

**SYLLABUS OF
THIRD PROFESSIONAL
M.B.B.S.**

- (A) SPECIAL PATHOLOGY
- (B) COMMUNITY MEDICINE
- (C) OPHTHALMOLOGY
- (D) E.N.T.

(A) SPECIAL PATHOLOGY

The course outline is as follows :-

1. BLOOD VESSELS & HEART

- Atherosclerosis
 - Etiology and pathogenesis
 - Early lesion
 - Late and complicated lesion
 - Vessels affected
 - Complications
- Monckeberg's medial calcific sclerosis
- Arteriosclerosis.
- Hypertension
 - Classification
 - Causes of secondary hypertension
 - Vascular changes in hypertension.
- Common pathogenetic mechanisms of vasculitis.
- Aneurysm
 - Classification
 - Etiology.
- Atherosclerotic aneurysm
 - Pathogenesis.
 - Type of vessel involved.
 - Morphological & clinical features.
- Varicose veins
 - Common sites
 - Predisposing factors
 - Clinical features.
- Benign and malignant tumours of blood vessels.
- Pathogenesis of ischemic heart disease.

- Myocardial infarction
 - Sequence of changes in myocardial infarction (M.I)
 - Pattern of elevation of biochemical markers used in the evaluation of M.I
 - Complications.
- Causes of sudden cardiac death.
- Cor-pulmonale
- Predisposing disorders.
- Rheumatic Endocarditis
- Bacterial Endocarditis
 - Etiology
 - Pathogenesis
 - Morphological & clinical features.
 - Complications
- Myocarditis.
- Morphological and clinical features of myocarditis.
- Cardiomyopathy
 - Dilated
 - Hypertrophic
 - Restrictive.
- Pericarditis.
- Clinical and morphological feature of pericarditis.
- Primary & secondary cardiac tumours.
- Fallot's tetralogy
- Coarctation of aorta

2. HEMATOPOIETIC AND LYMPHOID SYSTEMS

- Stages in the formation of red blood cell and white blood cells.
- Normal values of red cell count
- Hemoglobin level

- Packed cell volume
- MCH
- MCV
- MCHC
- WBC Count
- Platelet count.
- Anemia
 - Classification
 - Causes
- Etiology, Blood picture, clinical features and Lab Diagnosis of;
 - Iron deficiency anemia
 - Megaloblastic anemia.
 - Folate deficiency anemia.
 - Vit. B12 deficiency anemia.
 - Anemia of chronic disease
 - Nutritional deficiency anemia.
- Hereditary spherocytosis
 - Incidence
 - Etiology
 - Pathogenesis
 - Morphological and Clinical features
- Thalassemia.
 - Classification
 - Pathogenesis
 - Blood picture
 - Clinical and genetic features.
- Hemolytic anemia
- Glucose-6-phosphate dehydrogenase deficiency.
- Immuno-hemolytic anemia.
- Warm and cold antibodies immuno-hemolytic anemias.
- Aplastic anemia

- Etiology
 - Pathogenesis
 - Clinical features
 - Lab. Diagnosis
- Neutropenia
- Agranulocytosis.
- Leukocytosis.
- Infectious mononucleosis
 - Epidemiology
 - Morphology
 - Clinical features
- Acute and chronic nonspecific lymphadenitis.
- Non-hodgkin's lymphoma
- Classification (real and working formulations)
- Hodgkin's disease
 - Classification
 - Clinical stages
 - Etiology and pathogenesis
- Leukemia
- Prognostic factors of acute lymphoblastic and acute myeloblastic leukemias.
- Pathophysiology of chronic myeloid and chronic lymphocytic leukemias
- Multiple myeloma
 - Etiology
 - Pathogenesis
 - Morphology
 - Clinical features
- Disseminated intravascular coagulation
 - Etiology
 - Pathogenesis
 - Clinical features
 - Laboratory diagnosis

- Causes of decreased production and decreased survival of platelets.
- Idiopathic & thrombotic thrombocytopenic purpura
- Value of following tests in the assessment of bleeding disorders
 - Bleeding time
 - Clotting time
 - Platelets count
 - Platelet function test
 - Partial thromboplastin time
 - Prothrombin time
 - Mixing test studies
- Polycythemia
 - Etiology
 - Pathogenesis
 - Clinical significance
 - Lab. Diagnosis
- ABO and Rhesus blood groups
- Screening of Donors
- Hazards of blood transfusion and their prevention.

3. RESPIRATORY SYSTEM

- Micro-organisms causing upper respiratory tract infection.
- Etiology and clinical features of;
 - Rhinitis
 - Nasal polyps
 - Acute pharyngitis
 - Acute tonsillitis
 - Acute bacterial epiglottitis
 - Acute laryngitis
 - Pleural effusion
 - Hemothorax,

- Hydrothorax
 - Pleuritis,
 - Pneumothorax
 - Chylothorax
- Malignant & benign tumours of nasopharynx and larynx.
- Atelectasis
 - Classification
 - Pathogenesis
- Restrictive & obstructive lung disease
- Etiology pathogenesis, morphology & clinical features of;
 - Asthma.
 - Various types of emphysema
 - Chronic bronchitis.
 - Bronchiectasis.
 - Adult respiratory distress syndrome.
 - Restrictive lung diseases.
 - Sarcoidosis
 - Hypersensitivity pneumonitis.
 - Idiopathic pulmonary fibrosis.
 - Goodpasture's syndrome.
 - Thromboemboli.
 - Pulmonary infarction.
 - Pulmonary hypertension and vascular sclerosis.
- Acute bacterial pneumonia.
- Micro-organisms causing atypical pneumonia.
- Etiology, pathogenesis & clinical features of;
 - Tuberculosis of the lung.
 - Pneumoconiosis
- Fungi (candida, pneumocystis carinii) causing lung infections.
- Bronchogenic carcinoma and mesothelioma
 - Classification

- Etiology
- Pathogenesis
- Clinical features

4. THE ORAL CAVITY AND GASTROINTESTINAL TRACT

- **Oral cavity**

- Leukoplakia.
- Oral cancer
 - Risk factors
 - Morphology
 - Clinical feature
- Benign and malignant tumours of salivary glands.
- Pleomorphic adenoma.
 - Clinical features
 - Morphology

- **Esophagus**

- Predisposing factors of esophagitis.
- Carcinoma of the esophagus
- Stomach
- Etiology, pathogenesis, morphological and clinical features of ;
 - Acute gastritis
 - Chronic gastritis.
 - Peptic ulcer.
- Gastric carcinoma
 - Risk factors
 - Pathogenesis
 - Morphology
 - Clinical features and diagnosis
 - Prognosis

- Intestine

- Etiology, pathogenesis, morphological and clinical features of;
 - Hirschsprung's disease
 - Celiac sprue
 - Tropical sprue
 - Ischemic bowel disease.
 - Crohn's disease
 - Ulcerative colitis.
 - Acute appendicitis
- Major causes of intestinal obstruction.
- Clinico-pathological features of following diseases of intestine
 - Amebiasis
 - Tuberculosis
 - Typhoid
- Non-neoplastic polyps of intestine.
- Adenomas
 - Classification on the basis of epithelial architecture.
 - Clinical and morphological features
- Colorectal carcinoma.
 - Classification
 - Etiology
 - Pathogenesis
 - Morphological and clinical features
- Aster-Coller classifications of carcinoma of the colon and rectum.
- Carcinoid tumour
 - Peak incidence
 - Most prevalent sites in the gut
 - Morphological features
 - Clinical features of carcinoid syndrome.
- Etiology, pathogenesis, morphological and clinical features of tumours of appendix.

- **Liver and Biliary Tract**

- Liver

- Pathway of bilirubin metabolism and its elimination from the body

- Jaundice

- Classification
- Causes
- Clinical features
- Lab diagnosis

- Intrahepatic and extrahepatic biliary obstruction.

- Etiology, pathogenesis, morphology, clinical features and complication of;

- Hepatic failure
- Cirrhosis

- Viral hepatitis A,B,C,D and E

- Route of transmission
- Incubation period
- Clinical features.
- Potential outcome of acute infection.
- Carrier state
- Acute and chronic hepatitis.

- Etiology, morphological and clinical features of liver abscess.

- Drugs and toxins causing hepatic injury

- Pathogenesis of alcohol liver disease.

- Morphological and clinical features of alcoholic hepatitis and cirrhosis.

- Classification, etiology, pathogenesis, morphological and clinical features of;

- Hemochromatosis.
- Secondary hemochromatosis.
- Wilson's disease.
- Alpha-1 antitrypsin deficiency.
- Neonatal hepatitis.
- Primary and secondary biliary cirrhosis.

- Hepatocellular carcinoma

- Epidemiology
- Pathogenesis
- Morphology
- Clinical features

▪ **Biliary tract**

- Pathogenesis and risk factors of cholelithiasis.
- Morphological and clinical features of acute and chronic cholecystitis.
- Clinical and morphological features of gall bladder cancer.

▪ **Pancreas.**

- Acute and chronic pancreatitis
 - Etiology
 - Pathogenesis
 - Morphology
 - Clinical features.
- Clinical and morphological features of carcinoma of pancreas.

5. THE URINARY SYSTEM

- Etiology, pathogenesis, clinical features and complications of;
 - Azotemia
 - Uremia
 - Acute renal failure
 - Chronic renal failure
 - Polycystic kidney disease (its Classification)
 - Glomerulonephritis (its Classification)
 - Nephrotic and nephritic syndrome
 - Acute pyelonephritis.
 - Chronic pyelonephritis.
 - Hydronephrosis
- Pathogenesis and clinical course of acute tubular necrosis.
- Benign and malignant nephrosclerosis

- Characteristics of various types of renal stones
- Pathogenesis, clinical features and lab diagnosis of nephrolithiasis
- Epidemiology, morphology, clinical features and prognosis of Wilm's tumour
- Classification, Epidemiology, morphology, clinical features and prognosis of renal cell carcinoma
- Etiology, morphology & clinical features of cystitis.
- Clinical features, etiology and morphology of transitional cell carcinoma of the urinary bladder.

6. MALE GENITAL SYSTEM

- Hypospadias
- Undescended testis
- Urethritis (Gonococcal, Non gonococcal)
 - Etiology
 - Route of infection
 - Pathogenesis
 - Diagnosis
- Etiology, pathogenesis and natural history of;
 - Prostatitis
 - Prostatic hyperplasia
- Causes, pathogenesis and clinical features of scrotal swelling.
 - Testicular adnexa
 - Varicocele
 - Hydrocele
 - Spermatocele
 - Testis and epididymis
 - Inflammation (Orchitis)
 - Epididymitis
- Causes, pathogenesis and relevant investigations of male infertility.
- Classification, pathogenesis, morphology, clinical features and prognosis of the tumours of the male genital tract (Prostate, Testis)

7. FEMALE GENITAL SYSTEM

- Causes, routes of infection & methods of diagnosis of sexually transmitted diseases.
- Route of infection, pathogenesis and Lab diagnosis of;
 - Gonorrhoea
 - Syphilis
 - Chlamydia
 - HPV
 - Herpes simplex
 - Trichomonas vaginalis.
- Cervical intraepithelial neoplasia
- Neoplasms of cervix
- Causes, pathogenesis and clinical features of dysfunctional uterine bleeding with special reference to endometrial hyperplasia, endometrial polyp and carcinoma.
- Etiology, clinical features and pathogenesis of;
 - Adenomyosis
 - Endometriosis
 - Ectopic pregnancy
 - Toxemia of pregnancy.
- Classification, pathogenesis, morphology, clinical features and prognosis of the tumours of the female genital tract (uterus, ovary and Gestational trophoblastic tumours).

8. BREAST

- Etiology and causes of lump in the breast
- Etiology, Pathogenesis, Morphology and clinical features;
 - Mastitis
 - Fibrocystic disease of the breast
 - Intraductal papilloma
- Benign tumours of the breast (Fibroadenoma and Phyllodes tumour)
- Gynaecomastia
- Carcinomas of the breast (Ductal and Lobular)

9. MUSCULOSKELETAL SYSTEM

- Pathogenesis and clinical features of ;
 - Achondroplasia.
 - Osteogenesis imperfecta.
 - Osteoporosis.
- Acute and chronic osteomyelitis
 - Common causative micro-organism
 - Common routes of spread
 - Complications.
- Common sites involved in tuberculous osteomyelitis
- Pathogenesis, morphological and clinical features of Paget's disease (osteitis deformans).
- Benign and malignant bone forming tumours.
- Common sites, morphological and clinical features of osteogenic sarcoma.
- Benign and malignant cartilaginous tumours.
- Chondrosarcoma
 - Peak incidence
 - Common sites of origin
 - Morphological and clinical features.
- Most frequent sites, clinical and morphological features of giant cell tumours of bone.
- Ewing's sarcoma
 - Peak incidence
 - Common sites of origin
 - Chromosomal abnormality
 - Morphological and clinical features.
- Pathogenesis, morphological and clinical features of osteoarthritis
- Rheumatoid arthritis
 - Pathogenesis
 - Morphological and clinical features
 - Lab Diagnosis

- Gout.
 - Classification
 - Pathogenesis
 - Morphological and clinical features
 - Lab Diagnosis
- Pathogenesis, morphological and clinical features of;
 - Duchenne muscular dystrophy
 - Myotonic dystrophy
 - Congenital myopathies
 - Inflammatory myopathies
 - Myasthenia gravis.
- Lipoma and liposarcoma.
- Rhabdomyosarcoma
 - Peak incidence
 - Histological variants
 - Frequent sites

10. ENDOCRINE SYSTEM

- **Pituitary.**
- Causes of hyperpituitarism.
- Morphology and clinical features of;
 - Pituitary adenomas.
 - Acromegaly
 - Gigantism.
- Causes of hypopituitarism.
- Etiology, pathogenesis and clinical features of;
 - Sheehan's syndrome
 - Dwarfism
- Etiology, clinical features, pathogenesis and lab findings in inappropriate secretion of ADH.
- **Adrenal Cortex and Medulla**

- Adrenal cortical hyperfunction. (CUSHING'S SYNDROME)
- Etiology, pathogenesis clinical features and lab diagnosis of;
 - Conn's syndrome
 - Adrenogenital syndrome.
- Causes of hypofunction of adrenal cortex.
- Etiology, pathogenesis and clinical features of Addison's disease.
- Tumours of adrenal medulla and cortex.
- Clinical features and diagnosis of pheochromocytoma.
- **Thyroid**
- Etiology and clinical features of hyperthyroidism.
- Etiology and clinical features of hypothyroidism including Cretinism and Myxedema.
- Investigation / lab tests for diagnosis of thyroid dysfunction.
- Goiter and its types
- Etiology, pathogenesis and clinical features of diffuse and multinodular goiter.
- Causes of solitary thyroid nodule and its diagnostic approach.
- Thyroiditis
 - Types
 - Pathogenesis
 - Morphology
 - Clinical features
- Etiology, pathogenesis, morphology and clinical features of;
 - Follicular adenoma
 - Papillary carcinoma
 - Follicular carcinoma
 - Medullary carcinoma.
 - Undifferentiated.
- Types of MEN syndromes.
- **Parathyroid**
- Etiology and clinical features of hyperparathyroidism and hypoparathyroidism.
- Primary, secondary and tertiary hyperparathyroidism.
- Calcium homeostasis

- Causes of hyper and hypocalcemia.
- **SKIN**
- Macule, papule, nodule, plaque, vesicle, bulla, blister, pustule, scale, lichenification, excoriation, hyperkeratosis, parakeratosis, acanthosis, dyskeratosis, acantholysis, papillomatosis, lentiginous spongiosis.
- Morphological and clinical features of urticaria.
- Etiology, pathogenesis morphological and clinical features of;
 - Eczematous dermatitis.
 - Contact dermatitis
 - Atopic dermatitis
 - Photoeczematous eruptions
 - Primary irritant dermatitis
 - Erythema multiforme..
 - Psoriasis.
 - Pemphigus
 - Bullous pemphigoid.
- Premalignant epithelial lesions.
- Types of warts and their most frequent locations.
- Predisposing factors, morphology, clinical features and prognosis of;
 - Squamous cell carcinoma
 - Basal cell carcinoma.
- Types, clinical and morphological features of;
 - Nevocellular Nevi
 - Dysplastic nevi.
- Malignant melanoma
 - Classification
 - Frequent site of origin
 - Clinical and morphological features.

11. NERVOUS SYSTEM

- Clinico-pathological features of hydrocephalus.

- Cerebral edema (vasogenic & cytotoxic).
- Types of herniation of brain and their clinical significance.
- Intra-cranial hemorrhage.
- Etiologic agents, clinical and morphological features of;
 - Acute purulent meningitis
 - Acute lymphocytic meningitis
 - Chronic meningitis
 - Brain abscess
 - Tuberculosis meningitis.
 - Viral encephalitis
- Clinico-pathological features of Guillain Barre syndrome.
- Polyneuropathies
- Toxic neuropathy
- Important intracranial tumours (astrocytoma, oligodendrogliomas, ependymoma, medulloblastoma and meningioma)
- Clinical significance of glial tumours.
- Frequent metastatic tumours to the brain
- Primary peripheral nerve sheath neoplasms

RECOMMENDED BOOKS

- 1. Pathological Basis of Disease** by Kumar, Cotran, Robbins. 7th. Ed.
- 2. Medical Microbiology and Immunology** by Levinson and Jawetz, 9th Ed.
Mc Graw-Hill
- 3. Ackerman's Surgical Pathology**
- 4. Clinical Pathology Interpretations** by A.H. Nagi
- 5. Theory and Practice Of Histological Techniques** by John D Bancroft
- 6. District Laboratory Practice in Tropical Countries** by Monica Cheesburgh,
2nd Ed. Part I & II
- 7. Online Journals and Reading Materials through HEC Digital Library Facility.**

(B) COMMUNITY MEDICINE

The course outline is as follows :

Concept of Health & Disease

- Concept of health
- Definition of health (Dimensions, physical, mental, social and spiritual).
- Spectrum of health
- Determinants of health. Responsibility for health
- Indicators of health
- Concept of disease. Concept of causation (all theories including ecological triad, agent, host & environmental factors).
- Spectrum of disease. Iceberg phenomenon.
- Natural history of disease. Levels of prevention.
- Disease elimination and eradication. Disease surveillance.

Introduction to Public Health and Health Systems in Pakistan

Background and Concepts:

- Definitions and concepts in Public Health
- Development of Public Health in Pakistan.
- Economics and Health. Health Policy and planning in Pakistan.
- “Health for all”, background, concepts and progress.
- “Primary Health Care”: Concepts and progress.
- The National Disease Control programmes; policies, strategies and operations.

Health System in Pakistan:

- The role of Federal and Provincial Governments in Health care.
- The District Health System, in the context of devolution.
- The Physician as a manager:
- Functions of manager, management of material, human and financial resources.
- Leadership and motivation.

Partners in Health:

- The public and private sector.
- Nongovernmental Organizations and International Agencies.

- Resources for health. Community Mobilization.

Epidemiology and disease control

- General epidemiology and research methodology.
- Background and concepts, uses, basic measurements in epidemiology (morbidity, mortality, disability and fatality).
- Epidemiological methods (descriptive, analytic and experimental).
- epidemiological transition. Association and causation.
- Investigation of an outbreak or an epidemic.
- Screening for disease. Community diagnosis.
- Research and survey methodology.
- Introduction to qualitative research methodology.

Prevention and control of Infectious diseases

- Definitions to differentiate between:
 - Infection, contamination, pollution, infestation
 - Infectious disease, communicable disease, contagious disease
 - Host, Immune and susceptible persons
 - Sporadic, Endemic, Epidemic, Pandemic
 - Epizootic, Exotic, Zoonosis
 - Contact, fomites, Carriers, Insect Vectors, Reservoir of infection
 - Incubation period, Infective period, Generation time
 - Cross infection, Nosocomial infection, Opportunistic infections, Iatrogenic (Physician induced) disorders
 - Surveillance, Eradication, Elimination.

