

Subject title: PATHOLOGY- I (Duration: 12 months)

Subject Code: BNYS T 201 & BNYS P201

Total Number of Hours: 200	Theory: 100		Practical: 100	
Credits				
Hours/week				
SCHEME OF EXAMINATION				
Total Marks: 200				
Theory: 130			Practical: 70	
Final Theory Exam	Internal Assessment	Viva Voce	Final Practical Exam	Internal Assessment
80	20	30	60	10

GOALS AND OBJECTIVES

Goal:

The goal 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.

Objectives

Knowledge:

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

- 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.
- Describe the pathophysiological processes which govern the maintenance of homeostasis, mechanisms of their disturbance and the morphological and clinical manifestations associated with it;
- Delineate the mechanisms and patterns of tissue response to injury such that he/she can appreciate the pathophysiology of disease processes and their clinical manifestations;
- 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.

Skills:

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

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

THEORY

Unit-1: Introduction to Pathology

(5Hrs)

- i. History and Scope
- ii. Definition and various branches
- iii. Scientific study of disease and methodology
- iv. The cell and there action of cell, tissue and organ to injury
 - a. Structure and functions of cell
 - b. Causes and nature of cell injury
 - c. Toxic substances, physical agents and lack of nutrients
 - d. Infectious agents and parasites
 - e. Immune mechanisms and genetic defects
 - f. Reaction of cell to injurious agents
 - a) Lethal injury- necrosis and gangrene
 - b) Sub lethal injury
 - c) Cloudy swelling
 - d) Fatty changes in liver, heart and kidney
 - e) Glycogen infiltration and hyaline degeneration
 - f) Lipid degeneration Gaucher's disease
 - g) Mucoïd degeneration
 - h) Excessive or abnormal accumulations
 - i) amyloid
 - j) Pathological calcification

Unit- 2: Inflammation and Repair

(15Hrs)

- i. Definition, classification and nomenclature
- ii. Acute inflammation
 - a. Vascular and cellular phenomenon, cells of exudates chemical mediators and tissue changes in acute inflammation, cardinal signs of acute inflammation
 - b. Fate, types and systemic effects of acute inflammation
- iii. Chronic Inflammation
- iv. Difference between acute and chronic inflammation
- v. Definition of Granuloma
- vi. Wound healing
 - a. Restitution, regeneration and repair
 - b. Fracture healing
 - c. Repair of epithelial and mesenchymal tissue
 - d. Primary union and secondary union
 - e. Mechanism involved and factors modifying repair process

Unit-3: Granulomas

(5Hrs)

- i. Classification
- ii. Tuberculosis, genesis and fate of tubercle, primary and secondary tuberculosis
- iii. Definition, classification and pathology of leprosy
- iv. Acquired primary, secondary and tertiary stages syphilis
 - a. CNS syphilis, CVS syphilis and tertiary stages syphilis
- v. Actinomycosis, maduramycosis, rhinosporidiosis

- Unit -4: Fluid and Hemodynamic Changes (circulatory disturbances)** (5Hrs)
- i. Hyperemia, congestion and hemorrhage
 - ii. Thrombosis, embolism,
 - iii. DIC
 - iv. Ischemia, infarction
 - v. shock
- Unit -5: Immunopathology** (8Hrs)
- i. Basic pathological mechanism in autoimmune disorders
 - ii. Hypersensitivity reactions and its types
 - iii. Concept of immune deficiency disorders, SCIDs,
 - iv. Pathology of AIDS
- Unit-6: Growth disorders and definitions** (15Hrs)
- i. Introduction to growth disorders
 - ii. Definition of agenesis, aplasia, atrophy, hyperplasia, hypertrophy, hypoplasia, metaplasia
 - iii. Concept of dysplasia, anaplasia and carcinoma in situ
 - iv. Neoplasia
 - a. Definition, classification and nomenclature
 - b. Characteristic features of benign and malignant tumor
 - c. Route of spread of malignant tumors
 - d. Grading and staging of cancers and pre-cancerous conditions
 - e. Carcinogenesis and carcinogens
 - a) Viral carcinogenesis
 - b) Chemical carcinogenesis
 - f. Effect of tumor on host, and effect of host on tumors
 - g. Immune surveillance
 - h. Laboratory diagnosis of cancer –
 - a) Biopsy,
 - b) Exfoliative cytology,
 - c) prognostic prediction in cancer
 - d) FNAC
 - e) Tumour markers
 - i. Description of common tumors like – Fibroma, Lymphoma, Lipoma, Angioma, Leiomyoma, Fibrosarcoma, Lymphosarcoma, Liposarcoma, Angiosarcoma, and Leiomyosarcoma
 - j. Embryonal tumors like teratoma and retinoblastoma
- Unit -7: Mineral and Pigment Metabolism** (3Hrs)
- i. Pathology of melanin pigment
 - ii. Pathology of hemoglobin and its derivatives, porphyrias
 - iii. Hemosiderosis and hemochromatosis
- Unit- 8: Genetic disorders** (5Hrs)
- i. Klinefelter's Syndrome,
 - ii. Turner's Syndrome,
 - iii. Down's Syndrome, Mendelian disorders: autosomal dominant and recessive
 - iv. Genetic Diagnostic Techniques: Karyotyping, FISH

PRACTICAL

Unit- 1: Hematology

(50Hrs)

- i. Blood groups (ABO system)
- ii. Estimation of hemoglobin
- iii. Enumeration of RBCs (RBC count)
- iv. Total leucocyte count (Total count)
- v. Differential leucocyte count (DC)
- vi. Peripheral smear staining and reporting
- vii. Absolute eosinophil count

Unit-2: Clinical Charts for diagnosis

(50Hrs)

- i. Hemograms in anemia
- ii. Iron deficiency anemia
- iii. Macrocytic anemia
- iv. Microcytic anemia
- v. Hemolytic anemia
- vi. Meningitis
- vii. Enzyme levels in MI
- viii. Hemograms in leukemias
 - a. Acute types
 - b. Chronic types

Recommended books

1. Pathological basis of disease- Robbins, Cotran and Kumar
2. Textbook of Pathology- Harsh Mohan
3. Practical Manual by Harsh Mohan

Reference books

1. Textbook of Pathology- Anderson
2. Systemic Pathology- Symmers
3. Medical Laboratory Technology- Ramnik Sood

Subject title: PATHOLOGY- II (Duration: 12 months)

Subject Code: BNYS T 202 & BNYS P202

Total Number of Hours: 250	Theory: 150	Practical: 100		
Credits				
Hours/week				
SCHEME OF EXAMINATION				
Total Marks: 200				
Theory: 130		Practical: 70		
Final Theory Exam	Internal Assessment	Viva Voce	Final Practical Exam	Internal Assessment
80	20	30	60	10

THEORY

Unit-1: Haematological Disorder

(20Hrs)

