

**SCHEME AND SYLLABUS OF EXAMINATION FOR THE PURPOSE OF FILLING UP
THE POST OF SPECIALIST IN THE SIKKIM STATE HEALTH SERVICE:-**

1. The examination will consist of 2 papers:-

PAPERS	SUBJECT	FULL MARKS	TIME ALLOWED
PAPER-I	General English & General Knowledge	100 MCQ/Conventional	2.00 hours
PAPER-II	Compulsory Subjects in their respective Specialised discipline	300 MCQ & Conventional	3.30 hours
VIVA-VOICE/Personality Test – 50 marks			

PAPER-I: GENERAL ENGLISH

The question will be designed to test the candidate's understanding and command of the English language. *Mode of Examination pattern shall be objective MCQ, Conventional/MCQ for both Paper-I, General English-General Knowledge and Paper-II (Compulsory Subjects in their respective specialised discipline).*

English: Candidate will be required to answer questions designed to test their understanding of English and workman like use of words. The Patterns of questions would be broadly as follows:

- (i) Comprehension & Grammar.
- (ii) Letter Writing/Report Writing/ Project Writing.

General Knowledge: Knowledge of current events of local, National and International importance and of such matter of everyday observation and experience in their scientific aspects as may be expected of any educated person who has not made a special study of any scientific subject.

PAPER-II

The questions will be conventional & MCQ type and will cover areas of knowledge of the following subject and topics:-





GOVT. OF SIKKIM
DEPARTMENT OF MICROBIOLOGY
SIR THOTUB NAMGYAL MEMORIAL HOSPITAL
SOCHAKGANG GANGTOK

Microbiology Syllabus for filling up of post of Specialist in Sikkim State Specialist wing of Sikkim State Health Service

The syllabus is divided into theory, affective domain and psycho motor skills

Section A

Sections/ units (theory)

- 1. GENERAL MICROBIOLOGY
- 2. IMMUNOLOGY
- 3. BACTERIOLOGY
- 4. MYCOLOGY
- 5. VIROLOGY
- 6. PARASITOLOGY
- 7. APPLIED MICROBIOLOGY
- 8. RECENT ADVANCES

General Microbiology

- 1. Introduction to microbiology
 - a. History of Microbiology
 - b. Role of Microbiology laboratory in diagnosis of infections
 - c. Guidelines for the Collection, Transport, Processing, Analysis and Reporting of Cultures
- 2. Microscopy – Types and principles
- 3. Bio-safety in laboratory
- 4. Quality control and Quality assurance
- 5. Sterilization and disinfection
- 6. Types and preparation of Culture media
- 7. Morphology of bacteria
- 8. Growth, Nutrition and requirement of bacteria
- 8. Normal flora of human body
- 9. Bacterial toxins and Bacteriocins and their role
- 10. Microbiology of air, milk and water
- 11. Host-parasite relationship including bacterial virulence factors and pathogenicity
- 12. Antibacterial substances and drug resistance
- 13. Bacterial genetics
- 14. Molecular diagnosis of microorganisms
- 15. Accreditation of laboratories

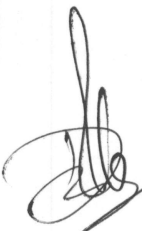
- 16. Bioterrorism
- 17. Risk management and Laboratory Safety practices
- 18. Laboratory diagnosis of bacteria
- 19. Syndromic approach
- 20. Hospital Acquired Infections – Types, Surveillance and prevention
- 21. Human Microbiome

Immunology

- 1. Structure and function of the immune system
- 2. Immunity – Types and features
- 3. Antigens
- 4. Immunoglobulins
- 5. Complement – Role in infections and diagnostics
- 6. Antigen & antibody reactions
- 7. Hypersensitivity reactions
- 8. Cytokines and their role
- 9. Immunodeficiency
- 10. Auto-immunity
- 11. MHC complex
- 12. Transplantation immunity
- 13. Tumor immunity
- 14. Vaccines and immunotherapy
- 15. Immunological techniques
- 16. Immunomodulation

Bacteriology (systemic)

- 1. Systemic classification of bacteria
- 2. Gram positive cocci - Staphylococcus, Micrococcus, Streptococci, Enterococci, anaerobic cocci etc.
- 3. Gram negative cocci - Neisseria, Branhamella, Moraxella etc.
- 4. Gram positive bacilli of medical importance including Lactobacillus, Coryneform organisms, Bacillus & aerobic bacilli, Actinomyces, Nocardia, Actinobacillus and other Actinomycetales, Erysipelothrix, Listeria, Clostridium and other spore bearing anaerobic bacilli etc.
- 5. Gram negative bacilli of medical importance including Vibrios, Aeromonas, Plesiomonas, Haemophilus, