7. 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 thereto 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 31st December of the year of admission to the first year B.N.Y.S. course.

## 8. 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



## 9. Curriculum

- Duration of the course will be 4 1/2 years +1 (one) year internship. The course will be divided into four parts.
  - 1<sup>st</sup> BNYS -1 Year (12 Months)
  - 2<sup>nd</sup> BNYS - 1Year (12 Months)
  - 3<sup>rd</sup> BNYS -1Year (12 Months)
  - 4<sup>th</sup> 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.

## 10. Medium of Instruction

Medium of Instruction will be on English Mode.

## 11. 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.

<b>ABILITY ENHANCEMENT COURSES</b>	English communication	AECC 1
	Sanskrit	BNY 114
	Indian constitution	BNY 211
	Environmental science	AECC 1
	Human values	HPEV 01
	Professional ethics	BNY 418
<b>SKILL ENHANCEMENT COURSES</b>	Techniques in spa	BNY 313
	Spa management	BNY 419

List of all courses under different categories for BNYS Programme.

**BNYS FIRST YEAR**

Courses	Courses type	Course	Credits	Hours	Marks		
					Assessment	External Assessment	Total
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	BNY114	1	1			50
Tutorials			0.5	1			
<b>TOTAL</b>			<b>33</b>	<b>40</b>			<b>1350</b>

**SECOND YEAR**

Courses	Courses type	Course	Credits	Hours	Marks		
					Assessment	External Assessment	Total
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 Philosphy	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			
<b>Total</b>			<b>28.5</b>	<b>40</b>			<b>1100</b>



**THIRD YEAR**

Courses	Courses type	Course	Credits	Hours	Marks		
					Assessment	External Assessment	Total
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	IPEV01	1	1			50
Techniques In Spa	Skill Enhancement Course	BNY313	1	1			50
Tutorials			0.5	1			
<b>TOTAL</b>			<b>34.5</b>	<b>40</b>			<b>1300</b>

**FOURTH YEAR**

Courses	Courses type	Course	Credits	Hours	Marks		
					Assessment	External Assessment	Total
Nutrition, Dietetics, Herbs	Core Courses	BNY401	3	3	30	70	100
Nutrition, Dietetics, Herbs Practical	Core Courses	BNY402	1	2	40	60	100
Obstetrics and Gynecology	Core Courses	BNY403	5	5	30	70	100
Obstetrics and Gynecology Practical	Core Courses	BNY404	1	2	40	60	100
Yoga Therapy	Core Courses	BNY405	3	3	30	70	100
Yoga Practical	Core Courses	BNY406	2	4	40	60	100
Hydrotherapy Paper 1	Core Courses	BNY407	2	2	30	70	100
Hydrotherapy Paper 2	Core Courses	BNY408	1	1	30	70	100
Hydrotherapy Practical	Core Courses	BNY409	1	2	40	60	100
Physiotherapy	Core Courses	BNY410	1	1	30	70	100
Physiotherapy Practical	Core Courses	BNY411	0.5	1	40	60	100
Holistic Practices of Naturopathy and Yoga	Core Courses	BNY412	3	3	30	70	100
Holistic Practices of Naturopathy and Yoga Practicals	Core Courses	BNY413	0.5	1	40	60	100
Hospital Management and Research Methodology		BNY414	5	5	30	70	100
Hospital management and research methodology practical	Core Courses	BNY 415	0.5	1	40	60	100
Psychology and basic psychiatry	Core Courses	BNY416	1	1	20	50	100
Psychology and basic	Core Courses	BNY417P	0.5	1	10	20	30

psychiatry practical						
Professional ethics	Ability Enchancement Courses	BNY418	1	1		50
Spa management	Skill Enchancement Courses	BNY419	1	1		50
<b>Total</b>			<b>33</b>	<b>40</b>		<b>1730</b>
<b>Rotatory internship</b>			<b>49</b>	<b>49</b>	<b>Submission of dissertation is compulsory 5430</b>	

## 12. 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.

## 13.1 Condonation of medical cases

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

## 14. 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, Chiropractice & 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

- 15. 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
- 16. Credit system & grading CGPA/SGPA**  
 (Si)  $E(C_i \times G_i) / C_i$  where  $C_i$  is the number of credits of the  $i$ th course and  $G_i$  is the grade point scored by the student in the  $i$ th course  
 CGPA  $E(S_i / C_i)$  where  $S_i$  is the SGPA of the  $i$ th semester and  $C_i$  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.

- 17. 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

- 18. Transfer of credit /Academic Credit Bank**  
 Not Applicable.
- 19. 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.
- 20. Ragging**  
 If anyone found active in ragging activity, Action will be taken as order of Anti-Ragging Committee.
- 21. 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.



**22. 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 diaphragm
  - Head, neck-brain and spinal cord in brief
4. Embryology (gen. embryology) in brief:
  - 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 & upper limb)

Names of the bones and their positions; general features, skull - all normal and interior of skull & mandible.

**III. Muscular system :** (head & neck and upper limb)

Origin, insertion, nerve supply and action of the muscles with the applied anatomy and clinical testing.

**IV. Arthrology:** (head & neck, upper limb)

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 of larynx

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 sagittal section, horizontal section at interventricular 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 brain barrier.

**VI. Upper limb**

An introduction, breast, clavipectoral fascia, axilla, lumbar triangle, triangle of auscultation, bursa of upper limb, musculotendinous cuff, 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 of the structural components of the organs.
3. Systemic histology of concerned organs.

**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 bodily structures;
2. Understand histological structures of various tissues and organs and co- relate structure and function in order to understand diseased states;
3. Correlate basic structure and connections of the central nervous system,
4. Explain developmental basis of variations and abnormalities with respect to sequential development of organs and systems, teratogens, genetic mutations and environmental hazards.
5. Demonstrate and identify body structures including topography of living body;

**6. Assessment Scheme:**

**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, saphenous 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 bodily structures;
2. Correlate histological structures of various tissues and organs and co- relate structure and function in order to understand diseased states;
3. Deduce basic structure and connections of the abdomen, thorax, lower limb
4. Describe developmental basis of variations and abnormalities with respect to sequential development of organs and systems, teratogens, genetic mutations and environmental hazards.
5. Identify gross congenital anomalies and be familiar with the principles of karyotyping;

**Assessment Scheme:**

**Theory – 70 Marks**

**Internal Assessment – 30 Marks**

**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:** dissection: 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) (2 wks) prosected parts: sole of the foot and joints.

**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 diseased states;
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 diseased states;
3. Describe developmental basis of variations and abnormalities with respect to sequential development of organs and systems, teratogens, genetic mutations and environmental hazards.
4. Identify body structures including topography of living body;

### 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 Anatomy (Vo L-I,li,lii) - 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-cellular units
3. Cell membranes and their properties
4. Transport mechanisms
5. Bioelectrical potentials
6. Body fluids and homeostasis

#### **II. BLOOD – Physical properties, composition and functions of blood.**

1. Plasma proteins
  - a) Normal values
  - b) Origin and methods of separation
  - c) Functions and variations in health and disease.
2. Bone marrow
  - a) Formed elements
  - b) Composition and functions
3. Erythrocytes
  - a) Morphology and variations in health and diseases
  - b) Development of erythrocytes
  - c) Site and stages in development
  - d) Necessary factors
  - e) Regulation of development of erythrocytes
  - f) Life-span and fate of erythrocytes
  - g) Erythrocytes sedimentation rate (ESR)
4. Haemoglobin
  - a) Structure, synthesis, function and metabolism
  - b) Types of hemoglobin
5. Anaemia – Definition and classification

6. Jaundice – Definition and classification
  - a) Role and function of spleen
7. Leucocytes
  - a) Classification, morphology, development and functions
  - b) Variation in health and disease
8. Thrombocytes
  - a) Origin, morphology and functions
  - b) Variation in health and disease
9. Haemostasis
  - a) Mechanism of haemostasis, coagulation of blood
  - b) Fate of clot and disorders of clotting
10. Anticoagulants
  - a) Mechanism of action and clinical applications
11. Blood groups
  - a) Classification
  - b) ABO and RH system
  - c) Blood transfusion, indication and hazards
12. Lymph and tissue fluids
  - a) Lymph and reticular system
  - b) Fluid compartments and Water Balance
  - c) Principles of immune system
  - d) Cellular and humoral immunity

### **III - CARDIO-VASCULAR SYSTEM**

Historical perspective and organization of cardiovascular system

1. Heart
  - a) Structure and properties of cardiac muscle
  - b) Cardiac metabolism
  - c) Enervation of heart, junction tissue of heart
  - d) Regeneration and spread of cardiac impulse
2. Electrocardiography
  - a) Enthovan's Law
  - b) Various ECG leads, normal ECG and its interpretation
  - c) Cardiac arrhythmias and heart block
  - d) Cardiac vector
3. Cardiac cycle
  - a) Pressure and volume change (mechanical events)
  - b) Heart sound and stethoscopy
  - c) Principle of echo-cardiography

- d) Measurement and regulation of cardiac output.
- 4. Heart sounds
  - a) Description, causation and relation to other events in cardiac cycle
  - b) Clinical significance of heart sounds
- 5. Blood pressure
  - a) Definition, regulation and factors influencing B.P.
  - b) Measurement of blood pressure
  - c) Physiology of haemorrhage and shock
- 6. Circulation
  - a) Blood vessels
  - b) Physical principle of blood flow, regulation of blood flow
  - c) Jugular venous pulse tracing, radial pulse tracing
  - d) Coronary, cerebral, renal and pulmonary circulation
  - e) Splanchnic, cutaneous and capillary circulation

#### **IV. RESPIRATORY SYSTEM**

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

- 1. Mechanics of respiration
  - a) Inspiration and expiration
  - b) Role of respiratory muscles and thoracic cage
  - c) Pressure and volume change during respiration
  - d) Work of breathing, lung compliance and its significance in health and diseases.
- 2. Lung volumes and capacities
  - a) Lung volumes and capacities and their measurements
  - b) Respiratory minute volume and maximum voluntary ventilation
- 3. Alveolar ventilation Composition of atmospheric, inspired, alveolar and expired air
- 4. Pulmonary circulation
  - a) Pulmonary circulation, ventilation-perfusion relationship
  - b) Diffusion of gases across pulmonary membrane
  - c) Oxygen uptake, transport and delivery
  - d) Carbon-dioxide uptake, transport and delivery
- 5. Organization of the respiratory centers
  - a) Nervous and chemical regulation of respiration
  - b) Classification and characteristics of hypoxia, cyanosis, asphyxia, hypercapnea, hypocapnea, dyspnoea, apnoea and orthopnea and periodic breathing.
  - c) Respiratory aspects of high altitude
  - d) Physiology of acclimatization and hyperbarism
  - e) Respiratory / pulmonary function tests
  - f) Non-respiratory functions of lungs
  - g) Artificial respiration



### III DIGESTIVE SYSTEM

1. Introduction, organization and plan of digestive system
2. Saliva
  - a) Composition, functions, regulation of secretion
  - b) Methods of study of above aspects of saliva
3. Stomach
  - a) Functions of stomach
  - b) Composition and functions of gastric juice
  - c) Regulation of secretion and mechanism of HCL secretion
  - d) Gastric emptying time and its regulation
  - e) Methods of study of gastric function and its applied aspect.
4. Pancreas
  - a) Composition and functions of pancreatic juice
  - b) Regulation of pancreatic secretion
  - c) Methods of study of pancreatic secretion
5. Liver
  - a) Function, formation, storage and emptying of bile
  - b) Composition, function and regulation of release of bile
  - c) Entero-hepatic circulation
  - d) Tests for liver functions
6. Small intestine
  - a) Succus enteric us
  - b) Composition, function and mechanism of secretions
7. Large intestine
  - a) Functions
8. Gastro-intestinal Hormones
  - a) Release and functions
9. Gastro-intestinal movements
  - a) Mastication, deglutition and vomiting
  - b) Movements of stomach and small intestines
  - c) Movements of large intestine and defecation
  - d) Regulation of movements and methods of study
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 body function;
2. Correlate the relative contribution of each organ system to the homeostasis;
  3. Describe the physiological aspects of normal growth and development;
  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 evolution of excretory mechanisms
2. Renal system-functional anatomy and renal circulation
3. Nephron
  - a) Mechanism of urine formation, glomerular filtration, tubular function
  - b) Concentration and acidification of urine
  - c) Composition of normal urine, and abnormal constituents of urine
  - d) Renal function tests
4. Non-excretory functions of kidney
  - a) Physiology of micturition and its abnormalities
5. Skin-Structure and functions

**VII. ENDOCRINAL SYSTEM**

1. Introduction-hormones, evolutionary back-ground and organization of endocrine control systems
2. Methods of study
  - a) Classification of hormones and mechanism of hormonal action
  - b) Regulation of hormone secretion and feed-back system
3. Hypothalamo- hypophyseal system Releasing hormones
4. Active principles
  - a) Chemical nature, biosynthesis, role of action
  - b) Control of secretion , excretion and its aspect.
  - c) Clinical study of their hypo-and hyper function
  - d) Laboratory diagnosis of pituitary (anterior and posterior) gland, thyroid, parathyroid, adrenal cortex and medulla and islets of langerhans.

**VIII. REPRODUCTIVE SYSTEM**

1. Physiology of reproduction
  - a) Introduction to physiology of reproduction
  - b) Sex determination and sex differentiation and chromosomal study
2. Male reproductive system
  - a) Growth, development and structure of testes
  - b) Gonadotropins and

- c) gonadalhormones
  - c) Functions of testes and spermatogenesis
  - d) Composition of semen
3. Female reproductive system
- a) Ovary, gonadotropins
  - b) Structure of ovary and corpusluteum
  - c) Function of ovary, ovarian hormones
  - d) Physiology of menstruation cycle and physiology of pregnancy
  - e) Physiology of placenta, gestation and parturition
  - f) Physiological basic of tests for ovulation and pregnancy
4. Physiology of lactation

## **IX NERVE MUSCLE PHYSIOLOGY**

1. Neurons
- a) Morphology and measures of excitability
  - b) Classification and properties of nerve fibers
2. Muscle
- a) Types of muscles and their properties and morphology
  - b) Neuro-muscular junction, excitation-contraction coupling
  - c) Myasthenia gravis
  - d) Starlings law and its applications

## **X. CENTRAL NERVOUS SYSTEM**

1. Structural and functional organization of central nervous system
2. Neuron
- a) Neuroglia, functional types of neurons
3. Cerebro-spinal fluid
- a) Formation, circulation, functions of CSF
  - b) Methods of collection and clinical significance of CSF
4. Synapse
- a) Types of synapses and their structure
  - b) Sympathetic transmission
  - c) General properties of neuro-transmitters
5. Sensory Physiology
- a) Classification and general properties of receptors
  - b) Sensory modalities and stereo gnosis
6. Reflexes
- a) Reflex and general properties of reflexes (with examples)
7. Ascending tracts
- a) Origin, course, termination and functions

- b) Specific reference to pain pathway and physiology of pain
- 8. Organisation of motor systems
  - a) Pyramidal and extra-pyramidal system
  - b) Upper and lower motor neurones and their lesions
  - c) Brown-sequard syndrome
  - d) Syringomyelia
- 9 Cerebellum
  - a) Functional anatomy, connections and functions
  - b) Effects of lesions and tests for cerebellar function
- 10. Basal ganglion
  - a) Functional anatomy, connections and functions
  - b) Diseases of basal ganglion and its clinical evaluation
- 11. Vestibular apparatus
  - a) Functions anatomy, connections and functions
  - b) Effects of lesions and their assessment
  - c) Physiology of maintenance and regulation of muscle tone, posture and equilibrium
  - d) Decerebrated rigidity and righting reflexes
- 12. Thalamus
  - a) Functional anatomy, connections and functions
  - b) Effects of lesions of thalamus
- 13. Hypothalamus
  - a) Functional anatomy, connections and functions
  - b) Effects of lesions of hypothalamus
- 14. Body temperature regulation
  - a) Normal body temperature, pyrexia and hypothermia
- 15. Cerebral cortex
  - a) Functional anatomy
  - b) Methods of study of cortical functions
- 16. Limbic system
  - a) Functional anatomy, connections and functions
  - b) EEG, Physiology of sleep and wakefulness
- 17. Higher functions
  - a) Learning, speech, memory, behaviour and emotions

## **XI. AUTONOMIC NERVOUS SYSTEM**

- 1. Sympathetic nervous system
- 2. Parasympathetic nervous system

## **XII. SPECIAL SENSE**

1. Smell
  - a) Physiology of olfaction and olfactory discrimination
  - b) Olfactory pathway and defects of olfaction
  
2. Receptors, primary taste sensation and taste pathway
  
3. Vision
  - a) Functional anatomy of eye, extra and intra-ocular muscles
  - b) Errors of refraction and their correction, visual acuity
  - c) Physiology of aqueous humour
  - d) Cornea, lens, intraocular pressure, accommodation
  - e) Retina, rhodopsin cycle, dark and light adaptation
  - f) Visual pathway and effects of lesions in visual pathways
  - g) Field of vision, perimetry, binocular vision
  - h) Iris and pupillary reflexes
  - i) Colour vision, colour blindness and tests for color blindness
  - j) Formation and circulation of tears, lacrimal glands
  
4. Hearing
  - a) Functional anatomy of ear, function of external ear
  - b) Physiological functions of middle ear
  - c) Impedance matching and tympanic reflex
  - d) Functional anatomy of internal ear, cochlea, organ of Corti
  - e) Auditory pathway and auditory cortex
  - f) Frequency analysis, sound localization, defects of hearing
  - g) 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 Special senses.

## **COURSE OUTCOME**

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

1. Explain the normal functioning of all the organ systems and their interactions for well coordinated body function;
2. Correlate the relative contribution of each organ system to the homeostasis;

3. Describe the physiological aspects of normal growth and development;
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 on RBCs
2. Enumeration of RBCs (RBC count)
3. Estimation of haemoglobin
4. Packed cell volume (PCV) and blood indices
5. Determination of Erythrocyte sedimentation rate (ESR)
6. Enumeration of WBC (Total count)
7. Differential WBC count (Differential count)
8. Determination of clotting time and bleeding time
9. Enumeration of platelets (Platelet count)

**II. HUMAN PHYSIOLOGY EXPERIMENTS**

1. Recording of blood pressure in human beings and study the effects of exercise on blood pressure
2. Electrocardiography (Demonstrations)
3. Clinical examination of CVS and radial pulse
4. Determination of tidal volume, inspiratory reserve volume, expiratory reserve volume, inspiratory capacity, expiratory volume (All experiments are to be arranged for demonstration)
5. Stethoscopy, normal body temperature and its physiological variation
6. Pulse, respiration and temperature chart with correlation
7. Clinical examination of respiratory system
8. Plethysmography (Demonstration)
9. Clinical examination of CNS
  - a) Motor functions
  - b) Sensory functions
  - c) Cranial nerves
  - d) Reflexes superficial and deep
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

<b>Practical Assessment</b>	-	<b>90 Marks</b>
<b>Theory viva</b>	-	<b>60 Marks</b>
<b>Practical viva</b>	-	<b>30 Marks</b>
<b>Practical internal assessment</b>	-	<b>10 Marks</b>

### 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 by Bijlani
5. Essentials of Medical Physiology by Sembulingam

### Reference books

1. Best and Taylor's physiology basis of Medical practice
2. Practical physiology by Ghai
3. Practical physiology by Ranade.

### COURSE OUTCOME

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

1. Conduct experiments designed to study physiological phenomena;
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, Henderson - Haselbasch Equation.
3. Principles of calorimetry, Paper chromatography and Electrophoresis.
4. Amino Acids - Classification, structure, properties and side chains of amino acids.
5. Peptides - Biological importance of peptides structure of Insulin.
6. Proteins - Definition, Biological importance, classification and properties, structure of proteins, coagulation and denaturation of proteins,
7. Elementary aspects of the structure of collagen, Myoglobin and Hemoglobin.
8. Enzymes - Definition, classification, specificity, coenzymes, co-factors and activators diagnostic importance of enzymes and iso-enzymes.
9. Carbohydrates - Definition, classification and biological importance of Monosaccharides- classification, properties and stereoisomerism, oligosaccharides- importance of Disaccharides.
10. Polysaccharides - Functions.
11. Lipids - Definition, classification and biological importance.
  1. Simple lipids: Composition of triglycerol, Waxes.
  2. 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 antagonist Hypervitaminosis
14. Minerals - Calcium, Phosphorous, iron, copper, zinc, magnesium, manganese, lead, mercury arsenic and metal toxicity fluorine and iodine.
15. Cell and sub cellular structures: Cell membrane, its composition, function of sub cellular 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 - Oxidative phosphorylation.
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 lipotropic factors.
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 acid metabolism.

21. Purine and Pyrimidine metabolism-Outline of synthesis and breakdown of purine and pyrimidine, Disorders of metabolism of purine and pyrimidine.
22. Biochemical genetics and protein synthesis - Replication, transcription, reverse transcription viruses, oncogenes, post transcription modification.
23. Biochemistry of blood - Outline of synthesis and degradation of heme, Function of Hemoglobin, abnormal hemoglobin, Jaundice, importance, functions and separation of plasma proteins, Functions of immunoglobulin's, regulation of PH of blood, role of kidney and lungs in maintaining PH of blood, acidosis and Alkalosis.
24. Liver function - Liver Function tests, Detoxification mechanisms.
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 food, unbalanced diet, protein energy malnutrition (PEM) , Essential fatty acids , dietary habits and diseases, biochemistry of starvation.
27. Electrolytes and water metabolism

### **COURSE OUTCOME-**

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

1. Explain the molecular and functional organization of a cell and list its sub cellular components;
2. Correlate the fundamental aspects of enzymology and clinical application wherein regulation of enzymatic activity is altered;
3. Illustrate digestion and assimilation of nutrients and consequences of malnutrition;
4. Explain biochemical basis of inherited disorders with their associated sequelae;
5. Describe mechanisms involved in maintenance of body fluid and pH homeostasis;
6. Analyse the molecular mechanisms of gene expression and regulation, the principles of genetic engineering and their application in medicine

### **Assessment Scheme:**

- Theory** – 70 Marks  
**Internal Assessment** – 30 Marks

### **Biochemistry Practicals**

#### **SECTION – I**

1. Indicators
2. Reactions of monosaccharide's - Glucose and fructose
3. Reactions of disaccharides - Lactose, Maltose and Sucrose
4. Reactions of polysaccharides - Starch and dextrin
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 and creatinine.
8. Analysis of Milk
9. Normal Constituents of urine
10. Analysis of abnormal urine.

## 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 serum bilirubin
2. Determination of
  - a. Sugar in CSF
  - b. Proteins in CSF
  - c. Chlorides in CSF
3. Determination of albumin and urea in urine
4. Determination of SGOT and SGPT
5. Demonstration of principles of
  - a. Calorimetry and calorimeter
  - b. Paper chromatography
  - c. Electrophoresis
  - d. Glucose Tolerance Test (GTT)
  - e. Flame photometry.