- i. Disorders of RBC
 - a. Definition, morphologic and etio-pathologic classification of anemia
 - b. Iron deficiency anemia, B12 and folate deficiency anemia, sideroblastic anemia, post-hemorrhagic anemia
 - c. Concept and classification of hemolytic anemia
 - d. Thalassemia, sickle cell anemia, anemia of chronic diseases
 - e. Acquired hemolytic anemia and aplastic anemia
 - f. Polycythemia
 - g. Laboratory investigations in anemia
- ii. Disorders of WBC
 - a. Leukopenia, Leukocytosis
 - b. Leukemias: ALL, CLL, AML, CML
 - c. Agranulocytosis and Tropical eosinophilia
- iii. Coagulation and bleeding disorders
 - a. Structure, function and pathology of platelets
 - b. Definition and classification of blood dyscrasias
 - c. Haemophilias
 - d. Laboratory investigations in bleeding disorders: PT, BT, PTT

Unit- 2: Diseases of cardiovascular system

(10Hrs)

- i. Arteriosclerosis and atherosclerosis
- ii. Aneurysm
- iii. Vasculitis and thrombo angitis obliterans
- iv. Rheumatic heart disease, endocarditis,
- v. Hypertension: primary, secondary
- vi. Angina: Stable, Unstable, Prinz metals
- vii. Myocardial infarction: morphological changes, enzymatic changes, markers
- viii. Congenital heart diseases, pericarditis
- ix. Congestive cardiac failure

Unit- 3: Diseases of Respiratory system

(8Hrs)

- i. Lobar pneumonia, broncho pneumonia, pulmonary tuberculosis
- ii. Atelectasis, bronchiectasis and pneumoconiosis

- iii. Chronic Obstructive Pulmonary Diseases (COPD)
 - a. Emphysema
 - b. Chronic bronchitis
 - c. Bronchiectasis
- iv. Bronchial asthma
- v. Acute respiratory distress syndrome(ARDS)
- vi. Tumors of lung and pleura: mesothelioma, small cell carcinoma, adenocarcinoma

Unit 4: Diseases of gastrointestinal system (8Hrs)

- i. Pleomorphic adenoma of salivary gland
- ii. Barrett's esophagus
- iii. Gastritis and peptic ulcer disease, duodenal ulcers, H. Pylorii infection
- iv. Tumors of stomach
- v. Inflammatory bowel diseases– Crohn's disease, ulcerative colitis, typhoid
 - a. ulcer, tumors of small intestine
 - b. Mega colon
 - c. Mickel's diverticulum, volvulus, intuss ception
 - d. Tumors of colon: benign (polyps) and malignant
 - e. Malabsorption syndrome, tropical sprue and celiactuberculosis
 - f. Acute appendicitis

Unit-5: Diseases of liver, biliary tract and pancreas (10Hrs)

- i. Liver function test
- ii. Alcoholic hepatitis
- iii. Cirrhosis of liver, portal hypertension, hepatic failure
- iv. viral hepatitis: HAV, HCV, HBV
- v. Tumors of liver: HCC
- vi. Cholecystitis, gall stones
- vii. Acute and chronic pancreatitis, diabetes mellitus
- viii. Liver abscess

Unit-6: Diseases of Kidney (8Hrs)

- i. Renal function tests, polycystic kidney
- ii. Acute renal failure
- iii. Acute glomerulonephritis (post-streptococcal), crescentric glomerulonephritis, membranous glomerulonephritis, nephritic syndrome, nephrotic syndrome
- iv. Chronic glomerulonephritis, acute tubular necrosis
- v. Pyelonephritis,
- vi. Kidney in hypertension, chronic renal failure
- vii. Urolithiasis,
- viii. Tumors of kidney and pelvis

Unit-7: Diseases of Male Genital System (3Hrs)

- i. Orchitis and testicular tumors
- ii. Nodular hyperplasia of prostate, carcinoma of prostate
- iii. Carcinoma of penis and pre-malignant lesions of penis

Unit- 8: Diseases of Female Genital System (5Hrs)

- i. Endometrial hyperplasia, adenomyosis and endometriosis

- ii. Carcinoma of cervix, tumors of ovary
 - a. Risk factors, tumour markers
 - iii. Pelvic inflammatory diseases
 - iv. Carcinoma and other diseases uterus: leiomyoma
- Unit-9: Diseases of Breast** (5Hrs)
- i. Fibrocystic disease of the breast, fibro adenoma
 - ii. Carcinoma breast
 - iii. Gynecomastia, Paget's disease
- Unit- 10: Endocrine pathology** (8Hrs)
- i. Pituitary adenomas, acromegaly,
 - ii. Hypothyroidism and Grave's disease
 - iii. Thyroiditis, tumors of thyroid and thyroid function tests
 - iv. Hypo parathyroidism and hyperparathyroidism
 - v. Hyper plasia and adenoma of parathyroid
 - vi. Adrenal gland, Addison's disease, Cushing's syndrome
 - vii. Pheochromo cytoma, neuro blastoma
- Unit-11: Musculoskeletal pathology** (6Hrs)
- i. Osteomyelitis and osteoporosis
 - ii. Rickets and osteomalacia
 - iii. Osteitis fibrosacystic and Paget's disease, fibrous dysplasia
 - iv. Duschenne muscular dystrophy
 - v. Tumors of bone
 - a. Osteoma
 - b. Osteosarcoma
 - c. Ewing's Sarcoma
 - d. Chondrosarcoma
- Unit-12: Autoimmune Disorders** (4Hrs)
- i. Introduction to autoimmunity: basic mechanisms
 - ii. Rheumatoid arthritis, Gout
 - iii. Myastheniagravis
 - iv. Systemic lupus erythymatosus
- Unit-13: Diseases of Nervous System** (7Hrs)
- i. Meningitis,
 - ii. Tumors of CNS
 - a. Meningioma
 - b. Astrocytoma
 - iii. Tumors of peripheral nerves
 - a. Neuro fibroma
 - b. Schwannoma
 - iv. Encephalitis
 - v. Degenerative Diseases
 - a. Parkinson's disease
 - b. Alzheimers's disease
 - c. Multiple sclerosis
 - d. Motor neuron disease
 - e. Prion disease

f. Vit B12 deficiency: sub-acute combined degeneration of spinal cord

Unit-14: Diseases of Lymph nodes and Spleen (3Hrs)

- i. Lymphadenopathy, reactive lymphadenitis
 - a. Bacterial (tubercular)
 - b. Viral
- ii. Lymphomas
 - a. Hodgkins
 - b. Non-hodgkins
- iii. Spleno megaly

Unit-15: Pathology of skin (3Hrs)

- i. Squamous cell carcinoma, basal cell carcinoma
- ii. Malignant melanoma
- iii. Warts, molluscum contagiosum
- iv. Superficial and deep fungal diseases
- v. Pemphigus vulgaris

PRACTICAL

Unit- 1: Slide study of (40Hrs)

- a. Acute myeloid leukemia
- b. Chronic myeloid leukemia
- c. Chronic lymphatic leukemia
- d. Anemia: macrocytic , microcytic
- e. Plasmodium falciparum malaria
- f. Lipoma
- g. Acute appendicitis
- h. Gastric carcinoma
- i. Carcinoma breast
- j. Emphysema
- k. Cirrhosis of liver
- l. Osteogenic sarcoma
- m. Myocardial infarction
- n. Pulmonary tuberculosis

Unit 2: Specimen of (40Hrs)

- a. Gastric carcinoma
- b. Carcinoma breast
- c. Bronchogenic carcinoma
- d. Cirrhosis of liver
- e. Leiomyoma
- f. Cardiac hypertrophy
- g. Osteogenic sarcoma
- h. Astroctoma
- i. Appendicitis

Unit 3: Clinical pathology

(20Hrs)

- a. Urine analysis
- b. Semen analysis
- c. CSF analysis

Recommended books:

1. Pathological basis of disease- Robbins, Cotran and Kumar
2. Textbook of Pathology- Harsh Mohan
3. Practical Manual by Harsh Mohan

Reference Books

1. Textbook of Pathology- Anderson
2. Systemic Pathology- Symmers
3. Medical Laboratory Technology- Ramnik Sood

Subject Name: MICROBIOLOGY

Subject Code: BNYS T 203 & BNYS P 203

Total Number of Hours: 250		Theory: 150		Practical: 100	
Credits					
Hours/week					
SCHEME OF EXAMINATION					
Total Marks: 200					
Theory: 130			Practical: 70		
Final Theory Exam	Internal Assessment	Viva Voce	Final Practical Exam	Internal Assessment	
80	20	30	60	10	

Goal and objectives

Goals:

The goal 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 disease in the community.