Dynamics of infections disease Transmission

- Reservoir and source of infection, Escape of organism, Mode of transmission, Entry into the body, Susceptible host, Immunity (different types of immunity and immunization)

Control of infection.

- Controlling the reservoir-notification, early diagnosis treatment, isolation, quarantine, disinfections.
- Interruption of transmission.

- The susceptible host (active & passive immunization, Combined Chemoprophylaxis, Non-specific measures).
- Health advice to travelers.
- National case management guide lines.

Epidemiology, control and prevention of infectious diseases of Public Health importance.

- Diseases transmitted through inhalation
- Diseases transmitted through faeco-oral route
- Arthropod borne diseases.
- Diseases of animals conveyed to man.
- Diseases due to direct contact

Epidemiology, control and prevention of non-infectious diseases of Public Health importance.

- Hypertension,
- Coronary heart disease
- Cancers,
- Injuries
- Diabetes mellitus
- Obesity
- Rheumatic fever and heart disease.

Biostatistics

- Concepts and uses
- Data and its types
- Rates, ratios and proportions
- Crude, specific and standardized rates.
- Collection and registration of vital events in Pakistan
- Sources of health related statistics
- Measures of central tendency, (Mean, Median, Mode),
- Measures of dispersion (Range, Standard deviation, Standard error)
- Normal curve
- Methods of data presentation (tables, graphs & diagrams).

- Interpretation of data (t-test and Chi-square test)
- Sampling and its various techniques.
- Health Management Information System

Demography and Population dynamics

- Concept, demographic principles and demographic processes
- Census, definition, methodology, types.
- Determinants of fertility, mortality
- Population pyramid, and its interpretation.
- Demographic transition, demographic trap and its public health importance.
- Demographic and social implication of high population growth.
- Social mobilization
- Urbanization

Food and Nutrition

- Concepts (nutrition, nutrient, food, diet).
- Food groups and their functions.
- Role of fiber in diet.
- Balanced diet.
- Malnutrition at all stages of life its types causes and prevention.
- Common nutritional problem of public health importance and their prevention and control.
- Dietary requirements of normal human being at different stages of life.
- Food hygiene, pasteurization, fortification, additives & adulteration and preservation
- Food poisoning
- Assessment of nutritional status of a community.

Reproductive and child health

- Safe mother hood, and its components. (ante-natal, post-natal, family planning & emergency obstetric care).
- Maternal mortality, causes and prevention.
- Infant care: growth and development. Breast feeding,
- Common causes of morbidity and mortality, their prevention

- And control.
- Child care: health promotion strategies. Common ailments, home accidents, child mortality prevention .
- Strategic approaches of integrated management of childhood illness (IMCI).
- Adolescent health
- Reproductive tract infections: guidelines for management of STD's.

Health of school age children.

- Role of teachers and role of doctor in maintenance of health
- Procedures for determining health status of school age children.
- Common health problems of school children.

Environmental Health Sciences

- Air: Composition of air. Causes of Air pollution. Purification of Air. Diseases caused by impurities in air and their prevention.
- Water: Sources of Water. Daily water requirement. Water pollution its causes and prevention. Purification of Water.
- Water quality Standards. Diseases due to polluted water.
- Waste disposal: contents, hazards and safety measures for solid and liquid; domestic, industrial and hospital waste.
- Climate: Climate and weather. Global environmental concerns
- Green house effect, depletion of ozone layer, acid rains.
- Effect of extremes of temperature, humidity, atmospheric pressure on human health and their prevention.
- Radiation: Sources, types, causes , hazards and prevention.
- Healthful housing. Urban and rural slums. Refugee camps and hostels.
- Noise : Definition, causes, acceptance level, hazards and control.

Occupational Health

- Concepts, of occupational health, occupational medicine and occupational hygiene.
- Ergonomics and its importance.
- Occupational hazards. Principles of control.
- General principles of occupational disease prevention.
- Organization of occupational health services.

- Health Insurance and Social Security Schemes

Arthropods and their public health importance

- Common arthropod borne diseases
- Control of arthropods of medical importance.
- Insecticides and their public health importance

Prevention and control of parasitic diseases of public health importance

Snake Bites: personal protection and management

Mental Health

- Concept. Common mental health problems, their causes, prevention and control.
- Juvenile delinquency

Behavioral Sciences and lifestyle

- Concept, attitudes, health and illness behaviour.
- Drug abuse, addiction and smoking
- Child abuse and child labour
- Role of physical exercise in health and disease.

Information, Education and Communication (IEC)

- Concept. Aims and objectives
- Approaches used in public health
- Contents, principles and stages of health education
- Communication methods, barriers and skills in health education
- Planning, organizing and evaluating a health education programme
- Social marketing

Disaster

- Definition, classification, (natural disasters like earthquake, floods.
- Epidemic of communicable diseases, man made disasters.
- Accidents, thermo nuclear warfare, causes and prevention),
- Magnitude and effects of disaster and public health consequences
- Disaster: preparedness and management

Medical Ethics

- Background concepts and components
- National recommended guidelines.

PRACTICAL AND COMMUNITY BASED TRAINING

- Student should have practical experience in questionnaire development, data collection, compilation, presentation, analysis and report writing.

Field visits

- Visit to BHU and RHC
- Visit to an NGO
- Visit to a primary school to assess the nutritional status of school children
- Visit to MCH/Reproductive Health Centre to observe the organization, and function of the centre and to demonstrate counseling skills in one of the following:
 - Nutritional counseling for children, pregnant and lactating women.
 - Antenatal Care
 - Family planning services
 - Immunization, others
- Visit to a hospital to see the hospital waste disposal.
- Visit to an industry
- Visit to a physical/mental/social rehabilitation centre.

Skills development lab

- Water purification at domestic level.
- Contraceptives
- Vaccination including the cold chain
- Oral rehydration solution

RECOMMENDED BOOKS

1. **Text book of Community Medicine** by Park J E. Latest Edition
2. **Text book of Community Medicine.** 6th Ed. by Ilyas Ansari.
3. **Text book of Community Medicine** by Maxie Rozani. Latest Edition
4. **Medical Statistics.** 2nd Ed. by R. Turkwood.
5. **Online Journals and Reading Materials through HEC Digital Library Facility.**

(C) OPHTHALMOLOGY

The course outline is as follows :

General Learning Objectives of the Ophthalmology Course:

To equip doctors with essential knowledge, skill and attitude in order to enable them to:

1. Identify ophthalmic diseases including emergencies, provide primary eye care, refer to the appropriate center and provide follow up to the patients.
2. Perform essential minor surgical procedures
3. Communicate effectively with the patient, the family and the community regarding eye diseases and its related issues
4. Understand medical ethics and its application pertaining to ophthalmology and maintaining confidentiality of the patient.
5. To understand the prevalence and prevention of the common public health problems related to ophthalmology.
6. Understand the principles of Medical Research including fundamentals of information technology.

INSTRUCTIONAL STRATEGY

▪ METHODOLOGY

- Problem-based Learning
- Tutorials/ Practical sessions/Skills Lab practice
- Clinical rotations and ward visits
- Lectures/Seminars/CPC's – using modern audio visual techniques,
- Distant learning using electronic devices and current Information
- Technology facilities.

COURSE CONTENTS

- Basic Anatomy and the functions of the Eyeball and Orbit
- **Orbit:** Orbital Cellulitis, Proptosis
- **Lids:** Blepharitis, Stye, Chalazion, Trichiasis, Entropion, Ectropion, Ptosis, and Common Tumors.
- **Conjunctiva:** Infective and Allergic Conjunctivitis, Pterygium.
- **Cornea:** Corneal Ulcers, risk factors, complications and its management.
- **Sclera:** Episcleritis and Scleritis
- **Pupil:** Pupillary reflexes and their common abnormalities
- **Lacrimal Apparatus:** Composition and function of Tear film, Dry Eye
- Excessive watering (Epiphora), Dacryocystitis (Acute & chronic).
- **Therapeutics:** Drugs used in common ophthalmic conditions
- **Vitamin "A":** Ocular manifestation of vitamin A deficiency and its management.
- **Uveal Tract:** Uveitis, and its differential diagnosis from other causes of the Red Eye.
- **Lens:** Classification of cataract,
 - Congenital Cataract (lamellar, signs and symptoms and management), Rubella syndrome, Acquired Cataract (senile, traumatic, drug induced), cataract due to systemic diseases (clinical picture and management including visual rehabilitation).
- **Glaucoma:** Physiology of Aqueous humor formation and its circulation.
 - Measurement of IOP
 - Definition & classification of glaucoma
 - Primary open angle and closed angle glaucoma
 - Secondary glaucoma due to hyper-mature cataract and uveitis. Principles of medical and surgical management of glaucoma.
- **Vitro-Retina:** Posterior vitreous detachment, primary retinal detachment (common presentation and principle of management)
 - Diabetic Retinopathy, Hypertensive Retinopathy,
 - Retinitis Pigmentosa, Retinoblastoma.
- **Optic Nerve:** Papilloedema, Optic Neuritis (Papillitis and Retrobulbar Neuritis), Optic Atrophy

- **Visual Pathway:** Introduction to Visual Field defects in the lesions of Chiasma and visual Pathway.
- **Injuries:** Extraocular Foreign Bodies, Closed globe injuries, Open globe injuries with or without retained Intra ocular foreign bodies
- Burns and Chemical Injuries
- Sympathetic Ophthalmitis.
- **Squint and Amblyopia:** Definition, Classification and Principle of Management.
- **Errors of Refraction:** Introduction to Optical System of Normal Eye
- Emmetropia, Myopia, Hypermetropia, Astigmatism, Presbyopia, Aphakia, Pseudophakia, Anisometropia and Amblyopia.