### 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 and diagnosis;
2. Analyse and interpret investigational data;
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

<b>Practical Assessment</b>	-	<b>90 Marks</b>
<b>Theory viva</b>	-	<b>60 Marks</b>
<b>Practical viva</b>	-	<b>30 Marks</b>
<b>Practical internal assessment</b>	-	<b>10 Marks</b>

### 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 books 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.

### Reference Book

1. Harper's review of physiological chemistry - By Harper
2. Text Book of Biochemistry - By Lubert Stryer
3. Biochemistry - By Albert Lehninger.
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 in Naturopathy.

### **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
  2. The School ofSalerno.
  3. Vincent Priessnitz.
  4. ArnoldRickli.
  5. AdolfJust.
  6. SigmundFreud.
  7. BernarrMacfadden
  8. ArnoldEhret
  9. Herbert M. Shelton
  10. Benedict Lust
  11. Hippocrates
  12. Paracelsus
  13. Sebastian Kneipp.
  14. Louis Kuhne.
  15. John H.Tilden.
  16. Henry Lindlahr.
  17. Bernard Jenson
  18. Edwin Babbit
  19. J.H. Kellog M.D.
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 & MentalHygiene
    - 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 ofLiving)
    - b) The Laws oflife.
    - c) Mystery oflife
    - d) Life'sEngineering
    - e) Safeguards oflife.
    - f) How long can we live (Increase of average length of life), Are You Shortening Your Life? Why LiveLong?
  18. The Philosophy ofHealth
    - a) Health Standards
    - b) Health & its Conditions
    - c) Ancient Man Was Healthier Than WeAre.
    - d) Positive Habits
    - e) Vital Economy
    - f) Divine science ofHealth.
    - 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 Many Faces
  - 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 to Naturopathy
4. Classify and Correlate Ten basic principles of Naturopathy
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 balanced diet.
4. Role of diet in nature cure and yoga (Satvic, Tamasic, Rajasic)
5. Outlines on a) Regular Habits for health b) Rest and Relaxation c) Live Food- Natural Raw diet d) Fasting e) Exercises.
6. Fundamentals of Ayurveda
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 Facial Expression
  - 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. A) Enema - Colon Flushing
  - i. B) Colon Hydrotherapy. Hydrotherapy:
  - b. Hydrotherapy:
  - j) 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. Sitz Bath
    - xii. Full Immersion Bath
    - xiii. Under Water Massage
    - xiv. Douches
    - xv. Cold Circular Jet Bath
    - xvi. Whirlpool Bath
    - xvii. Gastro Hepatic Pack
    - xviii. Kidney Pack
    - xix. Oxygen Bath



**Assessment Scheme:**

- Theory** – 70 Marks  
**Internal Assessment** – 30 Marks

**PNC PRACTICALS**

- Students should be introduced to various treatment procedures used in Naturopathy.
- Students should have knowledge of giving various treatments.
- Demonstration of :a) Natural Diet (Live food). b) Satvic boiled diet. c) Way of serving & various special diets.
- Practicals with record.v. Visiting to various nature cure clinics/ hospitals.

**COURSE OUTCOME-**

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

- Understand Principles behind using the diagnostic procedures of Naturopathy, like spinal diagnosis, facial diagnosis, iris diagnosis, and chromo diagnosis.
- Demonstrate knowledge of recent advances and research in Naturopathy principles/theories.
- Demonstrate basic knowledge of the various therapeutic modalities utilised in Naturopathy;
- 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—**

- Philosophy of Nature Cure - By Henry Lindlahr.
- Practice of Nature Cure - By Henry Lindlahr.
- Human culture and Cure - By Dr. E.D. Babbit
- Practical Nature Cure - By Dr. K.Laxman Sharma.
- History and Philosophy of Nature Cure - BY S.J. Singh
- My Nature Cure - By M.K.Gandhi
- Natural health care- A to Z - By Belinda Gram
- Introduction to Natural Hygiene - By Herbert M.Shelton
- A Complete Hand book of Nature Cure - By H.K.Bakhru
- Nature Cure - a way of life - By S.R. Jindal
- The cure of advance cancer by Diet Therapy - Dr. Max Gerson M.D.
- Toxemia - J.H.Tilden
- (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
- (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 &PhysicalCulture | - Dr. Bernarr Macfadden             |
| 17. Mywater cure                                | - Father Sebastian Kneipp           |
| 18. The New ScienceofHealing                    | - LouisKuhne                        |
| 19. Returnto Nature                             | - AdolfJust                         |
| 20. DietReformSimplified                        | - Dr. StanleyLief                   |
| 21. RationalFasting                             | - Dr. ArnoldEhret                   |
| 22. The Human Cultureand Cure                   | - Edwin Babbit                      |
| 23. Rogo kiAchookChikitsa                       | - Dr. Janaki Sharan Verma           |
| 24. The GreatestHealthDiscovery                 | - American Natural Hygiene Society  |
| 25. The History ofNaturalHygiene                | - HerewardCarrington.               |
| 26. Principles ofNaturalHygiene                 | - Herbert M.Shelton                 |
| 26. HealthForAll                                | - H.M. Shelton                      |
| 27. IntegratedHealingArts                       | - Dr. J.M. Jussawala                |
| 28. PrakratikChikitsaSagar                      | - Dr. Gaurishankar Mishra           |
| 29. Speaking of Nature Cure                     | - K. Laxmana Sharma & S.Swaminathan |
| 30. Human Life-its Philosophy&Laws              | - Herbert M.Shelton                 |
| 31. How to Get Rid of The Poisons inYourBody    | - Gary Null & Steven Null           |
| 32. Let'sGetWell                                | - Adelle Davis                      |
| 33. Be yourOwnDoctor                            | - Ann Wigmore Reference Books       |
| 1. My Nature Cure orPracticalNaturopathy        | - By S.J.Singh                      |
| 2. The Science offacialexpression               | - By Louis Kuhne                    |
| 3. The Story of my experimentwithtruth          | - BY M.K.Gandhi                     |
| 4. Ayurveda for health andlonglife              | - By Dr. R.K.Garde                  |
| 5. Everybody'sguidetoNature Cure                | - BY Harry Benjamin                 |
| 6. Prayer                                       | - By M.K. Gandhi                    |
| 7. Diet andDietReforms                          | - By M.K. Gandhi                    |
| 8. Panchatantra                                 | - By VenkatRao                      |
| 9. A. Nature Cure B. Healingfromwithin          | - By J.M.J ussawala                 |
| 10. Miracleoffasting                            | - By Dr. Paavo Airola               |
| 11. Raweating                                   | - By Aterhov & By Hira Lal          |
| 12. Vitality fasting&Nutrition                  | - By Hereward Carrington            |
| 13. DeathDeferred                               | - By HerewardCarrington             |
| 14. Natural NutritionofMan                      | - By HerewardCarrington             |
| 15. Mucousless diethealingSystem                | - By ArnoldEhret                    |
| 16. Natural Hygiene - Pristine wayoflife        | - By Herbert M.Shelton              |
| 17. Better Sightwithoutglasses                  | - By HarryBenjamin                  |
| 18. Swasthavrittavijyana                        | - By R.H.Singh                      |
| 19. FundamentalsofAyurveda                      | - By K.N.Udupa                      |
| 20. ArogyaPrakasha                              | - By Ramnarayana Vaidya             |
| 21. ChikitsaTatvaDipika                         | - By Vaidya Mahaveer Prasad Pandey  |
| 22. PadarthVijanam                              | - By Ram Prakash Pathak             |
| 23. Gem of SiddhaMedicine                       | - By Dr. Ram Murthy                 |
| 24. Living life to LiveitLonger                 | - By Herbert M. Shelton             |
| 25. Eating for Health with Emphasison Economy   | - By L. Ramachandran                |
| 26. Hand Book of Naturopathy                    | - By Sukhbir Singh                  |
| 27. Healing Through NaturalFoods                | - By H. K. Bakhru                   |
| 28. 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, Sheetal, 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** – **15Marks**

## **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. ArdhaShalabhasana
  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. Kapalbhathi
  2. Bhastrika
  3. Sheetakari
  4. Sheetali
  5. AnulomaViloma
  6. Ujjayi
  7. Bhramari
  8. Plavani Kriyas
1. Neti - Jala -Sutra
  2. Dhouti -Vaman
  3. Nauli - Dakshina -Madhya
  4. Trataka -Jyoti
  5. Kapalbhathi



## 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 Dharendra 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. YogasanaVigyan                       | - Swami Dharendra Brahmachari |

## **6. SANSKRIT**

**Course Type – Ability Enhancement Course (NON EXAM )**

**Course Code- BNY114**

**Credits: 1**

### **Objective:**

The objective of teaching *Sanskrit* to undergraduate students is to provide a comprehensive knowledge of *Sanskrit* in order to be able to study, understand, 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” to cerebral, N” and its exceptions for this rule; repeat declensions 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 omit 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, Samskrta 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 situations 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

- Personal grooming
- Dress code
- Telephone etiquettes
- Intellectual grooming

#### Module 04 – Conversation in Real life situations

- Meeting people,
- Traveling
- Visiting Places
- Shopping

#### Module 05 – Public Speaking skills

- Extempore
- Role Play
- Group Discussion

### **Module 06 – Basic Computer Skills**

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

### **Module 07 – Practical Assessment**

- Presentations

### **COURSE OUTCOMES:**

1. Projecting the first impression
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 professional language.
4. Polishing manners to behave appropriately in social and professional circles.
5. Handling difficulty situations with grace style and professionalism.

### **Books Recommended:**

1. An introduction to Professional English and Soft Skills by B. K. Das et al., Cambridge University Press
2. Technical Communication: Principles and Practice, Second Edition by Meenakshi Raman and Sangeeta Sharma, Oxford Publications.
3. Effective Technical Communication by M Ashraf Rizvi, The McGraw-Hill companies.
4. Understanding Body Language by Alan Pease.
5. Communicative Grammar of English by Geoffrey Leech and Ian Svartik.
6. Better English Pronunciation by J.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 of disease.

### THEORY

#### General Pathology

1. History and Scope of Pathology
  - 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 its function.
  - b) Causes and nature of cell injury.
3. Reaction of cell to Injurious agents.
  - a) Lethal injury- Necrosis and gangrene.
  - b) Cloudy swelling.
    - i) Fatty changes in Liver, heart and kidney.
    - ii) Glycogen infiltration and hyaline degeneration.
    - iv) Lipoid degeneration.
    - v) Mucoïd degeneration.
  - c) Pathological Calcification
4. Inflammation and Repair:
  - a) Definition, Classification and nomenclature.
  - b) Acute Inflammation.

Vascular and cellular phenomenon, cell of exudate chemical mediators and tissue changes in acute inflammation Cardinal signs of acute inflammation, Fat, types and systemic effects of acute Inflammation.

5. Chronic Inflammation :
  - a) Difference between acute and chronic inflammation.
  - b) Definition of Granuloma.
6. Wound healing:
  - a) Regeneration and Repair.
  - b) Repair of epithelial and mesenchymal tissue.
  - 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 of granulomas.
  - 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, congenital syphilis.
  - f) Actinomycosis, maduramycosis and rhinosporidiosis.
9. Fluid and Hemodynamic Changes (circulatory disturbances):
  - a) Hyperemia, congestion and hemorrhage.
  - b) Thrombosis, embolism, DIC.
  - c) Ischemia, infarction and shock. d).Edema.
10. Immunopathology:
  - a) Basic Pathological mechanism in autoimmune disorders.
  - b) Concept of immunodeficiency disorders.
  - c) Pathology of AIDS.
11. Growth and its disorders:
  - a) Definition of agenesis, aplasia, atrophy, hyperplasia, hypertrophy, hypoplasia, metaplasia.
  - b) Concept of dysplasia, anaplasia and carcinoma-in-situ.
12. Neoplasia:
  - a) Definition, Classification and Nomenclature.
  - b) Characteristic features of benign and malignant tumours.
  - c) Route of spread of malignant tumours.
  - d) Grading and staging of cancers and pre-cancerous conditions.
  - e) Carcinogenesis and carcinogens.
  - f) Laboratory diagnosis of cancer-Biopsy, exfoliative cytology and prognostic prediction in cancer.
  - g) Description of common tumours like-Fibroma, Lymphoma, Angioma, Leiomyoma and Fibrosarcoma, Lymphosarcoma, Angiosarcoma and Leiomyosarcoma..
  - h) Tumours of infancy and childhood.
13. Mineral and pigment metabolism:
  - a) Pathology of melanin pigment
  - b) Pathology of hemoglobin and its derivatives
  - c) Hemosiderosis and hemochromatosis
14. Genetic disorders: Klinefelter's syndrome, Turner's syndrome, Down's syndrome.