Objectives:

After the completion of the student shall be able to:

- Remember and recall all the infectious micro-organisms of the human body and host-parasite relationship.
- Describe parasitic micro-organisms (viruses, fungi, bacteria, parasites) with the pathogenesis of the diseases they cause.
- Enumerate and illustrate sources and modes of transmission, including insect vectors, of pathogenic and opportunistic organisms;
- Describe the pathways and mechanism of immunity to infection.
- Acquire knowledge about different vaccines that are available for the prevention of communicable diseases;
- Effectively use sterilization and disinfection to control and prevent nosocomial and community acquired infection;
- Order laboratory investigations for bacteriological examination of food, water and air.

Skills:

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

- Prescribe and interpret laboratory investigations for diagnosis of communicable diseases and identify infectious agents by clinical manifestations;
- Perform common bed-side tests to detect and identify pathogenic agents, such as blood film for malaria, filarial, gram stain and stool sample for ova cyst, etc.

THEORY

Unit-1: Immunology

(25Hrs)

- i. Immunity
- ii. Structure and Function of Immune System
- iii. Antigen

- iv. Antibodies-Immunoglobulins
- v. Antigen and Antibody reactions
- vi. Complement System
- vii. Immune response
- viii. Hypersensitivity
- ix. Auto immunity
- x. Transplantation Immunity & Tumor Immunity

Unit-2: General Bacteriology (22Hrs)

- i. Introduction & History
- ii. Morphology & Physiology of bacteria
- iii. Sterilization & disinfection
- iv. Culture media
- v. Culture method (aerobic & anaerobic)
- vi. Identification of bacteria
- vii. Classification of bacteria
- viii. Bacterial antibiotics and sensitivity test
- ix. Bacterial genetics
- x. Mechanism of bacterial drug resistance
- xi. Infection and mechanism of bacterial pathogenesis

Unit-3: Systemic Bacteriology (27Hrs)

- i. Staphylococcus
- ii. Streptococcus
- iii. Pneumococcus
- iv. Meningococcus & Gonococcus
- v. Corynebacterium
- vi. Clostridium
- vii. Haemophilus
- viii. Mycobacterium
- ix. Spirochaetes
- x. Bordetella
- xi. Chlamydia
- xii. Enterobacteriaceae
- xiii. Vibrio
- xiv. Pseudomonas

Unit-4: Virology (22Hrs)

- i. General properties of Viruses (Structure, replication, cultivation, anti-viral drugs, vaccines)
- ii. Virus-host interactions
- iii. Virus infection
- iv. Herpes Virus
- v. Adeno virus
- vi. Polio virus
- vii. Influenza virus
- viii. Measles, Mumps & Rubella Virus
- ix. Hepatitis virus
- x. Rhabdo virus

xi. HIV

Unit-5: Parasitology

(26Hrs)

- i. Introduction & Classification
- ii. Entamoeba histolytica
- iii. Plasmodium
- iv. Leishmania
- v. Trypanosoma
- vi. Balantidium coli
- vii. Giardia lamblia
- viii. Taenia(saginata,solium)
- ix. Echinococcusgranulosus
- x. Schistosomahaematobium
- xi. Fasciola hepatica
- xii. Trichinella(spiralis,trituria)
- xiii. Strongiloidesstercoralis
- xiv. Ancylostomadeodenale
- xv. Ascarislumbricoides
- xvi. Wuchereriabancrofti
- xvii. Brugiamalayi
- xviii. Loa loa
- xix. Dracunculusmedinensis

Unit-6: Mycology

(18Hrs)

- i. General characteristics & Classification
- ii. Superficial Mycoses- Trichophyton, Microsporidium, Epidermiphyton, Candida, Pityriosisversi color,Teneanigra, Piedrahartae)
- iii. Subcutaneous Mycoses(Rhinosporidium, Spirothrix, Mycetoma)
- iv. Systemic Mycoses(Cryptococcus, Histoplasma, Blastomyces, Coccidioidomyces)
- v. Opportunistic Mycoses(Aspergillus,Mucor,Rhizopus,Fusarium,Penicillium,Cladosporium)

- Unit-7: Applied Microbiology** (10Hrs)
- i. Normal flora
 - ii. Bacteriology of water
 - iii. Immuno Prophylaxis
 - iv. Infections-Meningitis, Gastroenteritis, Respiratory Infection, UTI, PUO, Endocarditis.
- PRICTICAL**
- Unit-1: Microscopes &its use** (4Hrs)
- i. Magnification
 - ii. Resolution
 - iii. Different types of microscopes
- Unit-2: Staining techniques** (14Hrs)
- i. Simple staining ,Differential staining (Gram’s method, Ziehl Neelsen’s method), Negative staining , Special staining &Impregnation method
- Unit-3: Tools of Microbiology** (10Hrs)
- i. Incubators, Centrifuges,Hot-Air –Oven, Autoclave, Inspissator, Inoculation loop,Pasteur pipettes, Depression slide, Anarobicjar, Filters, Tuberculin syringe, Surgical gloves, VDRL slides, Microtitreplate, Sterile swab, WIDAL rack
- Unit-4: Sterilization and disinfection** (8Hrs)
- Unit-5: Culture media** (15Hrs)
- i. Classification of Media
 - ii. Preparation of media-Liquid ,Solid, enriched media, selectivemedia, Indicator media
- Unit-6: Culture method** (8Hrs)
- i. Principals of isolation &identification
 - ii. Inoculation
 - iii. Identification of bacteria
- Unit-7: Methods of antimicrobial sensitivity test** (4Hrs)
- i. Disk diffusion
 - ii. Tube dilution
- Unit-8: Serological tests** (8Hrs)
- i. VDRL
 - ii. WIDAL
 - iii. ELISA
- Unit-9: Mycology** (10Hrs)
- i. Demonstration of fungus by KOH/lactophenol cotton blue staining
 - ii. Demonstration of yeast cells in Gram stains &Culture
 - iii. Aspergillus, mucor & penicillium cultures
- Unit-10: Parasitology** (15Hrs)
- i. Examination of stool for ova, parasites & cyst
 - ii. Blood parasites –Malaria parasite, L.D. body, Microfilaria
 - iii. Adult parasites-Nematodes, Cestodes, Trematodes