Details of Clinical and Practical Competence:

- Level of Learning:
- Level-1 Observer status
- Level-2 Assistant status
- Level-3 Perform under supervision
- Level-4 Perform Independently
- LEVEL 4

History Taking

- Defects in Vision
- Pain in and around the Eye
- Discharging Eye
- Abnormal appearance of the Eye and Orbit

Examination

- Visual Acuity, for distance and near
- Use of a pinhole
- Examination of Adnexa and anterior segment of the eye.
- Eversion of the upper Eye Lid and Lacrimal regurgitation Test
- Detection of the Deviated Eye

- Ocular Movement
- Pupillary Reflexes (Afferent Pupillary defects)
- Measurement of Intra ocular pressure.
- Palpation Assessment
- Schiottz Tonometer 1
- Distant Direct Ophthalmoscopy for Identification of defects in Ocular Media
- Direct Ophthalmoscopy with emphasis on disc and its abnormalities
- Swollen disc, cup disc and pale disc.
- Confrontation test for field of vision
- Familiarization with Retinoscopy
- Indirect Ophthalmoscopy,
- Slit Lamp and its Uses
- Visual Fields and Use of Laser in Ophthalmology

Procedures

- Irrigation of eye
- Instillation of eye drops
- Staining for corneal ulcer
- Removal of superficial foreign bodies
- Rational use of topical anaesthesia
- Preparation for operation and post operative management
- Understand medical ethics and maintain the confidentiality of the patient

Assessment of Level of Competence:

- To Diagnose, treat and prevent certain common eye conditions e.g.
 - Blepharitis
 - Sty and Chalazion
 - Dacryocystitis
 - Conjunctivitis
 - Trachoma
 - Ocular Trauma (Corneal Foreign Body / Abrasion)
 - Ocular Allergies

- To diagnose certain eye disease, initiate first aid treatment and refer them in time e.g.
 - Corneal Ulcer
 - Uveitis
 - Acute Congestive Glaucoma
 - Open or closed globe injuries
 - Red Eye
- To enable them to diagnose other eye conditions and refer them to secondary or tertiary eye care centers for further management(Medical / Surgical) e.g.
 - Cataract
 - Squint and Amblyopia
 - Refractive Errors
 - Tumours (Leucocoria-white Pupil)
 - Serious Ocular Trauma
 - Painful or painless loss of vision.
- To understand the importance of prevention in Ocular Diseases
- Deficiency Diseases resulting in ocular problems(Thyroid, Vit“A”)
- Early Detection of Glaucoma
- Diabetic Retinopathy

RECOMMENDED BOOKS

1. **Parson’s Diseases of the Eye** by Ramanjit Sihala and Radhika Tandor. 3rd Ed
2. **Ophthalmology** by Renu Jogi
3. **Clinical Textbook of Ophthalmology** by Dr. Saleem Akhter
4. **Kanski’s Ophthalmology**
5. **Ophthalmology Principles and Concepts** Newill F. W.
6. **Online Journals and Reading Materials through HEC Digital Library Facility.**

(D) ENT

General Learning Outcomes of the Ophthalmology Course:

To equip them with essential knowledge, skills and attitude to enable them to:

- Identify ENT diseases including emergencies, provide primary health care, refer to appropriate center and provide follow-up to the patients.
- Perform essential minor ENT procedures.
- Communicate effectively with the patient, the family and the community regarding disease and its relevant issues.
- Understand medical ethics and its application pertaining to ENT and maintain the confidentiality of the patient.
- To understand the prevalence and prevention of the common Public Health Problem related to ENT in the community
- Understand the principles of medical research including fundamentals of Information Technology

INSTRUCTIONAL STRATEGY

▪ METHODOLOGY

- Problem-based Learning
- Tutorials/ Practical sessions/Skills Lab practice
- Clinical rotations and ward visits
- Lectures/Seminars/CPC's – using modern audio visual techniques,
- Distant learning using electronic devices and current Information
- Technology facilities.

COURSE CONTENTS

NOSE:

- Anatomy and physiology
- History taking and examination

- **Diseases of external nose**

- Congenital lesions, choanal atresia, meningocele,encephalocele, trauma, cut nose, fractures, external deformities.

- **Diseases of septum**

- Epistaxis
- Dns
- Haematoma
- Septal abscess
- Perforation

- **Rhinitis**

- Allergic
- Atrophic
- Hyper-trophic
- Foreign bodies.
- V.m.r.

- **Polyps**

- Mucous
- Ethmoidal
- Antrochoanal
- Bleeding polypus

- **Foreign body nose**

- Rhinolith
- Maggots

- **Sinusitis**

- Acute sinusitis
- Chronic sinusitis, complications
- Fungal infection of nose and paranasal sinuses
- Cfs rhinorhea

- **Tumours**

- Basal cell carcinoma

- Squamous cell carcinoma
- Pappiloma
- Osteoma
- Headache and its ent causes

BUCCAL CAVITY, ORAL CAVITY, OROPHARYNX

- Anatomy and physiology
- History and examination
- **ORAL CAVITY ULCERS:**
 - Traumatic
 - Aphthus,
 - Vincents angina
 - Agranulocytic
 - Tuberculous
 - Maligant uclers
 - Thrush
 - Leukoplakia
 - Behcet's disease
 - Ulcerative lesions of oral cavity
- **OROPHARYNX**
 - Acute tonsillitis
 - Chronic tonsillitis
 - Peri tonsillitis and abscess
 - Diphtheria
 - Differential diagnosis of white patch on the tonsil
 - Tonsil/oral cavity
 - Tumours of tonsil
 - Retro-pharyngeal abscess
 - Pharyngeal abscess acute/chronic
 - Sleep apnea syndrome
 - AIDS

