



JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR

SYLLABUS

BACHELOR OF NATUROPATHY & YOGA SCIENCE (B.N.Y.S.) YEAR - 2017

DURATION - 5 ¹/₂ YEARS (ANNUAL)

SYLLABUS FOR:
4.5 ANNUALS & 1 YEAR INTERNSHIP

FACULTY OF NATUROPATHY & YOGA SCIENCE

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Book Details (1st Year)

S. No.	Subject Name	Text Book	Author	Publisher
1.	Anatomy	Textbook of Anatomy (III volumes) & General Anatomy	BD Chaurasia	CBS Publisher
2.	Physiology	Essentials of Medical Physiology	K Sembulingam	Jaypee Brothers: Medical Publishers
3.	Biochemistry	Text book of Biochemistry	U. Sathyanarayana, U Chakrapani	Books & Allied (NCBA Publisher)
4.	Philosophy of Naturopathy	Philosophy & Practice of Nature cure (Vol.1)	Henry Lindlahr	Nature cure publishing company
5.	Yoga Practical classes	Asana Pranayam Mudra Bandha	Swami Satyananda Saraswati	Yoga Publication Trust

Program summary

B.N.Y.S. (ANNUAL)

NATURE OF COURSE (I YEAR)	NO. OF CREDITS
Anatomy	30
Physiology	30
Biochemistry	25
Philosophy of Naturopathy	30
Yoga Practical classes	20
Total Credits	135

NATURE OF COURSE (II ND YEAR)	NO. OF CREDITS
Pathology	25
Microbiology	20
Community Health	20
Yoga philosophy	20
Magnetotherapy	25
Chromopathy	25
Total Credits	135

NATURE OF COURSE (III RD YEAR)	NO. OF CREDITS
Manipulative Therapies	25
Accupuncture And Accupressure	25
Yoga And Its Applications	20
Fasting Therapy	20
Diagnostic Method –I (Naturopathy)	15
Diagnostic Medthod-Ii (Conventional Medicine)	15
Modern Diagnostic And First Aid	15
Total Credits	135

Nature of Course (IV ½ Year or 18 months)	NO. OF CREDITS
Dietics , nutrition and herbs	25
Obstetrics & Gynaecology	25
Yoga therapy	25
Hydrotherapy and Mud therapy	30
Physiotherapy	25
Holistic practice of Naturopathy & Yoga	25
Allied Subjects (Forensic Medicine & Toxicology, Psychological aspects of patient management, Hospital Management, Naturopathy & Yoga, Research Methodology)	40
Total Credits	195

COMPULSORY INTERNSHIP- A candidate after passing final B.N.Y.S. Medical Degree Examination shall undergo the compulsory rotatory internship of one year duration, which shall consist of work/duty postings in the following sections/departments for the period specified against them.

DEPARTMENT	CREDITS
Philosophy of Yoga and Naturopathy	10
Yoga & mind body medicine	10
Pathology & Microbiology	15
Community Medicine	10
Energy Medicine	10
Manipulative Therapies , Physical Medicine & Rehabilitation	10
Fasting, Dietetics, Nutrition, & Medicinal Herbs	10
Diagnostic methods	10
Obstetrics & Gynecology	15
Hydrotherapy & Mud Therapy	15
Naturopathic Medicine	10
Allied Health Science	10
TOTAL CREDITS	135

Total Credits (5 ½ YEAR)

735 (Academic)+15 (UCC)= 750

1st Year SYLLABUS

1st Year Motive: The motive of first year of the B.N.Y.S. programme is to give knowledge about the basic subjects of the Yoga & Naturopathy and allied subjects so that the students are able to revive what they have already studied and can have the strong base for the future of upcoming subjects.

Nature of Course	Course Details	C	T	P
Anatomy -I	Introduction to Anatomy, General Histology Osteology, Arthrology, Myology, Respiratory System, Cardiovascular System, Digestive System, Mesentery and position of the above organs in the abdominal quadrants & Lymphatic System	15	10	05
Anatomy -II	Osteology, Arthrology:, Myology, Reproductive System, Nervous System, Organs and Special Senses, Surface Anatomy & Histology	15	10	05
Physiology -I	General Physiology, Blood, Erythrocytes, Hemoglobin Leucocytes, Thrombocytes, Hemostasis, Anticoagulants Physiology of reticular system, Cardiovascular System Respiratory System, Digestive System, Excretory System, Skin –structure and functions	15	10	05
Physiology -II	Endocrine System, Reproductive System, Muscle Physiology, Neuron Morphology of neuron and Classification of neuron and nerve fibres, Central Nervous System & Special Senses	15	10	05
Biochemistry	Biomolecules & biochemical perspective of a cell, Chemistry of Carbohydrates , Chemistry of Lipids , Chemistry of Proteins , Enzymes, Vitamins , Mineral metabolism, Digestion and absorption, Carbohydrate Metabolism , Lipid metabolism, Molecular biology, Biochemistry of blood , Plasma Proteins , Energy metabolism and Nutrition, Clinical biochemistry& Environmental biochemistry	25	15	10
Philosophy of Naturopathy	The Medical Profession & Medical Evolution-an Introduction, Fundamental principles, concepts & theories of Naturopathy , The Human Body, History of Naturopathy & Philosophy of Naturopaths, Introduction to The Diagnostic procedures in Naturopathy, Natural rejuvenation, Personal life and prevention of diseases Geriatrics and Naturopathy, Introduction to various systems of Medicine, Comparative study of Naturopathy with other systems of Medicine, Basic essentials of a Naturopathy practitioner, Recent Advances in Naturopathy & Yoga, An introduction to Research & its importance in Naturopathy	30	30	00
Yoga Practical classes	Joint movements, Loosening exercises, Sukshma, Vyayama, Stretchings, Breathing exercises, Suryanamaskara, Asanas, Kriya	20	00	20
University compulsory course	Curriculum Training & Exposure	1	0	1

University compulsory course	Community Development Activities	1	0	1
	Total Credit= 135+2= 137			

Note:

- **C** represents number of credit per course
- **T** represents number of theory credit per course
- **P** represents number of practical and practice per course

2nd Year SYLLABUS

IInd year Motive: The goal of IInd year is to provide a comprehensive knowledge of the mechanisms and causes of disease, so that she is able to comprehend fully the natural history and clinical manifestations of disease, including etiology, pathogenesis, laboratory diagnosis, treatment and control of diseases in the community.