## SYSTEMIC PATHOLOGY

1. Disorders of RBC
  - a) Definition, morphologic and etio-pathologic classification of anemias. Iron deficiency anemia-B12 and folate deficiency anemia, sideroblastic anemia, post-hemorrhagic anemia.
  - b) Concept and classification of hemolytic anemias.
  - c) Laboratory investigations in anemia.
2. Disorders of WBC
  - a) Leukopenia & Leukocytosis.
  - b) Agranulocytosis and Tropical Eosinophilia.
3. Coagulation and bleeding disorders
  - 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 and Atherosclerosis.
  - b) Aneurysm.
  - c) Rheumatic heart disease, Endocarditis, Myocardial Infarction.
  - d) Congenital heart diseases.
  - 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 salivary gland.
  - b) Barrett's Oesophagus.
  - c) Gastritis and peptic ulcer and tumors of stomach.
  - d) Inflammatory bowel diseases- Crohn's disease, ulcerative colitis, typhoid ulcer.
  - e) Megacolon and Tumors of colon.
  - f) Malabsorption syndrome, tropical sprue and Coeliac disease. Amoebiasis, bacillary dysentery and intestinal tuberculosis.
  - g) Dysentery and intestinal tuberculosis.
7. Diseases of liver, biliary tract and pancreas:
  - a) Liver function tests and hepatic failure, viral hepatitis.
  - b) Cirrhosis of liver. tumors of liver.
  - c) Alcoholic liver diseases.
  - d) Indian childhood cirrhosis.
  - e) cholecystitis and Gallstones.
  - f) Pancreatitis and Diabetes Mellitus.
8. Diseases of Kidney:

- a) Renal function tests, Renal failure, Polycystic kidney.
  - b) Acute glomerulonephritis, Crescentic glomerulonephritis, Membranous glomerulonephritis, Nephrotic syndrome.
  - c) Chronic glomerulonephritis, acute tubular necrosis.
  - d) Pyelonephritis, Kidney in hypertension.
  - e) Tumors of Kidney.
9. Diseases of Male Genital system
- a) Orchitis and testicular tumors.
  - b) Nodular hyperplasia of prostate, carcinoma of prostate.
  - c) Carcinoma of penis.
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) Osteomyelitis and Osteoporosis.
  - b) Rickets and Osteoporosis.
  - c) Tumors of Bone.
  - d) Rheumatoid Arthritis, Gout.
  - e) Myasthenia gravis and Progressive muscular dystrophy.
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 cell carcinoma.
16. Pathology of Skin
- a) Squamous cell carcinoma, Basal cell carcinoma.
  - b) Malignant melanoma.
  - c) Warts, Molluscum contagiosum.
  - d) Fungal diseases.
17. Pathology of Eye.

18. Pathology of ENT.
19. Clinical Pathology Including Clinical Hematology & Clinical Bio-Chemistry.
  1. Sample Collections for various hematological and clinical pathological investigations and anticoagulants used.
  2. Theoretical aspects of HB estimation; hematocrit, blood indices, ESR and normal values in Hematology.
  3. Blood grouping concept of blood groups.
    - a) Selection of donor, major and minor-cross-matching.
    - b) Blood transfusion, diseases transmitted by transfusions.
    - c) Coombs' test.
  4. CSF Analysis.
  5. Semen Analysis.
  6. Urine analysis and microscopy.
  7. Liver Function tests.
  8. Renal function tests.
  9. Glucose tolerance test.
  10. 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 functional alterations.
- b. Describe the pathophysiological processes which govern the maintenance of homeostasis, mechanisms of their disturbance and the morphological and clinical manifestations associated with it;
- 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 clinical significance.

**Assessment Scheme:**

- Theory** – 70 Marks  
**Internal Assessment** – 30 Marks

**PATHOLOGY PRACTICALS**

**I. Hematology**

1. Blood groups (A.B.O.System)
2. Estimation of hemoglobin.
3. Enumeration of RBCs (R.B.C. Count)
4. Total leucocyte count (total count)
5. Differential leucocyte count (D.L.C.)
6. Peripheral Smear staining and reporting
7. Absolute eosinophil count.
8. Demonstration of
  - a) Hemograms in anemia
    - i) Iron deficiency anemia
    - ii) Macrocytic anemia
  - b) Hemograms in Leukaemias
    - i) Acute types
    - ii) Chronic types
9. Slide study of:
  - a) Acute myeloid leukaemia
  - b) Chronic myeloid leukaemia
  - c) Chronic lymphatic leukaemia

**II. SPOTTERS:**

- A. HAEMATOLOGY SLIDES
1. Microcytic Hypochromic Anaemia.
  2. Macrocytic Anaemia.
  3. Dimorphic Anaemia.
  4. Acute Leukemia.
  5. Chronic Myeloid and Chronic Lymphatic Leukemia.
  6. Eosinophilia.

**B. HISTO- PATHOLOGY SLIDES FOR DISCUSSION**

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. Cyst glandular Hyperplasia.
11. Proliferative Hyperplasia.
12. Secretory Endometrium.

**C. INSTRUMENTS FOR SPOTTING**

1. Wintrob's Tube.
2. Westergren.
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 Test meal.
6. Glucose tolerance Test.

**COURSE OUTCOME-**

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

1. Elaborate on principles, procedures and interpretation of results of diagnostic laboratory tests;
2. Perform with proper procedure simple bed side tests on biological fluid samples like blood, urine etc.
3. Prepare investigation flow-charts for diagnosing and managing common diseases;
4. Identify biochemical and physiological disturbances in diseases;

### Assessment Scheme

<b>Practical Assessment</b>	-	<b>90 Marks</b>
<b>Theoryviva</b>	-	<b>60 Marks</b>
<b>Practicalviva</b>	-	<b>30 Marks</b>
<b>Practical internal assessment</b>	-	<b>10 Marks</b>

### 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 HarshMohan

### Reference Books-

1.	Text Book of Pathology	-	ByAnderson
2.	Systemic Pathology	-	BySymmers
3.	Madical LaboratoryTechnology	-	By RamnikSood
4.	Pathology	-	ByBoyd
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) Morphology 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 and Immunity
- b) Immunoglobulins and Immune Response
- c) Immune System and Antigen-Antibody Response
- d) Complement and other Serological Tests
- e) Hypersensitivity
- f) Basic Principles of Auto-Immunity.

#### 3. Systemic Bacteriology

Streptococcus, Staphylococcus and Pneumococcus, Gonococcus, Meningococcus, Corynebacterium, Clostridium, Hemophilus, Bordetella, Mycobacterium, Spirochaetes, Yersinia, Chlamydia.

#### 4. Parasitology

- a) Protozoology Entamoeba and Plasmodium
- b) Helminthology-. Ankylostoma. Ascariasis, Taenia, Wucheraria.

#### 5. Virology

- a) General properties- of Virus and their diagnosis.
- b) Herpes, Adenovirus, Picorna, Hepatitis Virus
- 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 common diseases
  - i) Meningitis, UTI, PID. Gastroenteritis, Respiratory Infection.
  - ii) Urogenital Infections, Pyogenic Infections, Nosocomial Infections, 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- parasite relationship
2. Describe parasitic micro-organisms (viruses, fungi, bacteria, parasites) with the pathogenesis of the diseases they cause;
3. Illustrate sources and modes of transmission, including insect vectors, of pathogenic and opportunistic organisms;
4. Describe the pathways and mechanisms of immunity to infection
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. Culture media
5. Culture methods
6. Staining of Bacteria
  - a) Grams staining
  - b) Alberts staining
  - c) Z-N staining
7. Stools Examination
8. Identification of Bacteria
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 acquired infections;
2. Analyse and Order laboratory investigations for bacteriological examination of food, water and air.
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**

<b>Practical Assessment</b>	-	<b>90 Marks</b>
<b>Theory viva</b>	-	<b>60 Marks</b>
<b>Practical viva</b>	-	<b>30 Marks</b>
<b>Practical internal assessment</b>	-	<b>10 Marks</b>

**Text Books**

1.	Text Book of Microbiology	–	By R. Anantha Narayana & C.K. Jayaram Paniker
2.	Parasitology	–	By Jayaram Panikar
3.	Bacteriology	–	By Dey
4.	Text Book of Microbiology	–	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. Respiratory infections-smallpox, varicella, measles, rubella, Mumps, influenza, Diphtheria, Pertussis, Tuberculosis
  - b. Intestinal Infections - Polio, Viral hepatitis, Cholera, Acute Diarrhoeal Diseases, Typhoid, Food Poisoning, Amebiasis, Ascariasis, Ancylostomiasis, Taeniasis
  - c. Arthropod-borne infections Yellow fever, Japanese Encephalitis, Malaria, Filariasis.
  - 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 five clinic, National Health Policy, Indicators of MCH care, School Health Services, Behavioral Problems, Geriatrics.
10. Environment & Health and Occupational Health Purification 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 Censuses, 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 and Evaluation.
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 patient intervention;
2. Analyse, interpret and present simple community and hospital based data;
3. Deduce, Diagnose and manage common health issues and emergencies at the 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-visual aids

**Assessment Scheme**

<b>Practical Assessment</b>	-	<b>90 Marks</b>
<b>Theory viva</b>	-	<b>60 Marks</b>
<b>Practical viva</b>	-	<b>30 Marks</b>
<b>Practical internal assessment</b>	-	<b>10 Marks</b>

**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. Historical highlights of Yoga- Practices and literature from the ancient to modern times with special reference to nature of yoga upanishads, smritis & puranas.
3. The philosophical 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 various 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 a philosophy
2. Explain the various schools of philosophy which had an influence on *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- all exercises from “Asanas” pranayama Kriya.-Vivekananda Kendra Publication.

D) Yogasanas

- |                  |                          |
|------------------|--------------------------|
| 1. Siddhasana    | 2. Padmasana.            |
| 3. Bhadrasana.   | 4. Samasana.             |
| 5. Swastikasana. | 6. Vajrasana             |
| 7. Simhasana     | 8. Gomukhasana.          |
| 9. Virasana      | 10. Ardha Matsyendrasana |

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

## II) Pranayama

1. AnulomaViloma
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 andBindu
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, relating to a patient's life situation or personality.

**Assessment Scheme**

<b>Practical Assessment</b>	- 90 Marks
<b>Theory viva</b>	- 60 Marks
<b>Practical viva</b>	- 30 Marks
<b>Practical internal assessment</b>	- 10 Marks

**Books Recommended:**

1. The History of Yoga-Vivian Worthinton
2. The psychology of yoga-Taimini
3. The Science of Yoga-Taimni
4. Yoga & Indian Philosophy-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 (Kaivalyadhama Lonavala Publications)
10. Asana, Pranayama, Kriyas
11. Pranayama- Vivekananda Kendra Publication
12. Yoga philosophy in relation to other system of philosophy - S.N. Das Gupta
13. Yoga Deepika - B. K. S.Iyengar.
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 type- 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 rehabilitativetherapy.