Recommended books

1. Text book of Microbiology –R Ananthanarayana and CK Jayakumar
2. Text book of Microbiology – C P Baveja
3. Parasitology-JayaramPanicker
4. Bacteriology –Dey
5. Text book of Microbiology –Chakraborty
6. Text book of practical Microbiology –Subhash Chandra Parija

Reference books

1. Parasitology –Chaterjee
2. Practical microbiology-R Cruick Shank
3. Clinical microbiology –Bailey &Scott
4. Immunology and Microbiology-Gupta

Subject Name: COMMUNITYMEDICINE

Subject Code: BNYS T 204 & BNYS P 204

Total Number of Hours: 250	Theory: 150	Practical: 100		
Credits				
Hours/week				
SCHEME OF EXAMINATION				
Total Marks: 200				
Theory: 130		Practical: 70		
Final Theory Exam	Internal Assessment	Viva Voce	Final Practical Exam	Internal Assessment
80	20	30	60	10

Goals and objectives

Goals:

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

Objectives

Knowledge:

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

- Describe the health care delivery system including rehabilitation of the disabled in the country.
- Describe the National Health Programmes with particular emphasis on maternal and child health programmes, family welfare planning and population control.
- List epidemiological methods and describe their applications to communicable and non-communicable diseases in the community or hospital situation.
- Apply bio-statistical methods and techniques; delineate the demographic pattern of the country and appreciate the roles of the individual family, community and socio-cultural environment in health and disease.
- Explain the health information systems; enunciate the principles and components of primary health care and national policies to achieve the goal of 'Health administration, Health education in relation to community'.
- Able to plan a Health Program and able to evaluate a Programme.
- Able to describe principles of organization.

Skills:

After the end of the course, the student should be able to:

- Use epidemiology as a scientific tool for making national decisions relevant to community and individual patient intervention.
- Collect, Analyses, interpret and present simple community and hospital based data.
- Diagnose and manage common health issues and emergencies at the individual family and community levels with existing healthcare resources, respecting socio-cultural beliefs.
- Diagnose and manage maternal and child health problems and conduct family planning counseling and community programs keeping in mind national priorities
- Diagnose and manage common nutritional problem at individual and community level.

- Design, implement and evaluate health education program using simple audio-visual aids
- Participate with team members in organizing and implementing health care programs; Conduct group meetings, give talks on medical issues.

THEORY

Unit- 1: Concepts of Health & Concept of Disease (15Hrs)

- Man and Medicine: Towards Health for All
- Concept of Health
- Definitions of Health
- Dimensions of Health
- Determinants of Health
- Positive health
- Concept of wellbeing
- Responsibility towards health
- Health development and its indicators
- Health science philosophies
- Concepts of causation
- Natural history of disease
- Concepts of control and prevention
- Modes of intervention
- Population medicine
- International classification of diseases

Unit- 2: Epidemiology and Epidemiologic Methods (22Hrs)

- Definition, basic measurements in epidemiology
- Epidemiological methods – descriptive, analytical and experimental epidemiology
- Uses of epidemiology
- Dynamics of disease transmission
- Disease prevention and control
- Investigation of an Epidemic
- Screening of diseases: Concepts, Uses, Criteria for screening, sensitivity & specificity

Unit- 3: Epidemiology of Communicable & Non-Communicable Diseases (25Hrs)

- Respiratory infections – small pox, varicella, measles, rubella, mumps, influenza, diphtheria, pertussis, tuberculosis, acute respiratory tract infection (ARTI)
- Intestinal infections – polio, viral hepatitis, cholera, acute diarrheal diseases, typhoid, food poisoning, amoebiasis, ascariasis, ancylostomiasis, taeniasis.
- Arthropod – borne infections – yellow fever, Japanese encephalitis, malaria, filarial
- Surface infections – rabies, trachoma, tetanus, leprosy, STD, AIDS
- Epidemiology of non-communicable diseases – cancer, cardiovascular diseases, obesity, blindness, accidents, hypertension, stroke, rheumatic heart disease

- Unit- 4: Family Health** (20Hrs)
- i. Family Planning – Demographic cycle, population trends, fertility related statistics, health aspects of family planning, contraceptive methods and delivery system, National family welfare program.
 - ii. Preventive medicine in Obstetrics, Pediatrics and Geriatrics – Antenatal, Intranatal, Postnatal care, Low birth weight, infant feeding, growth and development, growth chart, under-fives clinic, national health policy, indicators of MCH care, school health services, behavioral problems, geriatrics, Anganwadi, ICDS programs.
- Unit- 5: Environmental Issue** (20Hrs)
- i. Environmental health and occupational health: Purification of water and water quality standards, air, ventilation, lighting, noise, radiation, air temperature and humidity, housing, solid wastes disposal and control, excretory disposal, water carriage system, modern sewage treatment,
 - ii. Entomology-mosquito, housefly, lice itch mite, Cyclopes, rat flea, rodents, insecticides-hazards, diseases, pre-placement examination, measures for general health, protection of workers, prevention of occupational hazards
- Unit- 6: Statistics & Health Education** (17Hrs)
- i. Basic Medical Statistics: Census, Vital events, , SRS, , measures of dispersion and centering, sampling, tests of significance, correlation and regression
 - ii. Health education and communication: Objectives, principles, aids, practice of Health education, planning and evaluation
- Unit- 7: Healthcare of Community** (15Hrs)
- i. Health planning – Management – International health organizations: Planning cycle, management methods and techniques, national health policy, health planning in India, five year plans, health systems in India, five year plans, health systems in India – at center, state and district levels, panchayat raj, rural development schemes
 - ii. Healthcare of community – Health System and National Programs: Levels of healthcare, Health for All, primary healthcare, healthcare delivery, health problems, healthcare services and systems, voluntary health agencies, national health programs
 - iii. International health agencies: WHO,UNICEF,RED CROSS
 - iv. Voluntary health agencies.
- Unit -8: Nutrition and Health** (16Hrs)
- i. Classification of food, vitamin, mineral, carbohydrate, protein, fat, energy balance, balanced diet, nutritional problems in public health, low birth N+PEM, xerophthalmia, nutritional anemia, IDPs, endemic fluorosis, lathyrism,
 - ii. Assessment of nutritional status, nutritional surveillance, social aspects of nutritional food hygiene, food-borne disease, Legislation

PRACTICAL

- Unit- 1: Field Visit** (25Hrs)
- i. Posting at any PHC, CHC, RHC or district hospital for National Immunization Program
 - ii. Nutritional Assessment Surveys

- iii. 1 day workshop or awareness program on AIDS with NACO
- iv. Posting at Blood donation camp
- v. Anganwadi, PHC / CHC / RHC / District hospital and understanding description of existing healthcare services

Unit- 2: Study on Health Related Problem in the Community (25Hrs)