Nature of Course	Course Details	C	T	P
Pathology	History and Scope , Definition and various branches , Scientific study of disease and methodology , The cell and the reaction of cell, tissue and organ to injury , Reaction of cell to injurious agents, Excessive or abnormal accumulations , Pathological calcification, Inflammation and Repair , Wound healing , Granulomas , Fluid and Hemodynamic Changes (circulatory disturbances), Immunopathology , Growth disorders, Neoplasia, Mineral and Pigment Metabolism, Genetic disorders, Disorders of RBC, Disorders of WBC, Coagulation and bleeding disorders, Diseases of cardiovascular system, Diseases of Respiratory system ,Diseases of gastrointestinal system, Diseases of liver, biliary tract and pancreas, Diseases of Kidney, Diseases of Male Genital System , Diseases of Female Genital System, Diseases of Breast , Endocrine pathology, Musculoskeletal pathology , Diseases of Nervous System, Diseases of Lymph nodes and Spleen & Pathology of skin	25	15	10
Microbiology	Infection and a brief description of Nosocomial infection , Immunology ,Inductionofimmuneresponse, Classification of living organisms , Classification of microorganisms , Distinctive characteristics of major groups of microorganisms , General bacteriology , Virology, Parasites, Mycology, Bacteriology of water	20	15	05
Community Health	Man and Medicine, Concepts of Health , Concept of Disease , Concepts of control and prevention, Modes of intervention , Population medicine, International classification of diseases, Principles of epidemiology and epidemiologic methods Screening of diseases: Concepts, Uses, Criteria for screening, sensitivity & specificity , Epidemiology of communicable diseases , Epidemiology of non-communicable diseases , Demography	20	15	05

	and Family Planning, Preventive medicine in Obstetrics, Pediatrics and Geriatrics Environmental health and occupational health, Basic Medical Statistics, Health education and communication, Health planning, Healthcare of community, Nutrition and Health, International health agencies: WHO, UNICEF, RED CROSS, Voluntary health agencies.			
Yoga philosophy	Yoga, its definition, its basis, its relation to philosophy and its application, Ancient roots of Yoga, Buddhism, Nyaya, Vaisheshika, Sankhya, Mimamsa, Vedanta, Patanjali, Yoga, Sutras, Ashtanga Yoga, Spiritual values of pranayama and kriyas	20	15	05
Magnetotherapy	Definitions of magneto therapy, Historical highlights, Vedic references related to magneto therapy, Biomagnetism, Principles electromagnetism, Types of magnets, Classification of magnets, Physical properties of magnets, Measurement of magnetic field, Mechanism of action of magnets in the body, Properties effects and corresponding features of north & south poles, Maintenance of permanent magnets, Magnetic field deficiency syndrome, Magnetic overload, Earth as a huge magnet, Effect of biomagnetism in various organ systems, Modes of application of magnets, Magnetic charging, mechanism, dosage and its effect and limitations, Water, oil, milk, honey, Magnetic therapy through shad chakras, Contraindications, complications, and limitations of magneto therapy, Harmful effects of EMF and measures for minimizing it.	25	15	10
Chromopathy	Definition, Historical highlights, Classification of colors, How do rainbows form, Physics of light, Electromagnetic spectrum, Pathway of vision and color sensing, The human aura and colors, Relation of colors with shad chakras, Impact of color sense on emotions and psychology, Therapeutic effect of colors, Heliotherapy – Advanced colour therapy, Color breathing, Chromo charging of water, oil honey and food stuffs. And their effect on health and disease, Limitation and contraindications of chromo therapy, Research updating related to chromo therapy.	25	15	10
University Compulsory Course	Women rights law	02	02	0
University Compulsory	Curriculum Training & Exposure	1	0	1

Course				
University Compulsory Course	Community Development Activities	1	0	1
Total credits= 135+4= 139				

Note:

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- **P represents number of practical and practice per course**

3rd Year SYLLABUS

IIIrd year Motive: The goal of this year is to provide them with a comprehensive understanding of the science and art of Acupuncture, Acupressure, Manipulative therapies, Fasting therapy, Yoga & its applications and related diagnostic methods.

Nature of Course	Course Detail	C	T	P
Manipulative therapies	Introduction and historical highlights of, Massage and Manipulative Techniques , Classification of (lubricants) massage , Professional standards of massage professionals, Physiological effects, indications, contraindications of massage in various organ systems ,Kellogg’s massage , Shiatsu , Pediatric massage, Geriatric massage, Massage for antenatal care, Ayurvedic massage – terminology, procedure and manipulations , Panchakarma in brief , Chiropractic, Osteopathy, Basic principles and procedure of different types of massage , Aromatherapy, Reflexology and Zone therapy, Milestones of females and its management through massage	25	15	10
Acupuncture & Acupressure	Definition, concepts of Acupuncture , Traditional and modern theories of Acupuncture , Materials and methods of Acupuncture, Principles of Acupuncture , Rules for the selection of Acupuncture points, Contraindications and complications of Acupuncture, The concept of Meridians: The extra-ordinary points, Examination methods of Traditional Chinese Medicine , Auriculotherapy, Scalp acupuncture, Moxibustion, Types of Stimulation in Acupuncture, Acupuncture Therapeutics, Acupuncture Anesthesia, Reflexology & Zone Therapy & Acupressure	25	15	10
Yoga & its applications	PatanjaliYogaSutras, Hatha Yoga Pradipika, Physical exercises for health and fitness , Stretching exercises for elderly, Techniques of walking, running, cycling etc, Caring for the back	20	15	05
Fasting therapy	Definition, Historical highlights, Evidence of fasting in animals and its benefits, Fasting in different religions, Classification of fasting and its effects, limitations, Starvation, Physiological changes of fasting in short, long, intermittent, dry, water, juice (lemon honey, tender coconut, sugarcane juice, alkaline juices, honey water etc.) and monodiet fasting, Difference between hunger and starvation, Rules and regulations for administering fasting, Rules and regulations for selection of patient for fasting, Hygiene and auxiliaries of fasting, Sane fasting , Do’s and don’ts of fasting , Metabolism of fasting, Preparation of individuals for fasting , Research updates on fasting	20	15	05
Diagnostic methods - I	Facial Diagnosis, Iridiagnosis, Stool & Urine Diagnosis, Skin Diagnosis, Tongue diagnosis , Pulse diagnosis, Chromo diagnosis, Advanced research	15	10	05