### **THEORY**

1. Introduction
  - a) Definition of Magetotherapy
  - b) Historical highlights
  - c) Use of magnets upheld byNaturopathy
2. Magnetism in theUniverse
  - a) Earth a huge naturalmagnet
  - b) Nature of EarthMagnetism.
  - c) Earth magnetic effects on the humanbeings.
3. Effects of Magnetism on livingorganisms.
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. NanubhaiPainter
4. Magnetotherapy and Acupuncture - Dr.A.K.Mehta

### Reference Books—

1. Electromagnetic treatment - Dr. H.L.Bansal
2. Magnetic 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 the universe
  - c) Solar Family
2. Theory of light and force
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 and attraction.
6. Chromo-diagnosis and chromo-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 on microorganisms.
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 with light.
10. Healing by means of substances charged with different coloured light- method of solarization of water, oils and food substances etc.
11. Chromo therapy prescriptions for different diseases.
12. Chromo - Mentalism.
13. Bordeaux medicine. Chromo.

### AIR THERAPY

1. Composition of Air -Night and Day composition.
2. Ozone in the atmosphere.
3. Air Pollutants, their acceptable values
4. Physiology of Respiratory system.
5. Air baths (Cold and Hot)
6. Theory of Panchapranas and Nadis.

### **SUN THERAPY (HelioTherapy)**

1. History
2. Physiological and Chemical properties of Sunlight.
3. Effect of sunlight on vegetation and Micro-organism.
4. Rejuvenation during diseases.
5. General SunBath.
6. Dr. Rikli's method of SunBath.
7. Dr. Kuhne's method of Sun Bath.
8. Sun Bath through wetpack.
9. Sun bath of children and aged persons.
10. Sunbath with leaves-Atapasnana.
11. Oil sun bath (Abhyangasana)
12. Sun Stroke.
13. Practice of Exercise in Sunlight.

### **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 and magnets;
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 use magnets;
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 disease management;
4. Deduce various diseases and disorders of the body and mind using the principles of colour diagnosis;
5. Analyse the therapeutic values of colours and magnets in treatment of various diseases
6. Analyse latest research finding in improving his/her professional practice

### **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 with record
2. Cases with bio-chemical reports
3. Demonstration of colour glasses & bottles.
4. Demonstration of instruments and equipments.

### **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 colour diagnosis;
2. Illustrate and implement a plan of treatment using colours and magnets as therapeutic tools
3. Explain the therapeutic values of colours and magnets in treatment of various diseases

4. Analyse latest research finding in improving his/her professional practice

**Assessment Scheme**

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

**Text Books**

1. The principles of light and colour - By Dr. E.D.Babbit
2. Human Culture and Cure in five parts - By Dr. E.D.Babbit
3. Colour therapy. - By R.S.Amber
4. Healing through Colour - By Thea-Gimbel

**REFERENCE BOOKS**

1. The power of therapies - By S.G.J.Oseley
2. Colour Meditations - By S.G.J.Oseley
3. Colour and healing - By Gladys Mayer
4. Colour healing (Chromotherapy) - By Health Research Foundation (USA)
5. Practical colour Magic - By Raymond Buckland

**Reference Books:**

1. All You Wanted to Know About Sun Therapy - Vijaya Kumar
2. Colour Therapy-Miracle of Sunrays - Rashmi Sharma and Maharaj Krishan Sharma
3. Science of Natural Life - Rakesh Jindal
4. Prakritik Chikitsa Sagar - Dr.Gaurishankar Mishra
5. Dhanwantari-prakritik Chikitsank - Ganga Prasad Gaud "Nahar"

## **THIRD YEAR 1. MANIPULATIVE THERAPY**

**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 muscular electro-excitability, removal of the fatigue from muscle. On the ligaments and skeletal system
  - c) On the Circulatory system
  - f) On Respiration - Increase of respiratory activity and increase of tissue respiration.
  - 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 therapeutic massage techniques, indications and contraindications of 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 or emaciated.
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 and Lateral
  - 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 osteopathy to Musculo-skeletal system.
- 17. Aromatherapy:-
  - A. Definitions, Origin and History of Aromatherapy.
  - B. Essential Oils and Its types, extraction of essential oils, distillation, cold pressing or expression, solvent extraction, storage, recognition, selection and mechanism of essential oils.
  - C. Carrier oils - Almond, Apricot, Avocado, carrot, corn, primrose, grape seed hazelnut, Jojoba, Olive, Peanut, safflower, sesame, Soyabean & sunflower oil.
  - D. Different methods of using essential oils- inhalation, diffusers, vaporizers, massage, baths, foot bath, pot pourri, compresses, oral intake, beauty treatment, room sprays, insect repellent etc.
  - E. Description of different essential oils & their benefits.
  - 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 therapeutic properties.
  - H. Precautions, ill effects and careful handling of essential oils
  - 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 manipulative therapy.

2. Description and therapeutic uses of different types of oils.
3. Analyse the application of manipulative therapy in clinical practice.
4. Analyse the research based new development in manipulative therapy.

**Assessment Scheme:**

**Theory** – **70 Marks**  
**Internal Assessment** – **30 Marks**

**MANIPULATIVE PRACTICALS**

1. 35 demonstration classes
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 as Osteopathy, 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. Kellogg
4. The Complete Book of Massage - By Clare Maxwell Hudson
5. Step by Step Massage - By Carole Me. Gilverly and Gini Reed
6. The Book of Massage - By Luinda Lidell with 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 Lewis Harrison
11. Manual of osteopathy Practice - By Alan Stoddard
12. Alternative Chiropractic Practice - By Susan Moore
13. Massage (Ayurvedic) - By Achanta Laxmipathy

**Reference Books :-**

1. The Panchakarma Treatment of Ayurveda - By T.L. Devraj
2. Chiro therapy : A-Text of Joint Movements - By Hesse P.De.

3. MassageTherapy: 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-ordinary points.
9. Diagnostic methods (both- Acupuncture and Modern)
10. AuriculoTherapy 11 Moxibustion
12. Stimulation in Acupuncture.
13. Acupuncture Therapeutics
14. Acupuncture Anaesthesia
15. Reflexology & Zone Therapy:-

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 and emergency
18. Pranic Healing.
19. Reiki



### **COURSE OUTCOME**

1. Illustrate the definitions of Acupuncture.
2. Description of the principles and historical highlights of Acupuncture;
3. Classify and Correlate the concepts and theories mechanism behind Acupuncture.
4. Demonstrate basic understanding of procedures of different styles of Acupuncture and related therapeutic modalities.
5. Deduce basic and advanced tools used in Acupuncture;
6. Analyse the application of Acupuncture in clinical practice.

### **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 Devendra Vora
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*, *Cyclic*, *Vipassana* and learn about benefits of *Yogaas* compared to exercise.

#### THEORY

1. Patanjali yoga sutras - 1<sup>st</sup> 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 Tantra Yoga.
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 of Asanas.
11. Physiological, Neuro-Physiological aspects of pranayama.,,
12. Shat Kriyas- Comparative study of Shat Kriyas with other system of Medicine.
13. Physiological aspects of exercises
14. 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 for elderly.
  - (h) Stretching exercises for Abdominal muscles, Arms, Chest, Ankles, Legs, knee, thigh, fore arm etc.
  - (i) Techniques of walking, running, Cycling etc.
  - (j) Caring back.
15. 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 *GherandaSamhita*;
2. Explain the principles behind various meditative practices like *Yoganidra*, *Ommeditation*, *cyclic* meditation, *Vipassana* 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 three types).
- 4) Shankha Prakshalana- 1. Laghu. 2. 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).

## COURSE OUTCOME

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*, *Ommeditation*, *cyclic* meditation, *Vipassana* 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

<b>Practical Assessment</b>	<b>- 90 Marks</b>
<b>Theory viva</b>	<b>- 60 Marks</b>
<b>Practicalviva</b>	<b>- 30 Marks</b>
<b>Practical internal assessment</b>	<b>- 10 Marks</b>

### Books Recommended:-

1. The Science of Yoga - By Taimini (commentary on patanjali YogaSutras).
2. Hatha Pradipika - By (Kaivalyadhama Publication-Lonavla).
3. Yoga Nidra - By (Bihar School of yoga, Mungerpublications).
4. Kundalini Yoga.
5. TantraYoga.
6. Asana.
7. Pranayams - By Vivekananda KendraPublications.
8. Psychology - By Horensce C.Kenipp.
9. Religiousness in Yoga theory & Practice - By TKVDesikachar.
10. Research papers - ByKaivalyadhama.  
(Publication inYoga Mimamsa- all papers relating to physiological effects of Yoga.)
11. Yoga in Education - By Dr. Nagendra (Vivekananda kendraPublication)
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 ofYoga)
18. Light on Yoga - ByB.K.S.Iyenger
19. Light on Pranayama - ByB.K.S.Iyenger
20. Light on The Yoga Sutras of Patanjali - ByB.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 Ancient India
- b) History of Fasting in India
- 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 Sane Fasting**

##### **2. Philosophy of Therapeutic Fasting**

- A) Life & its existence in connection with health and diseases
- B) Nature of disease
- C) The No-Breakfast Plan
- D) Objections commonly raised in Fasting Therapy
- E) Pros and cons of Fasting
- 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 a Fast.
- 7) Secretions and Excretions.
- 8) Bowel Action During a Fast.
- 9) The Influence of Fasting on Growth and Regeneration.
- 10) Gain and Loss of strength While Fasting.
- 11) Gain and Loss of weight During Fasting.
- 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 TheFast.
- 3) Objections To TheFast.
- 4) The Quantity of Food Necessary to SustainLife.

VI. Practice ofFasting:-

- 1) Does Fasting CureDisease?
- 2) The Rationale ofFasting.
- 3) The Length of TheFast.
- 4) Contraindications ofFasting.
- 5) Fasting in Special Periods and Conditions ofLife.
- 6) Symptomatology of TheFast.
- 7) Progress & Hygiene of TheFast.
- 8) Breaking The Fast.
- 9) Gaining Weight After TheFast.
- 10) Living After TheFast

VII. Rules and regulations of Sane Fasting and TherapeuticFasting.

VIII. Definition and Classification offasting

- 1) Definition of fasting in differentaspects.
- 2) General classification of fasting (Religious, Political andTherapeutic.)
- 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) WaterDrinking
- 6) Exercise
- 7) Mental Influence

X. Study of Patients During and After Fasting-

1. Crises during fasting and theirmanagement.
2. Physiological effects offasting.
3. Biochemical aspects.
4. Study of the tongue, the breath, the temperature and pulseetc.
5. The loss and the gain ofweight.
6. How and when to break the fast.
7. Diet after the fast.

XI. Indications and Contraindications offasting.

XII. Therapeutic aspects ofFasting

1. Fasting in acutediseases.
2. Fasting in chronicdiseases.
3. Role of fasting in variousdiseases.
4. Obesity andfasting.
  - a. Definition and assessment ofobesity.
  - 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. Illustrate 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-applied evidence.
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. Illustrate 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-applied evidence.
4. Demonstrate usage of therapeutic diets and fasting therapy in promotive, preventive, curative and rehabilitative therapy.