- i. Family Health Advisory Service
- ii. To study the family structure & health status of individual members with reference to
 - a. General health status
 - b. Socio-economic status
 - c. Nutritional status
 - d. Environmental
 - e. Immunization status
 - f. Family welfare planning status
- iii. Health Practices in 4 conditions
 - a. Pulmonary Tuberculosis
 - b. Index case: occupation, literacy, social status etc.
- iv. Preventive measures for other family members
 - a. Health education
 - b. Antenatal Care
 - c. Literacy of the family and woman
 - d. Customs – social / religious during pregnancy, delivery, lactation
 - e. Dietary habits: knowledge, aptitude and practices
 - f. Antenatal high risk care
 - g. Health education, family planning advice
 - h. Protein energy malnutrition
 - i. Socio-economic status of family
 - j. Infant feeding and weaning practices
- v. Social customs regarding diet for children

Unit -3: <u>Models</u>		(25Hrs)
i. Insecticides	10+ models	
ii. Universal Immunization Program	10+ models	
iii. Communicable diseases	10+ models	
iv. Insect-borne diseases	10+ models	
v. Microscope slides	10+ models	
vi. Environment and Sanitation	10+ models	

Unit 4: <u>Bio- Statistical charts</u>		(25Hrs)
i. Bar charts		
ii. Histogram		
iii. Line diagram		
iv. Pie charts		
v. pictogram		

Recommended books:

1. Textbook of Preventive and Social Medicine – JE Park & K Park
2. Textbook of Preventive and Social Medicine – BK Mahajan& MC Gupta

Reference books:

1. Preventive medicine – Ghosh
2. Preventive medicine – Yeshpal

Reference papers:

1. WHO Program papers
2. National Health Program Papers
3. Voluntary health Program Papers
4. Red Cross Program papers
5. UNICEF Program Papers

Subject name: YOGA PHILOSOPHY

Subject code: BNYST-205, BNYSP-205

Total number of hours: 350	Theory:150	Practical: 200		
Credits				
Hours/week				
SCHEME OF EXAMINATION				
Total marks-200				
Theory: 130		Practical:70		
Final theory exam	Internal assessment	Viva	Final practical exam	Internal assessment
80	20	30	60	10

Goals and Objectives

Goal:

The goal 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*.

Objectives

Knowledge:

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

- Explain the basic understanding of *Yoga* as a philosophy
- Describe the various schools of philosophy which had an influence on *Yogic text* like buddhism, *samkhya*, *mimamsa* etc.
- Comprehend the concept of *brahman* according to *vedanta*

Skills:

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

- Perform and demonstrate various *asanas*, *pranayamas*, *kriyas* and meditations;
- Describe various philosophies of *Yoga* and apply them therapeutically, relating to a patient's life situation or personality.

THEORY

Unit-1: Nyaya and Vishesika

(10Hrs)

- Nature of physical world
- Individual soul, liberation and concept of supreme soul in Indian philosophy
- Theory of body, mind and soul and philosophical background
- Category of substance-Nava dravyas
- Category of quality-24 gunas

Unit-2: Sankhya and Vedanta

(10Hrs)

- Theory of cause and effect; Prakriti and Purusha
- Process of evolution of universe and concept of liberation
- Practical teachings of Sankhya
- Concept of Atman, Brahma, Maya, Universe, God; the self and human life
- Liberation and means of attaining it

Unit-3: Buddhism and Mimamsa

(20Hrs)

- Four main schools of Buddhist philosophy

- ii. Atman, Brahma, Maya, Universe, God; the self and human life
- iii. Major teachings of Mimamsa system; selfless action, nonattachment, self-control, self-discipline,
- iv. Daily schedule for psychophysical wellbeing, social awareness, sense of equality, unity with diversity, selectiveness.

Unit-4: Concept of mind, Obstacles and Kleshas in the context of Patanjali Yoga Sutras

(20Hrs)

- i. Concept of Chitta, Chittabhamsis, Chitta-vrttinirodhapaya (Abhyasa and Vairagya), Chittavikshepas (Antarayas) and Chitta-prasadanam
- ii. Obstacles and hindrances of Sadhana (Vyadhi, Styana, Samsaya, Pramada, Alasya, Avirati, Bhranti, Alabdha, Bhumikatva, Anavasthi)
- iii. Cultivating positive attitudes
- iv. Kriya Yoga (Tapas, Svadhyaya, IsvaraPranidhana)
- v. Pancaklesah (Avidya, Asmita, Raga, Dvesa, Abhinivesah)
- vi. Methods of destroying Klesas (Pratiprasava and Dhyana)

Unit-5: Samadhi, concept of Vibhuti and Kaivalya

(15Hrs)

- i. Type and nature of Samadhi
- ii. Samprajnata, Asamprajnata, Sabija&Nirbija Samadhi
- iii. Difference between Sapattis and Samadhis
- iv. Samyama& three Parinama of Samyama
- v. The concept and description of Ashta siddhis
- vi. Nature of Kaivalya, Kavalya in relation to Triguna and Dharmamegha Samadhi

Unit-6: Hatha Yoga its philosophy and practices

(15Hrs)

- i. Hatha Yoga, its meaning, definition, aim & objectives and misconceptions
- ii. Concept of Mathika, rules and regulations to be followed by a Hatha Yogi
- iii. Concept of Mitahara, Pathya and Apathya
- iv. Relationship between Hatha Yoga and Raja Yoga

Unit-7: Shodhana Kriyas and Asanas

(15Hrs)

- i. Shodhanakriyas in Hatha yoga pradipika and GheranadSamhita, their benefits and precautions
- ii. Role of Shodhana-kriyas in Yoga sadhana and their importance
- iii. Yogasana, its definition, salient features and in importance in hatha Yoga sadhana
- iv. Asanas in Hatha Yoga pradipika and Gherandasamhita, their techniques, benefits, precautions and importance

Unit-8: Pranayama, Bandhas and Mudras

(10Hrs)

- i. Concept of Puraka, Kumbhaka and Rechaka
- ii. Pranayama and its importance in Hatha Yoga sadhana
- iii. Astakubhakas, their benefits and Precautions
- iv. Pranayama practices in Hatha Yoga and Gherandasamhita
- v. Bandhas and role of Bandhatrayas in Yoga sadhana
- vi. Fundamental mudras in Hatha Yoga and Gherandasamhita, benefits and precautions

Unit-9: Pratyahara, Nadanusandhana and Samadhi in Hatha Yoga and Gheranda Samhita

(15Hrs)

- i. Concept of Pratyahara, Dharana and Dhyana in Gherandasamhita, their techniques and benefits

- ii. Concept of Samadhi in Hatha Yoga pradipika, Samadhi lakshanam and Hatha yoga siddhi lakshanam
- iii. The concept of Nada, four avasthas (stages) of Nadasandhana and its Siddhis
- iv. Concept of Bindu, its evolution and techniques to preserve it

Unit-10: Concept of Ghata, Dhyana, Samadhi and Svava Yoga in the context of Gherandasamhita and Shiva svarodaya (20Hrs)

- i. Concept of Ghata and its correlation with body and importance of a Ghata Yoga
- ii. Concept of Dhyana and its types (Sthula, Jyoti and Sukshma)
- iii. Concept of Samadhi and its types (Dhyana yoga, Nada yoga, Rasananda yoga, Laya siddhi yoga, Bhakti yoga and Raja yoga)
- iv. Concept of Svava, its significance with reference to Shiva svarodaya