- Ludwig's angina
- **LARYNX**
- Anatomy
- Physiology
- History
- Examination
- Glottic stenosis/laryngocoele
- Laryngomalacia
- **Truama, Foreign Body & Infections of Larynx**
- Supraglottitis
- Acute laryngitis
- Laryngotracheobronchitis
- Diphtheria
- Chronic laryngitis
- Tuberculosis
- Syphilis
- Leprosy
- Non specific chronic laryngitis
- Vocal nodules
- Vocal cord paralysis
- Functional aphonia
- **Tumuors**
- Papilloma larynx
- Polyp
- Carcinoma larynx
- TNM classification
- **Tracheostomy**
- Indications
- Contra indications
- Complication
- Operation steps

- Post op care
- **EAR**
- Anatomy and physiology
- History and examination
- Tuning fork tests. Pure tone audiometry/impedance audiometry
- Pre auricular sinus
- Deafness
- Pain in the ear
- **External ear**
- Perichondritis
- Trauma to pinna/haematoma
- Wax ear
- Foreign body ear
- Hyperostosis
- Neoplasia
- Boil ear
- Fungus
- Acute diffuse otitis externa
- Malignant otitis externa
- Myringitis bullosa
- Traumatic rupture
- **Middle ear**
- Acute otitis media
- Acute necrotising otitis media
- Serous otitis media
- Chronic otitis media
- i Tubo tympanic
- ii Mucosal disease
- iii Attico antral
- **Complications Of Otitis Media / Mastoiditis**
- Oto toxicity

- Acoustic trauma
- Trumatic perforation of tympanic membrane.
- Deaf child
- Speech therapy
- Oto sclerosis
- Vertigo
- Meniere's disease
- Facial nerve paralysis
- Eustachean tube dysfunction

- **HEAD & NECK**

- Cleft palate
- Hare lip
- Thyroglossal cyst / sinus
- Pre auricular cyst / sinus
- D/D of mass neck
- Lesions of salivary glands

PRACTICAL SKILLS:

By the end of the clerkship in the department of ENT,the student should be able to:

- Obtain an appropriate history.
- Perform a complete regional examination
- Identify common E.N.T. Head & Neck problems for a given patient and outline appropriate management plans.
- Identify problems needing referral to an Otolayngologist.

GENERAL SKILLS.

The students should be able to:

- Demonstrate the use of the head mirror for adequate illumination of the nasal cavity
- Examine the oropharynx and the neck
- Examine Larynx by indirect laryngoscopy
- Examination of postnasal space by posterior rhinoscopy.

SPECIAL SKILLS:

- Use the tongue blade to aid inspection of the buccal/cavity.
- Use the finger palpation examination of the oral cavity and tongue
- Palpate the neck to assess the lymph-nodes and salivary glands in the neck.
- Examination of cranial nerves
- Identify structures (of the neck, sinuses and ear) on X-ray (MRI, CT Scan)
- Demonstrate the appropriate use of nasal speculum
- Demonstrate the use of otoscope to aid in examination of the external auditory canal and the tympanic membrane.
- Learn pneumatic otoscopy. (Use of Seigle's speculum)
- Demonstrate the use of tuning fork and interpret the findings
- Interpret pure tone and speech audiometry
- Syringing of ear.
- Removal of wax from ear
- Anterior nasal packing

Observe the Following Operations and the Use Of the Listed Instruments

- Abscess incision drainage/ haematoma
- Reduction of fracture nose
- Septal correction surgery
- Antral wash out
- Cald Well Luc's operation

Introduction To New Procedures

- Nasal packing (anterior)
- Tracheostomy
- Laryngotomy
- Management of obstructed airway
- Foreign body in tracheo-bronchial tree and Larynx
- Ear operations

Instruments

- Ear instruments like myringotome and ear speculum

- Walsham's Forceps
- Ashe's Forceps
- Trocar and Cannula
- Nasal Speculum
- Freer elevator
- Suction Tube
- Lucl's forceps
- Tilly Nasal Dressing Forceps
- Bayonet Nasal Forces
- Myle's Retrograde Perforator.
- Nasal Snare
- Balenger Swivel Knife
- Eustachean Catheter
- Sinus forceps
- Endotracheal tube, cuffed, non-cuffed
- Mcgill forceps
- Tracheostomy tubes
- Tracheal dilator
- Retractors
- Crecooid hook
- Endoscopes
 - Laryngoscopes
 - Bronchoscopes
 - Oesophagoscopes
 - Nasopharyngoscope (Rigid/flexible)
- Adenoid curette
- Boyle Davis mouth gag
- Tonsil holding forceps
- Tonsilar artery forceps
- Tonsil snare
- Knot pusher

RECOMMENDED BOOKS

1. **Text book of ENT** by Logan Turner. Latest Ed.
2. **Diseases of ENT** by Dhengra. Latest Ed.
3. **Text Book of ENT** by Masud.
4. **Oxford Hand Book of ENT** by Prescott.
5. **Online Journals and Reading Materials through HEC Digital Library Facility.**