	updates			
Diagnostic methods - II	Examination of the Patient, Provisional diagnosis, Routine and special investigations , Final Diagnosis	15	10	05
Modern diagnosis & First Aid	General principles of first aid-definition, principles, responsibilities and golden rules , Resuscitation techniques-basic life support, mouth to mouth ventilation, artificial ventilation, Sylvester method, Unconsciousness and general principles of treatment, recovery position, Transportation and handling of patient, Hemorrhage and bleeding, Shock, Wounds, Bandages ,dressing and slings, Fractures, sprains and strains, Poisoning, Asphyxia, Aspiration, drowning, suffocation and strangulation, Road accidents, Effect of temperature, sunburn, hypothermia, frost bite, heat exhaustion, heat stroke, Burns and scalds, electrical injuries, Head injury, chest injury, blast injury, crush injury, Sports injuries, Epilepsy-febrile convulsions, Syncope, Dog bite, snake bite, scorpion bite and bee sting , Emergencies in diasthetic patients and cardiac patient.	15	10	05
University Compulsory Course	Cyber security	02	02	00
University Compulsory Course	Community Development Activities	01	00	01
University Compulsory Course	Curriculum Training & Exposure	01	00	01
Total Credit= 135+4= 139				

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- **P** represents number of practical and practice per course

4th Year SYLLABUS

IVth year Motive: The goal of this year mainly is to provide a comprehensive knowledge 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. The student would be able to understand about the medico-legal responsibilities in the practice of medicine and normal and abnormal psychology and assessment of the same for therapeutic purposes. She learns about the latest updated scientific, knowledge in the field of Naturopathy and Yoga and related research methodology.

Nature of Course	Course Detail	C	T	P
Dietics , nutrition and herbs	<p>Nutrition :-Definition of food, nutrition, nutrient and diet, Control of food intake ,Antioxidants Food groups ,Metabolic consequences of starvation ,Fiber and other dietary factors affecting nutrient absorption and metabolism Maternal nutrition, Nutritional requirements during infancy, Diet, nutrition and adolescence Childhood obesity , Assessment of mal absorption ,Renal disorders and nutrition RDA – individuals and populations.</p> <p>MEDICINAL HERBS:- Introduction to Herbology , Following herbs are to be studied with respect to their source and therapeutic uses- Embelicaofficinalis, Cassia fistula, Ficus glomerata, Vetiveriazizanodies , Cinnamomumcamphora ,Mosardicacharantia, Tribulusterrestris ,Myristicafragrans ,Cuminumcyminum ,Sesamumindicum ,Ocimum sanctum ,Punicagranatum ,Coriandrumsativum, Azadirachtaindica ,Allium cepa ,Piper longum , Psoraleacorylifolia ,Taxusbaccata , Aeglemarmelos ,Semecarpusanacardium , Phyllanthusniruri ,Piper nigrum ,Trigonellafoenum – graecum ,Santhalam album, Allium sativum ,Mimosa pudica ,Acoruscalamus, Asparagus racemosus ,Rauwolfia serpentine , Curcuma longa ,Terminaliachebula ,Ferula narthex ,Syzygiumaramaticum ,Terminaliabelerica ,Gingiberofficinalis .</p>	25	10	15
Obstetrics & Gynaecology	<p>Obstetrics:- Basic Anatomy and Physiology, Physiology of pregnancy ,Physiology of labor ,Physiology puerperium ,Pathology of pregnancy ,Pathology of labor ,Affection of new-born ,Obstetrical operations ,Pathology of Puerperium – Puerperal infections ,Applied aspects in Obstetrics.</p> <p>Gynecology:- Anatomy of the female pelvic organs ,Puberty and Menopause ,Neuroendocrinology in relation to reproduction, Menstruation, Examination of a gynecological patient and the diagnostic aids</p>	25	10	15

	,Sexually transmitted diseases ,Infections of the individual pelvic organs, Dysmenorrhea and other disorders of menstrual cycles ,Infertility, Benign lesions of the ovary ,Genital malignancy , Operative gynecology ,Applied aspects in Gynecology.			
Yoga therapy	Patanjali Yoga Sutra, Hatha Yoga Pradipika, Introduction to other streams of Yoga, Yoganidra, Meditation, Yoga – in relation to personality and education, Yoga – in relation to sports and games, social and political life , Eye exercises , Physiological aspects of asana, Physiological, neurophysiological aspects of pranayama , Shatkriyas – comparative study of shat kriyaswith other systems of medicine, Physiological aspects of exercises , Physical exercises for health and fitness	25	15	10
Hydrotherapy and Mud therapy	Hydrotherapy therapy:- Introduction and History ,Physiological basis of Hydrotherapy, Reflex areas of the body, results of application of hot and cold over reflex areas, Place of water in acute diseases , General principles of Hydrotherapy ,Therapeutic actions and use of Hydrotherapy ,The techniques of Hydrotherapy . Mud therapy:- Introduction to Mud therapy, Methods of treatment of mud ,Cosmetic uses of mud , Research updates .	30	10	20
Physiotherapy	Demonstration and practice of active and passive movements, Demonstration and practice of putting suspension to shoulder joint and elbow joint in upper limbs, hip and knee joints in lower limbs for all movements. Demonstration of total suspension, Muscle strength: Demonstration and practice of strengthening, reeducation of weak/paralyzed muscles of both upper and lower extremity, individual group muscles, abdominal muscle exercises, Passive stretching, Demonstration and practice of all crawling exercises, faulty posture, correcting techniques etc., Demonstration of various pathological gaits. , Measurement of crutches, walking aids, strengthening muscles, crutch balance, demonstration and practice of all crutch gaits. Breathing exercises	25	15	10
Holistic practice of Naturopathy & Yoga	Introduction to Yogic Therapy, Role of Asanas in curing various diseases ,Specific importance of Pranayama in curing various diseases, Role of general exercises in health and diseases ,Sudarshan Kriya and other modern variants, The effects of various Yogic practices on different systems ,Yoga and relaxation techniques ,Drishtis Applied Psychology .	25	10	15
Allied Subjects (Forensic	FMT- Definition and scope of forensic medicine	40	20	20

Medicine & Toxicology, Psychological aspects of patient management, Hospital Management, Naturopathy & Yoga, Research Methodology)	<p>Methods of identification of living and dead body, race, age, sex etc, Medico-legal autopsy Infanticide, Forensic psychiatry, Postmortem examinations, General considerations of poisoning and classification, Unprofessional conduct, malpractice, The rights and privileges and duties of medical practitioners</p> <p>Psychological aspects of patient management- The Evolution of Psychology- How psychology developed from speculation to science, Sensation and Perception, Learning and Memory, Thinking and Language, Motivation and Emotion, Intelligence, Human development across the life span, Personality, Stress coping and health, Social Psychology, Abnormal psychology: Psychiatry, Anxiety disorders, Somatoform and Dissociative disorders, Mood disorders, Substance-related disorders, Schizophrenia and other psychotic disorder</p> <p>Hospital Management- To manage acute anaphylactic shock, peripheral vascular failure and shock, acute pulmonary edema and LVF, Emergency management of drowning, poisoning and seizures, bronchial asthma and status asthmaticus, hyperpyrexia, comatose patients regarding airways, positioning prevention of aspiration and injuries, Assess and administer emergency management of burns</p> <p>Naturopathy & Yoga- Good Clinical Practice Scope of practice, Naturopathic prescription-making and algorithmic line of management for the diseases, Pathophysiology, Management of pains, Dictum of cure in Naturopathic medicine , Mental health and <i>Yoga</i></p> <p>Research Methodology -The research process. Methodology and methods, The design of a study, Literature review, Ethics of research, Sampling. Data organization in Excel and SPSS, Validity, Reliability, Inferential Statistics and Probability, Research Reports</p>			
University Compulsory Course	Environmental science & Disaster management	03	03	00
University Compulsory Course	Community Development Activities	1	0	1
University Compulsory Course	Curriculum Training & Exposure	1	0	1
TOTAL CREDIT= 195+5= 200				

B.N.Y.S. 1st Year (Syllabus Detailed)

Sub: ANATOMY -I

UNIT - I Introduction to Anatomy

Theory (3 Credits)

Nomenclature, Anatomical positions, Axes and planes, Tissues, Movements, General Histology.

UNIT - II- Osteology, Arthrology & Myology - I

Theory (3 Credits)

Osteology (Including ossification)- Types of bones, Classification of bones, Description of various bones Upper limb, Thorax, Abdomen and pelvis, Vertebral column; **Arthrology**- Classification of joints, Construction of joints, Description of various joints of: Upper limb, Thorax, Vertebral column, **Myology** Types of muscles, Muscles of upper limb, thorax, abdomen and pelvis , Origin, insertion, blood supply, nerve supply, applied anatomy and actions of these muscles

UNIT - III- Systems of Human Body- I

Theory (4 Credits)

Respiratory System- Upper respiratory tract – Nose, Pharynx, Larynx, Trachea & Bronchial tree, Lungs, Pleura, Mediastinum; **Cardiovascular System**- Heart – Position, Surface anatomy and its description, Great vessels – Aorta, Pulmonary trunk, superior vena cava, inferior vena cava and their branches, Arteries and Veins – Structure of arteries and veins, important arteries and veins of the body; **Digestive System**- Oral cavity, Teeth , Hard palate, Soft palate , Esophagus, Stomach, Small intestine, Large intestine, Anal canal, Liver, Gall bladder, Bile duct, Pancreas Spleen, Peritoneum, Mesentery and position of the above organs in the abdominal quadrants. **Urinary System**- Kidney, Ureter, Urinary bladder, Male urethra, Female urethra **Lymphatic System**- Lymph, lymph glands, lymph duct, thoracic duct, cisterna chyli, Location of major groups of lymph nodes in the body and their drainage areas

PRACTICALS- (CREDIT- 05)

S. no.	Name of practical	Nature	Credit
1	Dissection: Pectoral, scapular, shoulder, arm, forearm. Prosected Parts: Joints, Palm and dorsum of hand;	Dissection	02
2	Dissection: anterior abdominal wall and viscera and posterior abdominal wall urinary and digestive organs.	Dissection	02
3	Dissection: Chest wall, mediastinum, lungs and heart	Dissection	01

Sub: ANATOMY -II

UNIT - I Osteology, Arthrology & Myology-II

Theory (3 Credits)

Osteology - (Including ossification) Description of various bones of-Lower limb, Skull as a whole,

Individual cranial bones of skull, **Arthrology**-Description of various joints of-Lower limb, Skull as a whole , Skull and vertebral column. **Myology** - Description of various muscles of - Lower limb, Head , Neck(Origin, insertion, blood supply, nerve supply, applied anatomy and actions of these muscles).

UNIT: II Systems of Human Body- II

Theory (3 Credits)

Reproductive system-Male reproductive organs :- Penis, Testes, Vas Deferens, Spermatic Cord, Epididymis, Seminal Vesicles, Ejaculatory Duct Prostate Gland Etc. Female reproductive organs:- External genital organs , Vulva, Clitoris, Vagina. Inguinal Region perineum:- Internal genital organs, Uterus, Cervix, Fallopian tubes, Ovaries, Ligaments of uterus and ovaries, Mammary glands.

Endocrine System :-Description of Pituitary, Pineal, Thyroid, Parathyroid, Thymus, Spleen, Pancreas, Suprarenal, Ovaries and Testes.

UNIT: III HEAD-NECK AND NERVOUS SYSTEM

Theory (4 Credits)

Nervous System :- Division of nervous system, central nervous system, peripheral nervous system, cerebral hemispheres, midbrain, pons, medulla oblongata, cerebellum, spinal cord, autonomic nervous system. **Meninges**:- Dura mater and arachnoid mater, CSF, Ventricular system , Cranial nerves , Spinal nerves , Important plexuses: Cervical, Brachial, Lumbar, Sacral and their nerve descriptions.

Head and Neck:- Organs and Special Senses , Tongue ,Nose, Eye and associated structures , Ear , Integumentary system.

Practicals: (5 credit)

S. no.	Name of practical	Nature	Credit
1	Surface Anatomy:- Projection of the outline of heart, its borders, surface and valves. Lungs ,Liver ,Kidney ,Abdominal viscera , Pelvic viscera	Demonstration	2
2	Dissection: Scalp, superficial and deep dissection of face and neck Prosecuted Parts: Orbit, eyeball, submandibular region, temporal and infra-temporal fossa, cranial cavity, naso and oro-pharyngeal regions, larynx and pharynx. Cross sections at C-4, C-6 levels, sagittal section of head and neck	Dissection	2
3	Dissection: :- Brain and Spinal Cord Bones as described in the osteology section	Demonstration	1

Textbooks:-

Textbook of Anatomy (III volumes) – BD Chaurasia

Practical Anatomy – Cunningham

Reference Books:-

Textbook of Anatomy – Gray

Atlas of histology – Diforie

Sub: PHYSIOLOGY

Unit-I- General Physiology & Blood Theory (2 Credits)

General Physiology :- Cell structure and function, Transport mechanisms across biological membrane, Body fluids and homeostasis, Thermoregulation. Blood :- Plasma proteins , Normal values , Origin, Functions and variations in health and disease, Bone marrow, Composition and functions , Erythrocytes , Morphology and variations in health and disease , Site and stages of development , Necessary factors , Regulation of development of erythrocytes , Life span and fate of erythrocytes, Erythrocyte sedimentation rate (ESR) , Packed cell volume (PCV) , **Leucocytes**- Classification, morphology, development and functions , Variation in health and disease.

Hemoglobin:- Structure, synthesis, function and metabolism, Types of hemoglobin, Anemia – definition and classification , Jaundice – definition and classification.

Unit- II (SPLEEN , THROMBOCYTES, IMMUNE SYSTEM AND CARDIOVASCULAR SYSTEM)

Theory (4 Credits)

Spleen- structure and function; **Thrombocytes** :- Development, morphology and functions , Variation in health and disease, **Hemostasis** , Mechanism of hemostasis, coagulation of blood , Fibrinolysis and bleeding disorders , **Anticoagulants**, Mechanism of action and clinical applications , **Blood groups** , Classification , ABO and RH system , Blood transfusion, indication and hazards , **Lymph and tissue fluids** , Formation and functions of lymph , Physiology of reticular system. **Immune system** :- Cellular and humoral immunity

Cardiovascular System :- **Heart** , Structure and properties of cardiac muscle . Innervations of heart, junctional tissue of heart , Generation and spread of cardiac impulse, **Electrocardiography** , Einthoven's Law ,ECG leads, normal ECG and its interpretation , **Cardiac cycle** , Pressure and volume changes (mechanical events) , Principles of echo-cardiograph, Jugular venous pulse tracing, radial pulse tracing , Measurement and regulation of cardiac output , **Heart sounds**,

Description, Causation and relation to other events in cardiac cycle , Clinical significance of heart sounds , Stethoscopy , **Blood pressure** , Definition, regulation and factors influencing BP , Measurement of blood pressure , Physiology of hemorrhage and shock , **Circulations** , Blood vessels , Physical principles of blood flow, regulation of blood flow. Coronary, Splanchnic, cutaneous and capillary, cerebral circulation,

Cardiovascular changes in altitude and exercise .

Unit-III (Respiratory System, Digestive System & Excretory System)

Theory (4 Credits)

Respiratory system Introduction-internal and external respiration, physiological anatomy of respiratory system, Mechanism of Respiration, Inspiration and expiration, Role of respiratory muscles and thoracic cage, Pressure and volume changes during respiration ,Work of breathing , lung compliance and its significance in health and disease , Lung volumes and capacities , Lung volumes and capacities and their measurements , Ventilation , Composition of atmospheric, inspired, alveolar and expired air , Pulmonary circulation, Pulmonary circulation, ventilation – perfusion relationship, Diffusion of gases across pulmonary membrane , Oxygen uptake, transport and delivery , Carbon dioxide uptake, transport and delivery, Organization of the respiratory centers, Nervous and chemical regulation of respiration , Classification and characteristics of hypoxia, cyanosis, asphyxia, hypercapnea, hypocapnea dyspnea, apnea and orthopnea and periodic breathing, Respiratory changes in high altitude, Physiology of acclimatization and hyperbarism ,Respiratory / pulmonary function tests , Non-respiratory functions of

lungs , Artificial respiration, Importance of therapeutic administration of oxygen and carbon dioxide , Respiratory changes during exercise

Digestive System :-

Introduction, functional anatomy of digestive system , Salivary glands , Composition, functions of saliva , Regulation of secretion of saliva, Stomach, Functional anatomy of stomach , Functions of stomach, Composition and functions of gastric juice, Regulation of secretion and mechanism of HCL secretion, Methods of study of gastric function and its supplied aspect Pancreas, Functional anatomy of pancreas, Composition and functions of pancreatic juice , Regulation of pancreatic secretion , Methods of study of pancreatic secretion , Liver and Gall Bladder , Functional anatomy of liver and biliary system , Functions of liver and gall bladder , Formation, storage and secretion of bile , Composition, function and regulation of release of bile , Entero-hepatic circulation , Tests for liver function , Small intestine , Functional anatomy and functions of small intestine , Composition, function and mechanism of secretions of Succus entericus, Large intestine , Functional anatomy and functions of large intestine , Gastro-intestinal hormones , Release and functions , Gastro-intestinal movements , Mastication, deglutition and vomiting , Movements of stomach, filling and emptying of stomach,

Movements of small intestines , Movements of large intestine and defecation, Regulation of movement , Digestion and absorption of carbohydrates, fats, proteins and vitamins, minerals and water.