PRACTICAL

1. Entire first year syllabus. (40Hrs)
2. Asanas (50Hrs)
 - i. Sitting
 - a. Siddhasana
 - b. Bhadrasana
 - c. Samasana
 - d. Swastikasana
 - e. Simhasana
 - f. ArdhaMatsyendrasana – 2
 - g. Kurmasana
 - h. Mayurasana
 - i. Sirshasana
 - j. AkarnaDhanurasana
 - k. ParivartaJanusirshasana
 - l. Tolangulasana
 - ii. Prone
 - a. Shalabhasana – 2 and 3
 - iii. Supine
 - a. Yoga nidrasana
 - b. Garbhasana
 - c. Karnapeedasana
 - d. Naukasana
 - iv. Standing
 - a. ArdhaKatichakrasana
 - b. Parshvakonasana
 - c. Konasana
 - d. Padangushtasana
 - e. Garudasana
 - f. Padahastasana (Advanced)
3. Pranayama (40Hrs)
 - i. Bhramari
 - ii. Ujjayi
 - iii. Surya anulomaviloma

4. Kriya (30Hrs)
 i. VastraDhauti
 ii. Trataka – Jyoti & Bindu
 iii. Kapalabhati
5. Practice session (40Hrs)

Recommended books:

1. Basis and definitions of Yoga – Vivekananda Kendra
2. Asanas – Swami Kuvalyananda
3. The gospel of Buddha – Parul Caruso
4. The Gospel of Shri Ramakrishna – Mahendranatha Gupta
5. Complete works of Shri Aurobindo
6. Asanas, Pranayama, Bandhas, Mudras – Swami SatyanandaSaraswathi
7. Hatha Yoga Pradipika – Swami Svatmarama
8. Raja, Hatha, Jnana, Bhakti Yoga – Swami Vivekananda

Subject title: BASIC PHARMACOLOGY (Duration: 12 months)

Subject Code: BNYS T 206& BNYS P206

Total hours: (Theory 100)

Total Number of Hours: 100	Theory: 100		Practical: NA	
Credits			NA	
Hours/week			NA	
SCHEME OF EXAMINATION				
Total Marks: 150				
Theory: 150			Practical: NA	
Final Theory Exam	Internal Assessment	Viva Voce	Final Practical Exam	Internal Assessment
80	20	50	NA	NA

Goals and objectives

Goal:

The goal of teaching Pharmacology to undergraduate students is to provide a comprehensive knowledge of scientific, evidence based treatment of diseases through drug administration.

Objectives

Knowledge:

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

- Illustrate pharmacokinetics and pharmacodynamics of essential and common drugs

Skills:

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

- Be proficient in describing pharmacokinetics and pharmacodynamics of essential and common drugs
- Observe medical ethics in his professional practice

THEORY

Unit-1: General Pharmacology

(12Hrs)

- i. Nature and sources of drugs
- ii. Routes of administration
- iii. Absorption and bioavailability of a drug – factors affecting drug absorption and its bioavailability
- iv. Distribution of a drug in the body
 - a. Plasma concentration
 - b. Drug storage
 - c. Placental transfer
- v. Fate of the drug
- vi. Drug excretion
- vii. Drug receptors
- viii. Mechanism of action of a drug – types of drug action
- ix. Adverse reaction to drug
- x. Drug toxicity in man –
 - a. drug intolerance
 - b. hemopoietic toxicity
 - c. hepatotoxicity
 - d. nephrotoxicity
 - e. abnormalities of taste and smell
 - f. behavioral toxicity
 - g. production of a disease
 - h. electrolyte disturbances
 - i. endocrine disturbances
 - j. skin toxicity
 - k. carcinogenesis
 - l. teratogenicity
 - m. drug dependence
- xi. Factors modifying the effects of a drug
- xii. Role of a placebo

Brief description of the following drugs

(Their mode of action, dosage, adverse reactions, the method of tapering their dosage, including the adverse effects with the abrupt stoppage of their use)

Unit -2: Drugs acting on the CNS

(11Hours)

- i. General sedatives
- ii. Anticonvulsant drugs
- iii. Opioid and Non-Opioid analgesics
- iv. Analgesics, antipyretics and non steroidal anti-inflammatory drugs (NSAID)
- v. CNS stimulants – Xanthine alkaloids
- vi. Psychopharmacology
 - a. Anti-anxiety drugs
 - b. Anti-depressant drugs – Classification, actions, adverse reaction (monoamine oxidase inhibitors, tricyclic compounds, carbamazepine, lithium)
 - c. antipsychotics and antimania

- d. Psychotogenic drugs – LSD, Mescaline, Cannabis
- Unit -3: Local Anesthetics – adverse reactions** (1Hr)
- Unit- 4: Drugs acting on ANS** (8Hrs)
- i. Cholinergic system and drugs
 - ii. Anticholinergic drugs
 - iii. Adrenergic system and drugs
 - iv. Alpha blockers
 - v. Beta blockers
 - vi. Skeletal muscle relaxants
 - vii. Anti-Parkinsonian drugs
- Unit-5: Biogenic Amines and Polypeptides** (2Hrs)
- i. Histamine and Antihistamine drugs
 - ii. Leukotrienes, Cytokines & PGs
- Unit -6: Drugs used in Respiratory Disorders** (4Hrs)
- i. Expectorants, Central cough suppressants, antitussives, mucolytic agents
 - ii. Pharmacotherapy of bronchial asthma and rhinitis
 - a. Drug therapy during an acute attack
 - b. Prevention of acute attacks
 - c. Treatment of status asthmaticus
 - d. Treatment of acute respiratory failure
 - e. Treatment of chronic persistent asthma
 - f. Drug therapy of rhinitis
- Unit -7: Cardiovascular drugs** (10Hrs)
- i. Drugs affecting renin-angiotensin system and plasma kinins
 - ii. Calcium channel blockers
 - iii. Congestive cardiac failure, Digitalis
 - iv. Pharmacotherapy of cardiac arrhythmias – Sodium channel blockers, beta blockers, potassium channel blockers, calcium channel blockers
 - v. Drugs used in angina and myocardial infarction
 - vi. Pharmacotherapy of Hypertension
- Unit -8: Drugs acting on Blood and blood forming organs** (3Hrs)
- i. Drugs effective in iron deficiency anemia, treatment of acute iron poisoning
 - ii. Drugs affecting coagulation
 - iii. Fibrinolytics, antifibrinolytics and antiplatelet drugs
- Unit -9: Water, Electrolytes and drugs affecting Renal functions** (3Hrs)
- i. Nutritional supplementation therapy
 - ii. Diuretic and Anti-diuretic drugs
- Unit -10: Drugs used in GIT disorders** (7Hrs)
- i. Appetizers, Digestants, Carminatives, Appetite suppressants and agents lowering serum lipid
 - ii. Antiemetics
 - iii. Drugs for diarrhea
 - iv. Pharmacotherapy of constipation
 - v. Pharmacotherapy of peptic ulcer