### Assessment Scheme

<b>Practical Assessment</b>	-	<b>90 Marks</b>
<b>Theory viva</b>	-	<b>60 Marks</b>
<b>Practicalviva</b>	-	<b>30 Marks</b>
<b>Practical internal assessment</b>	-	<b>10 Marks</b>

### Text Books -

1. Fasting for Healthy and LongLife	- By Hereward Carrington
2. The Fasting Cure and Vita Economy	- By Lakshamana Sharma.
3. Fasting can save your life	- By Herbert M.Shelton
4. The EffectsofFasting	- By Donald Upton
5. Fasting as a wayof life	- By Allan coli M.D.
6. Fasting can Renewyourlife	- By Herbert M.Shelton
7. Scientific Fasting	- By Hazzard, LindaBurfield
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 StephenBlauer
13. Live Food Juices	- By H.E.kirschner ReferenceBooks-
1. The Philosophy of Fasting	- By Edward EaulPurintion
2. Vitality, Fasting and Nutrition	- By HerewardCarrington
3. The Fasting Cure	- By UptonSinclair
4. The Fast – Way of Health	- By Harold R.Brown
5. Fasting - the Master Remedy	
6. Fast for Health	- By John JosephPicker
7. The Biology of Human Starvation	- By Keys,Ancel
8. Fasting Story NO.1	- By HealthResearch
9. Fasting Story NO.2	- By HealthResearch
10. Rationa IFasting	- By Prof. ArnoldEhret
11. Explaining Fasting	- By Forster,Roger
12. Hints on Fasting Well	- By Carrington, Herewardetc.
13. The Science and Fine Art of Fasting	- By Herbert MShelton
14. Miracles of Fasting	- By Dr. PaavoAirola
15. No Break fast Plan	- By Edward HookDewey
16. Thus Speaketh the Stomach	- By Prof. ArnoldEhret
17. The Physio logically Correct Fast	- By Dr. AreWaerland



## 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 facialexpression.
  - a) Historicalhighlights.
  - b) Definition and scope of the science of facialexpression.
2. Characters of the Healthy Body.
  - a) Normal functions.
  - b) NormalFigure.
3. Foreign matter theory:-
  - a) Definition of foreignmatter.
  - b) The process of accumulation of foreign matter in thebody.
  - c) Encumbrance.
  - d) Changes caused in the body due to the accumulation of foreignmatter.
  - e) General pathology of foreignmatter.
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 theirtreatment.
8. Process of elimination of foreignmatter.
  - a) Importance of Nature Curetreatments.
  - b) The digestive process-naturaldietetics.
  - c) Artificial outlets ofelimination
9. Methods to be followed to increase the vitality of thebody.
10. The importance of Nabhi Pareeksha, the methods of NabhiPareeksha & 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 of diseases.
  - h) Philosophicalphase.
  - i) Theoreticalphase
2. I. Instructions in Methods of Application:-
- a) Technique in Irisreading.
  - b) The normal and abnormal Iris, colour of theIris.
  - 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 viziinflammation.
4. Interpretations of Irismanifestations.
- a. Types of inflammation
  - b. Inherent ( Lesions andweakness)
  - c. Acidity andCatarrh
  - d. Toxicsettlements
  - e. NerveRings
  - f. The Lymphaticrosary
  - g. Injuries andoperations
  - 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 thebrain.
- 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.
- I. The iris reveals the cause of disease.
5. Case histories according toIridology.
6. Advance research inIridology.
- a) Reflex areas and remotesympoms.
  - 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 Naturopathic Principles
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 correct them.
4. Describe in detail Iris Diagnosis, with respect to history, techniques, iris signs, interpretations and tools used, and use the same to diagnose diseases;
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 of Equipments.

### **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 correct them.
- 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 Methods. - 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 and Farida.
4. Iridology : 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 a patient
2. History taking and case sheetwriting
3. Symptomatology
4. Examination of Vital Data
5. Importance of height, weight, abdominal girth
6. General physical examination
7. Examination of breasts, back, spine and genitals
8. Systemic examination of the patient
  - a) Abdomen (Digestive system)
  - b) Cardiovascular System
  - c) Respiratory System
  - d) Renal system
  - e) Central Nervous system
  - f) Locomotor system
  - g) Examination of ear, nose and throat
  - h) Gynaecological examination
9. Provisional Diagnosis

**II. Routine and special Investigations:-**

1. Laboratory Investigation
  - a) Urine analysis
  - b) Stool examination
  - c) Blood examination
    - i) Peripheral smear, Total WBC Count, Differential WBC Count
    - ii) Erythrocyte sedimentation rate (E.S.R), Hb Estimation
    - iii) Blood Sugar, Blood Urea, Serum uric acid, Serum cholesterol, Serum lipid profile, Serum creatinine.
2. Radiological Investigation:-
  - a) Plain chest X-Ray
  - b) K.U.B.
  - c) Lumbar and cervical spine
  - d) Skull and paranasal sinuses

- 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 function tests
  - b) Creatinine clearance test
  - c) Vanillo-mandellic acid (VMA) excretion test in urine
  - 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 skin tests
15. Endoscopic procedures
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- FIRTAID**

1. General principles of First Aid
  2. Wounds Control of hemorrhage, Epistaxis
  3. Shock- Classification and treatment
  4. Dog bite, Snake bite, Scorpion sting
  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 different types
  13. Unconsciousness and general principles of treatment
- Section C-Recognition, Evaluation of Clinical Emergencies.

### **I. Cardio Vasular System:-**

1. Acute myocardial infarction

2. Cardiogenic Shock
  3. Cardiac arrhythmias
  4. Cardiac arrest
- II. Respiratory System-
1. Hemoptysis
  2. Status asthmaticus
  3. Spontaneous pneumothorax
  4. Acute respiratory failure
- III. Gastro Intestinal System:-
1. Acute Vomiting
  2. Perforation of Peptic Ulcer
  3. Hematemesis
  4. Hepatic Precoma and coma.
- IV. Central Nervous System:-
1. Unconscious patient
  2. Cerebrovascular catastrophes
  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. Acute reaction
  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 Jai Vakil                       |
| 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 diagnosis made.

**Assessment Scheme:**

**Theory – 70 Marks**

**Internal Assessment – 30 Marks**

**MORDERN DIAGNOSIS PRACTICALS**

1. History taking and physical examination of cases.
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. Delineate 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**



## 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 of Nutrition:-

- 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. Food Groups:-

- 1) Cereals
  - 2) Millets and Coarse grains
  - 3) Pulses
  - 4) Green leafy Vegetables
  - 5) Other Vegetables
  - 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 we eat.
- 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 Vegetarianism
- 8) Nature's Food Refinery
- 9) The Digestibility of Foods
- 10) Mental Influences in Nutrition
- 11) Enjoying our Food
- 12) Absorption of Food
- 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 the teeth
- 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 Be weaned?
- 34) No Starch for Infants
- 35) Three Feeding a Day
- 36) Feeding of Infants
- 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 all ages

- 8) The Vitamins: Proof of natural food instincts
- 9) Facts about commonfoods
- 10) The Stimulant Delusion

VI. Food &Toxins

- 1) Infective agents & Toxins in food
- 2) Food Adulteration and Consumer Protection.
- 3) Food additives
- 4) Health hazards of added chemicals in foods
- 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 and Immunity

X. Nutritional deficiency diseases, Preventive and Curative approach

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

## DIETETICS

### THEORY

1. Concept of Health in Naturopathy
2. Dietetic principles in Naturopathy
3. Concept of wholesome diet
4. Medicinal values of Foods
5. Natural qualities / properties / character foods in Naturopathy / Ayurveda / Modern Nutrition
6. Natural food and health-
  - a) Importance of Green Vegetables, other vegetables, fruits and their ingredients
  - 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 & Neera etc.
  - c) Sprouts, their Nutritive Values and Methods of Sprouting
  - d) Food Values in Raw states, germinated form and Cooked form
  - e) Comparison with raw and cooked foods
7. Diet for Physical Labor & Mental work
8. Arguments from comparative Anatomy, Physiology, Chemistry & Hygiene
9. Naturopathic Hospital dietetics and their classification
10. Disease management with diet  
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 dietary management
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 in Ayurveda/Naturopathy and Modern nutrition
16. Food ,Sanitation, hygiene and health
17. Naturopathic approach towards vegetarian and non-vegetarian food
18. Harmful effects of the food colours, preservatives, pesticides, artificial manures
19. Dietary fibre and its therapeutic effects (e.g. constipation, ano-rectal disorders, colonic disorders, GIT disorders, D.M. etc.)
20. Geriatric nutrition and diet
21. Diet in exercise, sports, games and athletics
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-SepticFoods
  - B) Anti- CoagulantFoods
  - C) Anti- DepressantFoods
  - D) Anti- DiabeticFoods
  - E) Anti- DiarrohealFoods
  - F) Anti-InflammatoryFoods
  - G) Anti-Oxidant Foods
  - H) Anti-Viral Foods
  - I) Anti- HypertensiveFoods
  - J) Calming & SedativeFoods
  - K) Anti-Cancerous Foods
  - L) CarminativeFoods
  - M) Cholesterol LoweringFoods
  - N) DiureticFoods
  - O) Immunity EnhancingFoods
  - P) Life Prolonging Foods
  - Q) Memory EnhancingFoods
  - R) Expectorant Foods
  - S) OestrogenicFoods
  - T) AnalgesicFoods
  - U) AphrodisiacFoods
  - V) Anti-UlcerFoods
  - W) Anti-PyreticFoods
  - X) Anti-SpasmodicFoods
  - Y) Spoliative & Sudorific / DiaphoreticFoods
  - Z) EliminativeFoods
  - 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 therapeutic uses.
- 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. MyristibaFragrans
9. CuminimCyminum
10. SesamumIndicum
11. Ocimumsanctum
12. PunicaGranatum.
13. CoriandrumSativum.
14. AzadirachtaIndica.
15. AlliumCepa.
16. PiperLongum
17. PsoraleaCorylifolia
18. Taxus Baccata .
19. AegleMarrnelos
20. Semecarpus Anacardium
21. Phyllanthus Niruri
22. PiperNigrum
23. SanthalamAlbum
24. SanthalamAlbum
25. AlliumSativam
26. MimosaPudica
27. Acorus Calamus
28. Asparagus Racemosus
29. RauwoffiaSerpentina
30. CurcumaLonga
31. TerminaliaChebula
32. FerulaNarthex
33. SyzygiumAromaticum
34. TerminaliaBelERICA
35. GingerOfficinalis

### 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 food groups;
- b) Illustrate details of nutritional requirements for different age groups, as well as pregnant and lactating women;
- c) Classify modern nutrition to traditional Naturopathic diets;

- 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 of herbs.