Excretory System:- General introduction, organs of excretion with special emphasis on evolution of excretory mechanisms, Functional anatomy of renal glands and renal circulation, Nephron - Mechanism of urine formation , Concentration and acidification of urine, Renal function tests, Non-excretory functions of kidney , Physiology of micturition and its abnormalities, Skin – structure and functions.

Practicals: (05 credit)

S. no.	Name of practical	Nature	Credit
1	Blood - Preparation and examination of peripheral blood smear and determination of differential leucocyte count ,total red blood cell count ,total leucocyte count, platelet count, osmotic fragility of erythrocytes , erythrocyte sedimentation rate, packed cell volume ,hemoglobin concentration of blood , ABO and Rh blood groups , bleeding time, clotting time	Demonstration	02
2	Cardiovascular system :- Determination of the effect of posture on blood pressure ,Clinical examination of the human cardiovascular system (CVS)	Demonstration	02
3	Respiration:- Spirometry (demonstration) , Examination of human respiratory system.	Demonstration	01

Sub: PHYSIOLOGY II

UNIT I :- Endocrine System &Reproductive system

Theory (2 Credits)

Endocrine System:- Introduction - evolutionary background and organization of endocrine control systems , Hormones ,Classification of hormones and mechanism of hormone action ,

Regulation of hormone secretion and feedback system , Hypothalamo-hypophyseal system – hormones released , Endocrine glands , Pituitary glands –functional anatomy of anterior and posterior pituitary glands. source, chemical nature, actions, regulation and applied aspect of anterior and posterior pituitary hormones , Thyroid gland – functional anatomy , hormones ,applied aspect , Parathyroid gland –

functional anatomy, hormones, applied aspect , Adrenal gland – Functional anatomy of adrenal cortex and medulla, hormones and applied physiology of adrenal cortex and medulla , Islets of langerhans – Functional anatomy, hormones ,applied aspect ,Other hormones – prostaglandins, thromboxanes, acetylcholine ,serotonin, histamine, bradykinin, leptin, prostacyclin, leukotrienes, atrial natriuretic peptide, brain natri uretic peptide,melatonin

Reproductive System :- Physiology of reproduction , Introduction to physiology of reproduction , Sex determination, sex differentiation and chromosomal study , Male Reproductive System , Development and structure of testes , Functions of testes , Gonadotropins and gonadal hormones, Composition of semen and structure of human sperm , Female Reproductive System, Functional anatomy of female reproductive system , Functional anatomy and functions of ovary , Gonadotropins and ovarian hormones, Physiology of menstrual cycle , physiology of ovulation and pregnancy, Physiology of placenta, gestation and parturition , Physiological basis of tests for ovulation and pregnancy, Physiology of lactation

UNIT II- (NERVE AND MUSCLE PHYSIOLOGY, NERVOUS SYSTEM & SPECIAL SENSES)

Theory (4 Credits)

Nerve and Muscle Physiology:- Neuron, Morphology of neuron and Classification of neuron and nerve fibres , Properties of nerve fibres and measure of excitability, Degeneration and regeneration of nerve fibres , Muscle ,Classification of muscle ,Skeletal muscle – structure , properties and functions ,Excitation -contraction coupling ,Neuromuscular junction ,Smooth muscle – structure, types, properties, functions ,Cardiac muscle – structure, properties, functions ,Myasthenia gravis ,Starling’s law and its applications ,

Central Nervous System - Structural and functional organization of central nervous system ,Neuroglia ,Sensory physiology ,Classification and general properties of receptors ,Synapse ,Types of synapse and their structure ,Functions and properties of synapse ,Classification and actions of neuro -transmitters ,Reflexes ,Classification of Reflexes , General properties of reflexes (with examples) , Reciprocal inhibition and reciprocal innervation ,Spinal cord ,Functional anatomy of spinal cord , Ascending tracts – situation, origin, course, termination and functions ,Physiology of pain, different pathways of pain sensation ,Physiology of referred pain, Gate control theory, analgesia system ,Descending tracts – situation, origin, course, termination and functions ,Extrapyramidal tracts – situation, origin, course, termination and functions ,Upper and lower motor neurons and their lesions ,Brown Sequard syndrome, Syringomyelias , Functional anatomy and functions of brain stem ,Thalamus ,Functional anatomy, connections and functions ,Effects of lesions ,Internal capsule – situation, divisions, effect of lesions ,Hypothalamus ,Functional anatomy, connections and functions ,Effect of lesions ,Cerebellum ,Functional anatomy, connections and functions ,Effects of lesions and tests for cerebellar function ,Basal ganglia ,Functional anatomy, connections and functions ,Diseases of basal ganglia and its clinical evaluation ,Cerebral cortex ,Functional anatomy of cerebral cortex ,Functional areas and its functions of frontal lobe, parietal lobe, temporal lobe, occipital lobe ,Methods of study of cortical connections and functions ,Limbic System ,Functional anatomy, connections and functions ,Reticular formation ,Functional anatomy, connections and functions of reticular formation ,EEG, physiology of sleep and wakefulness ,Vestibular apparatus ,Functional anatomy, connections and functions ,Effects of lesions and their assessment ,Physiology of maintenance and regulation of muscle tone, posture and equilibrium, Decerebrated rigidity and righting reflexes ,Higher functions ,Learning, speech, memory, behavior and emotions ,Cerebro-spinal fluids ,Formation, circulation, functions of CSF ,Properties and composition of CSF ,Method of collection of CSF and its clinical significance ,Blood – brain barrier ,Autonomic Nervous System ,Sympathetic nervous system and its functions , Parasympathetic nervous system and its functions.

Unit- III- SPECIAL SENSES

Theory (4 Credits)

SPECIAL SENSES :- Smell , Structure of olfactory receptors, Physiology of olfaction and ,olfactory discrimination ,Olfactory pathway and defects of olfaction ,Taste structure of taste receptor, primary taste sensation and taste pathway and applied aspects ,Vision ,Functional anatomy of eye ,Structure of visual receptors ,Neural, chemical, electrical basis of visual process ,Visual acuity ,field of vision, tests for visual

acuity and field of vision ,Visual pathways and effects of lesions in visual pathways ,Pupillary reflexes ,Color vision, color blindness and tests for color blindness ,Errors of refraction and its correction, Physiology of aqueous humor ,Dark and light adaptation ,Lacrimal glands ,Formation and circulation of tears ,Hearing ,Functional anatomy and functions of external,middle and internal ear , Impedance matching and tympanic reflex ,Auditory pathways and auditory cortex ,Mechanism of hearing ,Frequency analysis, sound localization, Defects of hearing ,Audiometry, other tests for hearing defects ,

Practicals: (5 credit)

S. no.	Name of practical	Nature	Credit
1	Neurophysiology :- Examination of motor and sensory system , Examination of cranial nerves	Demonstration	2
2	Special senses :- Determination of visual acuity , Clinical assessment of color vision (Demonstration) , Perimetry: Mapping of visual field.	Demonstration	3

Recommended text books:

- Textbook of Medical Physiology – AC Guyton and Hall
- Review of Medical Physiology – WF Ganong’s
- Essentials of Medical Physiology – K Sembulingam

Reference Books:

- Best and Taylor’s Physiological basis of medical practice
- Practical Physiology – C L Ghai

Sub: Biochemistry

UNIT-I (BIOMOLECULES, CARBOHYDRATES AND LIPIDS)

Theory (3 Credits)

BIOMOLECULES :- Biomolecules & biochemical perspective of a cell, Cell structure ,Subcellular organelles ,Cell membrane, Transport mechanisms.

CARBOHYDRATES:- Chemistry of Carbohydrates ,Definition, classification and biological importance of carbohydrates ,Monosaccharides, Classification, Isomerism and properties of, monosaccharides, modified monosaccharides, Disaccharides ,Polysaccharides.

LIPIDS:- Chemistry of Lipids ,Definition, classification and biological importance of Lipids ,Simple lipids: Composition of Triacyl glycerol & Waxes. Compound lipids: Composition & functions of Phospholipids, glycolipids & lipoproteins ,Derived lipids: Fatty acids - Classification & Properties fatty acids, Steroids & sterols ,Micelle, Liposomes.

UNIT II (PROTEINS , ENZYMES AND VITAMINS) Theory (4 Credits)

PROTEINS :- Chemistry of Proteins , Definition, classification & properties of amino acids ,Definition, classification & properties of proteins ,Structural organization of proteins ,Biological significance of amino acids & proteins ,Plasma proteins, their functions and clinical significance.

ENZYMES:- Definition, classification, Kinetics, mechanism of enzymatic catalysis. Factors influencing enzymatic catalyses, enzyme activators and inhibitors. Regulation of enzyme activity, Iso-enzymes & clinical enzymology

VITAMINS:- Definition and classification of vitamins ,Brief account of chemistry, source, RDA, biochemical functions, deficiency diseases, Vitamin antagonists and hypervitaminosis of each vitamin.

UNIT-III (MINERALS METABOLISM, CARBOHYDRATES METABOLISM, BIOLOGIC OXIDATION, LIPID METABOLISM, PROTEIN METABOLISM) Theory (4 Credits)

Mineral metabolism :- Classification of minerals ,Brief account of chemistry, source, RDA, biochemical functions, deficiency diseases of each mineral ,Digestion and absorption , Digestion and absorption of carbohydrates ,Digestion and absorption of lipids ,Digestion and absorption of proteins.

Carbohydrate Metabolism :-Major metabolic pathways: Glycolysis, pyruvate oxidation, Citric acid cycle, Gluconeogenesis, HMP Shunt pathway & glycogen metabolism ,Minor metabolic pathways: Metabolism of Fructose and Galactose, Regulation of blood sugar, glucose tolerance test, Diabetes mellitus& other disorders of carbohydrate metabolism.

Biologic Oxidation:-Redox potential ,High energy compounds ,Oxidative Phosphorylation , Electron transport chain.

Lipid metabolism:- Biosynthesis and degradation of fatty acids ,

Metabolism of cholesterol ,Ketone bodies: their synthesis, utilization and conditions leading to ketoacidosis ,Chemistry and metabolism of lipoproteins, hyper lipoproteinemias ,Prostaglandins ,Fatty liver, Obesity & other lipid storage disease.

Protein metabolism:- Overview of protein metabolism ,Nitrogen balance ,Formation and disposal of ammonia , General metabolism of amino acids, Inborn errors of amino acid metabolism.

UNIT IV-Molecular biology , Energy metabolism and Nutrition &Clinical biochemistry

Theory (4 Credits)

Molecular biology :- Chemistry of Nucleic acids: Definition, classification, composition of nucleic acids; Structure and function of DNA ; Types, structure & functions of RNA , Metabolism of Nucleic acids : Synthesis and breakdown of purines; Synthesis and breakdown of pyrimidine ,DNA Replication, Inhibitors of DNA replication ,DNA Transcription & Post-transcriptional processing. Genetic code ,Protein synthesis, inhibitors of protein synthesis & Post-translational processing ,Integration of metabolism ,Metabolic effects of insulin & glucagon ,The feed/fast cycle ,Biochemistry of starvation.

Biochemistry of blood :- Porphyrins, Synthesis and degradation of heme; Porphyria; Jaundice ,Structure & functions of hemoglobin ,Abnormal hemoglobins & hemoglobinopathies, Plasma Proteins , Immunoglobulins ,Blood pH & its regulation ,Role of kidney and lungs in maintaining pH of blood , Acidosis and Alkalosis

Energy metabolism and Nutrition :-Calorific value of foods ,Basal metabolic rate and its importance , Specific dynamic action ,Energy requirements for physical activity ,Balanced diet; Role of carbohydrates, proteins & lipids ,Nutritive value of proteins, protein-energy malnutrition (PEM).

Clinical biochemistry :-Tools of biochemistry ,Liver function tests ,Renal function tests ,Environmental biochemistry ,Environmental pollutants ,Xenobiotics, interaction with biomolecules, effects & metabolism ,Biochemical characteristics of cancer and carcinogenesis.