Unit- 11: <u>Chemotherapy</u>	(24Hrs)
<ul style="list-style-type: none"> i. Antimicrobials - general considerations ii. Sulfonamides, Cotrimoxazole, Nitrofurans iii. Quinolones iv. Penicillins v. Cephalosporins vi. Aminoglycosides vii. Macrolides, lincosamide, glycopeptide viii. Tetracyclines, chloramphenicol ix. Choice of an antimicrobial agent x. Chemotherapy of UTI, STD, Tuberculosis, Leprosy, Malaria, Amoebiasis, Viral infections, Helminthiasis, Fungal infections, Malignancy xi. Antiseptics and Disinfectants 	
Unit- 12: <u>Drugs used in Endocrine disorders</u>	(10Hrs)
<ul style="list-style-type: none"> i. Thyroid and antithyroidal drugs ii. Insulin and oral antidiabetic drugs iii. Adrenal cortical steroids iv. Gonadotropins, estrogens, progestins v. Antifertility agents and ovulation inducing drugs 	
Unit-13: <u>Therapeutic gases – oxygen carbon dioxide</u>	(1Hr)
Unit-14: <u>Vitamins</u>	(2Hrs)
Unit 15: <u>Immunotherapy, immuno-suppressants and immune-stimulants</u>	(1Hr)
Unit 16: <u>Drug Interactions</u>	(1Hr)

NOTE: All the drugs mentioned in the syllabus are strictly for understanding drug reactions and NOT to be prescriptive in nature. Students, after graduation are not expected to prescribe any of the above-mentioned medication.

Recommended books:

1. Pharmacology and Pharmacotherapeutics – RS Satoskar, SD Bhandarkar, SS Ainapure
2. Essentials of Medical Pharmacology – KD Tripathi
3. Pharmacology – Rang and Dale

Subject title: COLOUR THERAPY AND MAGNETO BIOLOGY (Duration: 12 months)

Subject Code: BNYS T 207& BNYS P 207

Total Number of Hours: 150	Theory: 90		Practical: 60	
Credits				
Hours/week				
SCHEME OF EXAMINATION				
Total Marks: 200				
Theory: 130			Practical: 70	
Final Theory Exam	Internal Assessment	Viva Voce	Final Practical Exam	Internal Assessment
80	20	30	60	10

Goals and objectives

Goal:

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

Objectives

Knowledge:

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

- Demonstrate 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;
- Understand 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;
- Be aware of the contraindications and harmful effects of colours and magnets;
- 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;

Skills:

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

- Diagnose various diseases and disorders of the body and mind using the principles of colour diagnosis;
- Outline and implement a plan of treatment using colours and magnets as therapeutic tools
- Evaluate the therapeutic values of colours and magnets in treatment of various diseases
- Utilise latest research finding in improving his/her professional practice

THEORY

Magnetobiology

Unit -1: Introduction to Magnetotherapy

(5Hrs)

- i. Definitions of magneto therapy
- ii. Historical highlights
- iii. Vedic references related to magneto therapy

- iv. Biomagnetism
- v. Effects on plants, birds and animals.
- vi. Effects on mankind
- vii. Principles electromagnetism

Unit -2: Magnets and Magnetism (10Hrs)

- i. Types of magnets
 - a. Natural
 - b. Artificial
 - c. Permanent
 - d. Electromagnets
- ii. Classification of magnets according to
 - a. Power
 - b. Shapes
 - c. Clinical use
- iii. Physical properties of magnets
 - a. Magnetic permeability
 - b. Ferromagnetic materials
 - c. Antiferromagnetic materials
 - d. Paramagnetic materials
 - e. Diamagnetic materials

Unit -3: Magnetic field and its impact on biological systems (15Hrs)

- i. Measurement of magnetic field
- ii. Mechanism of action of magnets in the body
- iii. Properties effects and corresponding features of north & south poles
- iv. Maintenance of permanent magnets
- v. Magnetic field deficiency syndrome
- vi. Magnetic overload
- vii. Earth as a huge magnet
- viii. Effect of biomagnetism in various organ systems

Unit- 4: Use of Magnets in Therapy (20Hrs)

- i. Modes of application of magnets
 - a. General
 - b. Local
 - c. Different kinds of magnetic devices used in application of therapy
 - d. Magnetic charging , mechanism, dosage and its effect and limitations
 - a) Water
 - b) Oil
 - c) Milk
 - d) Honey
- ii. Magnetic therapy through shad chakras
- iii. Contraindications, complications, and limitations of magneto therapy.
- iv. Harmful effects of EMF and measures for minimizing it.

Colour Therapy

Unit- 5: Introduction to Colour Therapy (5Hrs)

- i. Definition of colour therapy

- ii. Historical highlights
 - a. Ghadiyali's principle
 - b. Babbitt postulates
 - c. Modern history of color therapy
- iii. Classification of colors
- iv. How do rainbows form

Unit -6: Biophysics of Light (15Hrs)

- i. Physics of light
 - a. Electromagnetic spectrum
- ii. Pathway of vision and color sensing
- iii. The human aura and colors
- iv. Relation of colors with shad chakras
- v. Impact of color sense on emotions and psychology
- vi. Therapeutic effect of colors

Unit 7: Sun Therapy / Heliotherapy (10Hrs)

- i. Introduction to Sun therapy
- ii. Health benefits
- iii. Physiological and chemical properties of sunlight
- iv. Modes of application, plantain leaf sun bath, chromo thermoleum
- v. Procedure, precaution, indication and limitations.
- vi. Various methods of Sun Bathing
 - a. Dr.Rikli's method of Sun bath
 - b. Dr .Kuhne's method of sun bath

Unit- 8: Advanced colour therapy (10Hrs)

- i. Photo chemo therapy
- ii. Photo biological coloured lighting to produce immune regulation
- iii. Color breathing
- iv. Chromo charging of water, oil honey and food stuffs. And their effect on health and disease.
- v. Limitation and contraindications of chromo therapy
- vi. Research updating related to chromo therapy

PRACTICAL

- i. Procedural standards / guidelines for application of magnets (2Hrs)
- ii. General application – lead system of application (4Hrs)
- iii. Local application (4Hrs)
 - a. high power magnets
 - b. Medium power magnets
 - c. Low power magnets
 - d. Specialized magnetic devices
- iv. Case documentation and application of magneto biology and color therapy - at least 20 cases (40Hrs)
- v. Application of different colours (10Hrs)
 - a. Chromo disc
 - b. Chromo lens
 - c. Chromo thermoleum

- d. AthapaSnana
- e. Sun therapy/ Heliotherapy

Recommended books:

1. The book of magnetic Healing by Roger Coghil
2. Magnet therapy – by Ghanashyamsingh Birla and Colette Hemlin
3. Color therapy - Jonathan Dee and Lesley Taylor
4. Healing with color -Theo Gimbel
5. The power of color – Dr. Marton Walker

Subject title: FORENSIC MEDICINE (Duration: 12 months)

Subject Code: BNYS T 208 & BNYS P208

Total Number of Hours: 100	Theory: 100	Practical: NA		
Credits		NA		
Hours/week		NA		
SCHEME OF EXAMINATION				
Total Marks: 150				
Theory: 150		Practical: NA		
Final Theory Exam	Internal Assessment	Viva Voce	Final Practical Exam	Internal Assessment
80	20	50	NA	NA

Goals and objectives

Goal:

The goal of teaching Forensic Medicine and Toxicology to undergraduate students is to provide a comprehensive knowledge of medico-legal responsibilities in the practice of medicine. He/she learns about law with respect to medical practice, medical negligence and respect for codes of medical ethics.