**Assessment Scheme:**

<b>Theory</b>	–	<b>70 Marks</b>
<b>Internal Assessment</b>	–	<b>30 Marks</b>

**NUTRITION DIETETICS AND HERBS PRACTICALS**

1. Visits to the dietetic department of the hospital
2. Menu planning using natural foods and raw foods in general patients
3. Demonstration of sprouts
4. Preparation of low cost balanced diet for different population groups using natural foods
5. Modification of normal diet in consistency-liquid full soft
6. Canteen duties at nature cure hospital
7. Knowledge of Sathvic food preparation at nature cure hospital
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 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 any further investigations required for the provisional diagnosis made

**Assessment Scheme**

<b>Practical Assessment</b>	-	<b>90 Marks</b>
<b>Theory viva</b>	-	<b>60 Marks</b>
<b>Practical viva</b>	-	<b>30 Marks</b>
<b>Practical internal assessment</b>	-	<b>10 Marks</b>

**Recommended Text Books-**

1. Davidson and Passmore Human Nutrition and dietetics-By Passmore, Eastwood.
2. Clinical Dietetics and Nutrition- By F.P. Antia
3. Normal and Therapeutics nutrition” - By Corinne H. Robinson Marilyn R. Lawler.
4. Essentials of Food and Nutrition-By Swaminathan
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 - By Aterhov
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 SriLakshmi
14. All publications of NIN,Hyderabad

**Reference Book-**

1. FoodandNutrition - By Gupta
2. Modern Nutrition in Healthand Disease - By Shills
3. HumanNutrition - By Maxine E.Mc. Divit and Sumati  
Rajgopal
4. SuperiorNutrition - By Herbert M.Shelton
5. All publicationson Nutrition - ByNational institute of Nutrition,  
Hyderabad.
6. Periodicals of Indian Journal of Medical Research.
7. Indian Journal of Nutrition and Dietetics
8. Nutrition survey ofIndia
9. A Complete Guideto Vitamins - Edited By J.I. Rodeleand Staff.
10. Nutrition - By Chaney and Ross.
11. The Complete Book of FoodandNutrition - By J.I. Rodele and staff.
12. Food Remedies - By S.J.Singh.
13. The Sprouting Book - By AnnWigmore
14. Dictionary ofNaturalFoods - By WilliamL.Esser
15. Healing through Natura Foods - By H.K.Bakhru
16. Food Combining MadeEasy - By Herbert M.Shelton
17. Encyclopedia of Fruits, Vegetables, Nuts &  
Seeds for HealthfulLiving - By Joseph M.Cadans
18. Nutritive Value of IndianFoodStuffs - By S.J.Singh
19. Diet&Nutrition - By Rudolph Ballentine
20. Nature"sHealingGrasses - By H.E. Kirschner
21. Diet to Dissolve Kidney Stones - By Dr. S.J.Singh
22. The Vitamin & Health Encyclopedia - By Jack Ritchason
23. Food is YourBest Medicine - By Henry G.Bieler
24. NaturalDietetics - By Dr. J.M.Jussawala
25. The GrapeCure - By JohannaBrandt
26. Aahar hiAushadhihai - By Dr. Hiralal
27. The Hippocrates Diet andHealthProgram - By Ann Wigmore
28. The Natural FoodofMan - By Hereward Carrington
29. Sugar - The CurseofCivilization - ByJ.J.Rodale
30. Foods That Heal - By H.K.Bakhru
31. 31.AnubhavaurSar - By Dr. Sohanlal Nishkam Karmyogi
32. Protective Foods in Health & Disease - By KulranjanMukherjee
33. Miracle of Garlic - By Dr. PaavoAirola
34. Old age, its causes&prevention - By SanfordBennett
35. The Encyclopedia of Health and Physical Culture - ByBernarr Macfadden  
(Vol2)

**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
- 6) Charak Samhita
- 7) Sushrut Samhita
- 8) Herbs that Heal

- By Vagbhatta
- By Charak
- By Sushrut
- 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 bio chemical, 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 of placenta.
- d) Embryology of uterus.
- 2. Physiology of Pregnancy :- ]
  - a) Maternal changes due to pregnancy
  - b) Diagnosis of pregnancy
  - c) Differential diagnosis of pregnancy
  - d) Foetus in normal pregnancy
  - e) Ante-natal care.
- 3. Physiology of Labour :-
  - a) Causation and stages of labour
  - b) Mechanisms of labour
  - c) Conduct of Delivery - the Natural means.
- 4. Physiology of Puerperium
  - a) Phenomena of normal puerperium
  - b) Care of Puerperium
  - c) Care of new-born child
- 5. Pathology of Pregnancy
  - a) Hyperemesis gravidarum
  - b) Anaemia in pregnancy
  - c) Diseases of urinary system
  - d) Diabetes in pregnancy
  - e) Abortion
  - f) Ectopic pregnancy
  - g) Ante-partum haemorrhage
  - h) Placenta previa
- 6. Pathology of Labour
  - a) Occipito - posterior position
  - b) Breech presentation
  - c) Multiple pregnancy
  - d) Contracted pelvis
  - e) Management of labour in contracted pelvis
  - g) Complications of 3rd stage of labour
- 7. Affection of New-Born
  - a) Asphyxia neonatorum
  - b) Preterm baby
- 8. Obstetrical Operations
  - a) Forceps
  - b) Caesarean section
  - c) Induction of abortion and labour
- 9. Pathology of Puerperium Puerperal infections
- 10. Miscellaneous
  - a) Perinatal mortality and Maternal mortality
  - b) Post-dated pregnancy
  - c) Placenta insufficiency.
  - d) Control of contraception
  - e) Medical Termination of Pregnancy.
  - f) Pre-term labour.
- 11. Naturopathic Application:

- a) Hydrotherapy in Pregnancy
- b) Importance of Naturopathic Diet in Pregnancy & Puerperium
- c) Underwater delivery
12. Yogic application:
  - a) Exercises in - st I Trimester II nd Trimester III rd Trimester Puerperium
  - b) Pelvic Floor Exercises
13. Natural Childbirth
14. Birth Control: Natural and Unnatural
15. Holistic Approach to menstrual Problems
16. Vaginitis: A Natural Approach
17. Breast Cancer Can Be Prevented
18. Varicose Veins: Prevention and Treatment
19. Understanding the Pregnancy: The Miracle of Creation
20. What Smoking Does to Women?
21. Depression : A New Epidemic
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. Gynaecological diagnosis
2. Malformation of Female genital organs
3. Diseases of vulva
4. Diseases of vagina
5. Sexually transmitted diseases in female
6. Diseases of urinary system
7. Trophoblastic diseases
8. Disorders of menstruation
9. Prolapse of uterus
10. New Growths of uterus
11. Endometriosis and adenomyosis
12. Diseases of ovary
13. Pelvic inflammatory diseases

### 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, and puerperium;
- 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 their implementation;
- e) Analyse different gynecological diseases and describe principles of their management, different techniques.
- f) Analyse a pregnant women, recognize high risk pregnancies and make appropriate referrals;

**Assessment Scheme:**

**Theory** – 70 Marks

**Internal Assessment** – 30 Marks

**PRACTICALS**

1. History taking of ante-natal and gynaecological cases
2. Demonstration of physical examination of ante-natal and gynaecological cases
3. Demonstration of conductive labour, normal delivery and use of minor instruments during Delivery
4. Demonstration of various equipments used in obstetrics and gynaecology
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, and puerperium;
- 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 their implementation;
- e) Analyse different gynecological diseases and describe principles of their management, different techniques.
- f) Analyse a pregnant women, recognize high risk pregnancies and make appropriate referrals;

**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 Book of Obstetrics - By Dr. Dutta
6. Text Book of Gynaecology - By Nina & Michael Shandler
7. Yoga for Pregnancy & Natural child Birth
8. Women Disease & Easy Child Birth - By J.H. Tilden
9. Every women's book. - 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. Ophthalmologic disorders
  - j. Paediatric disorders
  - k. E.N.T. Disorders
  - l. Obstetrics & Gynecology disorder
10. Meditation and its applications on psycho-somatic disorders
11. Yoga & Relaxation Techniques
  - 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 Yogatherapy
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 psychological disorders psychotherapy, 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. Define 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:

<b>Theory</b>	–	<b>70 Marks</b>
<b>Internal Assessment</b>	–	<b>30 Marks</b>



## 1. YOGA THERAPY PRACTICAL

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

<b>Practical Assessment</b>	-	<b>90 Marks</b>
<b>Theory viva</b>	-	<b>60 marks</b>
<b>Practical viva</b>	-	<b>30 marks</b>
<b>Practical internal assessment</b>	-	<b>10 Marks</b>

#### REFERENCE BOOKS :-

1. Yogichtherapy - By Dr. Vinekar, Govt. of India. Publication.
2. Yogichtherapy - By Dr. Giarde
3. Treatment of common - 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 Book of Behavior Modification & therapy - By Plenum press.
11. Stress & Mental Disorders. - By Crarrett J.E. Raven Press, Newyork.
12. Counseling and evidences - 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 and mud used for therapeutic purposes, physiology of the skin, production of heat and body temperature regulation, which are essential as a foundation for hydrotherapy.
- b. Illustrate physiological effects of hot and cold water upon the different systems of the body and applications to reflex areas;
- c. Explain action and reaction mechanisms and physiology, with their effects and uses
- 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 and research updates in hydrotherapy and mud therapy;
- 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 rehabilitative therapy.
3. Institute and evaluate remedial measures in hydrotherapy for various disease conditions in clinical as well as research settings.

- **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 and History
2. Physical properties and chemical composition of water
3. Physiological basis of Hydrotherapy:- The Skin and its anatomical construction, functions of the body
4. Production of heat and its distribution in the body, regulation of the body temperature, conditions that increase and decrease heat production in the body, body heat and body temperature
5. Importance of water to human body.
6. Physiological effects of water on different systems of the body
  - i) General and Physiological effects of heat upon:-
    - a. Skin
    - b. Respiration
    - c. Circulation
    - d. Nervous System
    - e. Heat and its production, dissipation etc.
    - f. Tactile and temperature sense
  - ii) General and physiological effects of cold upon skin, respiration, circulation, nervous system, G.I.T., Body temperature and its maintenance.
7. Reflex 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 thermic reaction
9. Place of water in preservation
10. Place of water in Acute diseases
11. Place of water in Chronic diseases
12. Magnesium sulphate - use in Hydrotherapy

#### Assessment Scheme:

<b>Theory</b>	–	<b>70 Marks</b>
<b>Internal Assessment</b>	–	<b>30 Marks</b>

### PAPER - II

1. General Principles of Hydrotherapy
  - a) General rules of hydrotherapy
  - 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 Hydratic effects, General principles excitation and Depression
  - b) Primary excitant effects when to apply and when not to apply
1. Local haemostatic effects
2. Cardiac effects Hydratic heart tonics
3. Uterine excitations, emanogogic effects
4. Vesical excitations

5. Intestinal excitations, peristaltic 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 in Rheumatism.
    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 analgesic measure.
  - d) Resolvent effects, sedative effects- general sedatives - local sedatives.
    - i) Sedatives of the circulatory system- antiphlogestic effects, inflammation, pneumonia, pleurisy and other acute disorders.
    - ii) Nerve sedatives, hypnotic, calmative analgesic, anesthetic, antispasmodic, insomnia, chorea, spastic paralysis, exophthalmic goiter, mania, epilepsy and various painful conditions.
    - iii) Anti- thermic and antipyretic effects, relation of heat production and heat elimination to antipyretic methods, principles that govern the application of hydiatic 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 - prophylactic uses.
      - a. Cold bathing in infancy and early childhood.
      - b. The cold bathing for Adults.
      - c. The cold baths for women.
      - d. The cold bath in old age- precautions.
3. The techniques of Hydrotherapy:- Plain water bath:-
 

Cold hip bath	-	Kellog's & Kuhne's sitz bath
Shallow bath	-	for males, females hand and arm
Graduated bath		bath, foot bath, hot and cold
Natural bath		alternative leg bath
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 PartII.
  - c) Physiological and Therapeutic effects of exercise in warmwater.
  - 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 andStupes:-

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 intestinal compress  
Hot and cold pelvic compress  
Hot and cold abdominal pack  
Hot and cold spinal pack  
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.

Hydratic Prescription Making:-

- a. The natural defense of the organism.
- b. Procedures for increasing vital resistance.
- 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 blood supply.
- g. Measures that increase heat production.
- h. Measures that increase the elimination of heat.
- i. Measures that combat bacterial development of blood.
- j. Measures that increase/lessen heat elimination.
- k. Hydratic incompatibility.
- l. Hydrotherapy as a means of rehabilitation and health promotion.
- m. Emergency treatments in Hydrotherapy.

10. Mud Therapy:-

- a) Introduction to Mud Therapy.
- b) Classification of mud for therapeutic use.
- c) Precautions for storing mud.
- d) Methods of treatment of mud - applications, packings hot poultices, effect of mud on different systems of the body.
- e) Natural mud bath, full and partial mud packs, mud plaster, thermal bath, dry pack, sand pack and sandbaths.
- f) Cosmetic uses of mud.