S.NO	NAME OF PRACTICAL	NATURE	CREDIT
1	General reactions Carbohydrates	Experiment	01
2	General reactions of proteins	Experiment	01
3	General reactions of non-protein-nitrogen compounds	Experiment	01
4	Analysis of Urine	Experiment	02
5	Blood Sugar estimation by Glucose Oxidase method	Experiment	01
6	Colorimetry and colorimeter	Experiment	01
7	Paper chromatography	Experiment	01
8	Electrophoresis	Experiment	01
9	Glucose tolerance test (GTT)	Experiment	01

Recommended Text Books:

1. Text book of Biochemistry - by U. Sathyanarayana, U Chakrapani
2. Text book of Biochemistry – by DM Vasudevan, Sreekumari S

Reference Books:

1. Harper’s Illustrated Biochemistry, Robert K. Murray, Daryl K. Granner, and Victor W. Rodwell.
2. Biochemistry. Lubert Stryer. W.H. Freeman and Company, New York.

SUBJECT :- PHILOSOPHY OF NATUROPATHY

Unit 1: Introduction to Nature Cure or Naturopathy

Theory (Credits: 10)

The Medical Profession & Medical Evolution- an Introduction, Concept of Health & Disease through the ages ,The Human Body ,The evolution of human body ,Philosophy of the body, mind, soul, life, spirit and spiritual body with reference to various cultures, philosophies, Vedas and Modern view ,Composition of the human body, according to *Ayurveda*, Naturopathy, *Yoga*, Modern Medicine, Homeopathy.

An Introduction to Nature Cure or Naturopathy- Definitions, concepts & theories of various pioneers in the field , History of Naturopathy & Philosophy of Naturopaths ,Chronological highlights of Naturopathy ,Philosophy of Indian Naturopaths. Vegiraju Krishnamaraju ,Vinoba Bhave ,Mahatma Gandhi. Dr. S. J. Singh ,Dr. J. M. Jussawala ,Philosophy of Foreign Naturopaths. Aesculapius , Hippocrates ,The School of Salerno ,Paracelsus. Vincent Priessnitz , Sebastian Kneipp ,Arnold Rickli ,Louis Kuhne ,Adolf Just ,John H Tilden ,Sigmund Freud ,Henry Lindlahr ,Fundamental principles, concepts & theories of Naturopathy. Laws of Nature according to Henry Lindlahr ,Catechism of Nature Cure according to Henry Lindlahr ,Concepts of Health according to Naturopathy ,Concepts of Disease according to Naturopathy

Unit 2- Principles & concepts of Naturopathy

Theory (Credits: 10)

The 10 basic principles of Naturopathy :- Principles of Natural Medicine in the West ,The Healing Power of Nature (*Vis Medicatrix Naturae*) ,Identify and Treat the Causes (*Tolle Causam*) ,First Do No Harm (*Primum Non Nocere*) ,Doctor as Teacher (*Docere*) ,Treat the Whole Person ,Prevention ,Herring's law of cure.

Concept of Panchamahabhootas & Naturopathy.

Foreign matter and toxins accumulation in the body and its importance in elimination through different ways or channels. Unity of disease, Unity of cure and way of treatment.

Theory of Toxemia- Toxins and anti-toxins, their generation, mitigation in nature cure way

Concept of Vitality & Vital economy

How Nature Cures- The Natural healing mechanisms :- Arogya Rakshak Panchatantras and their importance in maintenance of good health prevention of diseases and treatment of diseases through lifestyle modification. Shareera Dharmas – Ahara, Nidra Bhaya, Maithuna ,

Natural Immunity & how to acquire natural immunity in diseases. Inflammation- Naturopathic perspective.

Unit - 3 Diagnostic procedures in Naturopathy & Modern Medicine

Theory (Credits: 10)

Naturopathy: a blend of Drugless Therapies :- Holistic approach of Naturopathy ,Modern perspectives of Naturopathic Medicine ,Understanding Homeostasis ,Metabolism of Xenobiotics ,Aging, Free Radicals and Antioxidants ,Hygiene & importance of physical and mental hygiene in health and disease ,Vaccinations and inoculation – The Naturopathic view.

Family planning by Natural therapeutics.

Introduction to The Diagnostic procedures in Naturopathy :- Spinal Analysis ,Facial Diagnosis ,Iris Diagnosis ,Chromo Diagnosis ,Natural rejuvenation ,Personal life and prevention of diseases ,Geriatrics and Naturopathy ,Introduction to various systems of Medicine .

Modern Medicine :- Ayurveda ,Introduction ,Definition of Prakriti and its categories. Swastha Vrittam ,Dinacharya ,Ratricharya ,Ritucharya ,Vegadharanam ,Homeopathy , Unani

Siddha ,Comparative study of Naturopathy with other systems of Medicine ,Basic essentials of a Naturopathy practitioner - an introduction to qualities of a Naturopathy & *Yoga* , Practitioner, Approach to

the Patient with a Naturopathy view, Ethical considerations, Understanding the Scope & Limitations ,Recent Advances in Naturopathy & *Yoga* , Introduction to Psychosomatic Diseases & Psychoneuroimmunology ,Introduction to Mind-Body Medicine ,Lifestyle & psychosocial behavior ,Introduction to Integrative Medicine ,An introduction to Research & its importance in Naturopathy.

Recommended Books:

- Philosophy of Nature Cure Henry Lindlahr
- Practice of Nature Cure Henry Lindlahr

Reference books-

- My Nature Cure or Practical Naturopathy S.J. Singh
- The Science of Facial Expression Louis Kuhne

Sub: YOGA PRACTICAL

UNIT – I Asanas & Sukshma Vyayama **(Practical -15 Credit)**

Joint movements , Loosening exercises, Sukshma Vyayama , Stretchings, Breathing exercises, Suryanamaskara, Asanas

UNIT – II Pranayama & Kriya **(Practical - 05Credit)**

- **Pranayama-** Bhastrika, Sheetkari, Sheetal, Anuloma Viloma, Ujjayi, Bhramari
- **Kriya -** Jala neti , Sutra neti , Vamana dhauti

Recommended Books:

- Basis and definitions of Yoga – Vivekananda Kendra
- Asanas – Swami Kuvalyananda