Objectives

Knowledge:

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

- Outline basic medico-legal aspects of hospitals and general practice;
- Define medico-legal responsibilities of a general physician working in a rural primary health center or an urban health center.

Skills:

- After the completion of the course, the student shall be able to:
- Observe and infer well, to enquire in criminal and medico-legal matters
- Diagnose and manage acute poisoning and chronic toxicity
- Be proficient in post mortem examinations including interpretation of findings
- Observe medical ethics in his professional practice

THEORY

Forensic Medicine

Unit -1: Medical Law and Ethics

(6Hrs)

- i. Indian Medical Council, State Medical Councils - their functions and disciplinary control
- ii. Rights and privileges of an RMP
- iii. Duties of an RMP
- iv. Medical Ethics - Hippocratic Oath, The Indian Code of Medical Ethics
- v. Professional Misconduct
- vi. Medical Etiquette
- vii. Consent, Doctrine of informed consent
- viii. Professional Negligence - civil negligence, criminal negligence, ethical negligence, Res Ipsa Loquitur, Contributory negligence, Corporate negligence, Product liability, Therapeutic misadventure, Vicarious liability, Novus Actus Interveniens, Elements of a negligent action

- ix. Professional secrecy and Privileged communication
- x. Medical Indemnity Insurance
- xi. Medical Records
- xii. Organ Transplantation, Transplantation of Human Organs Act
- xiii. Consumer Protection Act
- xiv. Workman's Compensation Act
- xv. NHRC
 - a. Composition
 - b. General functions
 - c. Medicolegal functions
- xvi. Prenatal Sex Determination Test (PNDT) Act
- xvii. HIV- medicolegal aspects

Unit- 2: Legal Procedure

(6Hrs)

- i. Forensic Medicine - definition
- ii. Inquest, types of inquest
- iii. Civil case and criminal case
- iv. Courts
- v. Procedure of calling a witness to court
- vi. Procedure in court
- vii. Medical evidence, types
- viii. Witnesses, types
- ix. Conduct of a doctor in court
- x. Offence- cognisable, noncognisable, contempt of court
- xi. The scene of crime
- xii. Criminal Procedure Code
- xiii. Indian Evidence Act

Unit-3: Death

(6Hrs)

- i. Definition, Bishop's triad of life, definition of Thanatology
- ii. Suspended animation
- iii. Types
- iv. Brain death
- v. Sudden death
- vi. Signs of death
- vii. Presumption of death
- viii. Presumption of survivorship
- ix. Determination of time since death

Unit- 4: Identification

(3Hrs)

- i. Definition
- ii. Types of identification
- iii. Race
- iv. Religion
- v. Sex
- vi. Age
- vii. Stature
- viii. Anthropometric measurements

- ix. Dactylography
- x. Tattoo marks
- xi. Scar marks
- xii. Hair and fibres
- xiii. DNA fingerprinting
- xiv. Personal identification (anthropometry and biometry)⁹
- xv. Genetic identikit

Unit- 5: Medicolegal autopsy (4Hrs)

- i. Definition, types
- ii. Objectives / purpose
- iii. Rules / legal requirements to conduct PM examination
- iv. Procedure- external examination, internal examination - thoracic, abdominal and cranial cavities, incline. examination of structures of the neck and spinal cord
- v. Preservation of viscera - when , which, preservatives recommended

Unit 6: Medicolegal wounds- classification and study and medicolegal aspects (6Hrs)

- i. Classification of injuries
 - a. Mechanical injuries
 - b. Thermal injuries
 - a) Injuries due to heat and cold
 - b) Injury caused by electricity and lightning
 - c) injury produced by radiation

- ii. Starvation

Unit -7: Blood and other medicolegally important stains (1Hr)

Unit -8: Asphyxia (6Hrs)

- i. Definition
- ii. Anoxia - types
- iii. Mechanical and non-mechanical asphyxia
- iv. Clinical asphyxiation and its stages
- v. Pathognomonic signs in a case of asphyxia
- vi. Classification of violent asphyxia
- vii. Suffocation, Smothering, Overlaying, Gagging, Choking, Cafe coronary, Traumatic asphyxia
- viii. Hanging
- ix. Strangulation, Throttling, Burking, Bansdola, Mugging, Garrotting, Palmar strangulation
- x. Drowning

Unit- 9: Sexual offence (4Hrs)

- i. Introduction
- ii. Types
- iii. Natural sexual offence - incest, rape
- iv. Unnatural sexual offence
- v. Abnormal sexual perversion
- vi. Virginitiy
- vii. Impotence and sterility
- viii. Pregnancy

ix. Delivery	
x. Abortion	
Unit -10: <u>Infanticide</u>	(2Hrs)
i. Introduction	
ii. Stillbirth	
iii. Deadborn	
iv. Viability, Rule of Hasse	
v. Signs of live birth	
vi. SIDS	
vii. Munchausen syndrome by proxy	
Unit- 11: <u>Insanity and Forensic Psychiatry</u>	(2Hrs)
i. Introduction	
ii. Medicolegal importance of insanity	
iii. Classification of insanity	
iv. Disorders of cognition	
v. Feigned insanity	
vi. Restraining of a lunatic	
Unit -12: <u>Euthanasia</u>	(1Hr)
i. Synonyms	
ii. Classification	
iii. Arguments in favour	
iv. Arguments against	
v. Current legal status in India	
Toxicology	
Unit- 1: <u>General considerations of poisoning</u>	(1Hr)
i. Introduction	
ii. Medicolegal aspects of poisoning	
iii. Poisoning in India	
iv. Source of poisons	
v. Action of poisons	
vi. Fate of poisons in the body	
vii. Diagnosis of poisoning in human beings	
viii. Classification of poisons	
ix. Factors modifying action of poisons	
x. General line of treatment	
Unit -2: <u>Poisons</u>	(12Hrs)
i. Corrosives	
ii. Non metallic poisons	
iii. Metallic poisons	
iv. Organic irritant poisons	
a. Somniferous poisons	
b. Inebriant poisons	
c. Deliriant poisons	
d. Drug dependence	
e. Food poisoning	

- f. Spinal poisons
- g. Cardiac poisons
- h. Asphyxiants
- i. Miscellaneous

PRACTICALS

Unit-1: <u>Autopsies - 10</u>	(20Hrs)
Unit -2: <u>Age estimation</u>	(4Hrs)
Unit -3: <u>Skeletal remains</u>	(2Hrs)
Unit- 4: <u>Spotters</u>	(4Hrs)
Unit -5: <u>Examination of injured</u>	(2Hrs)
Unit- 6: <u>Alcoholic</u>	(2Hrs)
Unit- 7: <u>Psychiatric</u>	(2Hrs)
Unit -8: <u>Toxicology</u>	(4Hrs)

Recommended books:

1. Medical Jurisprudence – Modi
2. A textbook of Forensic Medicine – Narayana Reddy
3. A textbook of Forensic Medicine – MRK Krishna
4. Fundamentals of Forensic Medicine and Toxicology - R. Basu
5. Textbook of Forensic Medicine and Toxicology - VV Pillay

Reference books

1. The essentials of Forensic Medicine – Dr. CJ Polson, DJ Gee and B. Knight
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3. Principles and practice of Medical Jurisprudence – Taylor's