**COURSE OUTCOME**

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 for hydrotherapy.

2. Illustrate physiological effects of hot and cold water upon the different systems of the body and applications to reflex areas;
3. Explain action and reaction mechanisms and physiology, with their effects and uses
4. Demonstrate use of water in preservation, acute diseases, chronic diseases;
5. 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 mud therapy;
6. Demonstrate techniques and procedures of various types of hydrotherapeutic 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, chronic diseases;
- 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 mud therapy;
- c) Demonstrate techniques and procedures of various types of hydrotherapeutic applications.

### Assessment Scheme

<b>Practical Assessment</b>	<b>- 90 Marks</b>
<b>Theory viva</b>	<b>- 60 Marks</b>
<b>Practical viva</b>	<b>- 30 Marks</b>
<b>Practical internal assessment</b>	<b>- 10 Marks</b>

### TEXTBOOKS:-

1. Baths - By S.J. Singh.
2. My Water Cure - By Sebastian Kneipp.
3. Rational Hydrotherapy - By Dr. J.H. Kellogg.
4. The Healing Clay - By Michel Adsera.
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, rehabilitative purposes.

### THEORY

- I. Basic Physics in exercisetherapy:-
  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 startingpositions.
  4. Classification of movements in detail :-
    - a) Voluntarymovements.
    - b) Involuntarymovements
  5. Activemovements
  6. Passivemovements
  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-ordination 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- muscler 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 Frequency Currents:-  
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 galvanic currents.
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) Shortwave Diathermy
  - b) Microwave Diathermy
  - c) Ultrasonic Therapy
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 radiation therapy.
  - b) Ultraviolet radiation therapy
  - 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 and cryotherapy;
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 muscles directly.
    - (b) Diagnostic tests
      - (I) F.G. Test.
      - (II) S.D. Curve
      - (III) Fatigue Test.
  - (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 the students.
- (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 the students.
- (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 debility patients.
- (d) Ultrasonics: setting up of apparatus, selection of dose, technique of application in various Condition and to various parts of the body.

### PRACTICALS III

- (1) Demonstration and practice of Active and passive movements.
- (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 total suspension.
- (3) Muscle strength: Demonstration and practice of strengthening, re-education of weak/paralysed muscles of both upper and lower extremity, individual group muscles, abdominal muscle exercises.
- (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 & upper limb.
- (5) Demonstration and practice of free exercise to improve joint range of motion (Small joints, eg. hand, finger, toes etc.) Demonstration and practice of all crawling exercises, faulty posture. Correcting techniques.
- (6) Demonstration of various pathological gaits.  
 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 expansion exercises.
- (8) Passive stretching: Techniques of passive stretching to sternomastoid muscle, shoulder abductors. flexors elbow flexors, supinator, wrist and finger flexors in upper limbs passive stretching to hip flexors, Adductors, ilio-tibial band, tensor fascia lata, quadriceps, knee flexors, tendo achilles etc.

## 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 and cryotherapy;
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.

### Assessment Scheme:

<b>Theory</b>	– 70 Marks
<b>Internal Assessment</b>	– 30 Marks
<b>Practical Assessment</b>	– 90 Marks
<b>Theory viva</b>	– 60 Marks
<b>Practical viva</b>	– 30 Marks
<b>Practical internal assessment</b>	– 10 Marks

### BOOK REFERENCE (BOTH THEORY AND PRACTICALS)

1. Principles of Exercise Therapy - By Dena Gardiner.
2. Tidy's physiotherapy.
3. Cash text book of physiotherapy.
4. Clayton's Electrotherapy and Actinotherapy.
5. Kisner's Therapeutic Exercise Foundation and techniques.
6. Maggie's text Book of Physiotherapy

## 6. HOLISTIC PRACTICES 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. Ophthalmology Disorders
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 Chemotherapy 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 & Slip disc
9. Calcaneal Spur

10. Osteoarthritis
11. Hydrocele etc.
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 the same.
- e. Understand the pathogenesis of the disease in Naturopathy basis and preventive measures of the same;
- f. Deduce and form a specific module of therapy for the particular patient with varied presentations.

### **Assessment Scheme:**

<b>Theory</b>	-	<b>70 Marks</b>
<b>Internal Assessment</b>	-	<b>30 Marks</b>
<b>Practical Assessment</b>	-	<b>90 Marks</b>
<b>Theory viva</b>	-	<b>60 Marks</b>
<b>Practical viva</b>	-	<b>30 Marks</b>
<b>Practical internal assessment</b>	-	<b>10 Marks</b>

## 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. FORENSICMEDICINE:
1. Definition of Forensic medicine and its scope.
  2. Procedure of giving medical evidence with reference to Indian evidence act.
  3. Methods of identification of living and dead body, race, age, sex etc.
  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 legal autopsy.
  6. Medico-legal wounds, their classification and study and medico-legal aspects.
  7. Examination of blood stains, hairs and seminal stains.
  8. Miscellaneous causes of death from heat, cold, electricity, Starvation etc.,
  9. Violent asphyxia deaths:- Hanging, Strangulation, Suffocation and drowning.
  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 mortem examinations.
  17. Death - signs of death cadaveric rigidity and spasm, putrefaction, estimation of Time since death.
  18. Death from asphyxia, differences between hanging and strangulation, suffocation and Drowning.
  19. Death from burns and scalds and lightning.
  20. Rape and unnatural offences.
  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 and classification.
  - a) Actions of poisons, factors modifying their action.
  - b) Diagnosis of poisoning.
  - c) Treatment of poisoning in General.
2. Poisons:-
  - a) Corrosives
  - b) Nonmetallic poisons
  - c) Insecticides and weedkillers
  - d) Metallic poisons
  - e) Organic Irritant poisons
  - f) Somniferous poisons.
  - g) Inebriant poisons
  - h) Delibriant poisons
  - i) Drug Dependence
  - j) Food poisoning
  - k) Spinal poisons
  - l) Cardiac poisons
  - m) Asphyxiants
  - n) Miscellaneous
3. Legal responsibilities: Medical ethics.
4. Responsibilities and duties of the medical practitioners to the state, Professional secrecy and privileged communication.
5. Un-professional conduct and malpractice.
6. The rights and privilege and duties of medical practitioners.
7. The functions of state-medical council and its relationship to Indian Medical Council.
8. Medical ethics approved by Indian Medical council. **PRACTICALS**
  1. Age estimation.
  2. Autopsies
  3. Skeleton remains.
  4. Spotters.
  5. Examination of injured.
  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. Hospital Committees SECTION 4

##### **THE HOSPITAL**

1. Role of Hospital in Health Care
2. Hospital Planning and design
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 Through Naturopathy

#### **SECTION 5**

##### **THE CLINICAL SERVICES & CLINICAL SUPPORTIVE SERVICES**

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

#### **SECTION 6**

##### **THE NURSING SERVICES**

#### **SECTION 7**

##### **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 in Hospital
3. Economics of H.M.

## **SECTION 11**

### **QUALITY ASSURANCE**

1. Quality Management in our Hospitals
2. Medical Audit

### **INFECTION CONTROL**

1. Control of Hospital acquired infection.

### **ETHICS & LAWS**

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

## **SECTION 12**

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 Kusum Samant
4. Text Book of Social & Preventive Medicine - By Park.K.
5. Economics of Health care - By Martin Green
6. Hospital Planning - By Dr. Ashok Sahni
7. Principles of Hospital Administration & Planning - B.M. Sakharkar
- IV. Research Methodology in Naturopathy & Yoga 1 Introduction
2. Planning a research Project

3. Design of the study
4. Statistics
5. Parameters to be recorded for specific diseases  
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
3. Fundamentals of Evidence based Medicine - By KamleshwarPrasad
4. 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 astudy.
- b. Illustrate statistics and probabilitytheory;
- c. Use technological aids for preparing researchreports;
- d. Demonstrate knowledge about inter-disciplinaryresearch

#### **Assessment Scheme:**

<b>Theory</b>	–	<b>70 Marks</b>
<b>Internal Assessment</b>	–	<b>30 Marks</b>
<b>Practical Assessment</b>	–	<b>90 Marks</b>
<b>Theory viva</b>	–	<b>60 Marks</b>
<b>Practical viva</b>	–	<b>30 Marks</b>
<b>Practical internal assessment</b>	–	<b>10 Marks</b>

## 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 therapeutic purposes.

### THEORY

- I. Definition and brief history of Psychology.
- II. Biology of Behaviour: Typical behaviour patterns, Sociobiology, Brain and Behaviour.
- III. Sensory process and Perception.
  1. Vision, Hearing, Smell, Taste, Skin senses.
  2. Perceptual Process - Attention from perception, visual depth perception, Constancy, Movement perception, Plasticity, individual difference.
- 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, Language Communication.
- VII. Motivation: Theories of motivation, Biological motivation, Social motives, Motives to know and to be effective, Frustration and conflict of motives.
- VIII. Emotion and Stress: Expression and perception of Emotions, physiology of emotion, Stress Theories of Emotion.
- 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 later childhood.
- XII. Development during Adolescence, Adulthood and Old age: Adolescence, Youth, Early and Middle adulthood, Old age.
- XIII. Psychological Assessment and Testing: Psychological tests, The Nature of intelligence and assessing intelligence, Individual difference in intelligence, Testing for special aptitudes, Personality Assessment, Behavioural Assessment.
- XIV. Personality: Type and Trait theories of personality, Dynamic personality theories, humanistic theories, learning and behavioural theories of personality.
- XV. Abnormal Psychology: (Psychiatry)
  1. Abnormality in everyday life
  2. The language of Abnormality
  3. General causes of abnormal Behaviour
  4. Classifying Psychological Disorders: Clinical syndromes, Brain Syndrome, Psychoses, Neuroses, and Personality disorders
  5. Psychoneuroses
  6. Hysteria, Anxiety state and Neurasthenia
  7. Other forms of Psychoneuroses (OCD, Phobias etc.)

8. Treatment of Psychoneuroses - Psychotherapy and its procedures, Other therapies.
  9. Psychoanalysis and related school.
  10. Psychoses
  11. Schizophrenia
  12. Mania – Depressive Psychoses
  13. Involutional Melancholia and Paronia
  14. Alcoholic Mental Disorders
  15. Toxic and Organic Psychoses
  16. Epilepsy
  17. Mental Deficiency
  18. Antisocial personalities and crime.
- XVI. Therapy for Psychological distress:
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 various conditions.
- XVII. Co-relation of Psychology, Mental health and Yoga.

### **COURSE OUTCOME-**

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

1. Describe the evolution of Psychology from speculation to science;
2. Illustrate mechanisms of sense and perception, states of consciousness and their functions;
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 of disorders;
5. Demonstrate knowledge of therapies aimed at psychological health, such as psychotherapy, Yoga, etc;

### **Assessment Scheme:**

<b>Theory</b>	-	<b>50 Marks</b>
<b>Internal Assessment</b>	-	<b>20 Marks</b>
<b>Practical</b>	-	<b>20 Marks</b>
<b>Practical Internal</b>	-	<b>10 Marks</b>

### **BOOKS RECOMMENDED:**

1. Introduction to Psychology - By Clifford T. Morgan & Richard A. King
2. Abnormal Psychology - By James D. Page
3. Positive Psychotherapy - By Nossrat Pesseschian
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**

#### **COURSE 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**
- **Corporate tie 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**
- **Development Operations Spa and Hospitality**

#### **3. FRONT OFFICE & GUEST HANDLING**

- **Telephone handling**
- **Guest appointments & booking procedures**
- **Guest orientation Guest 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 abroad**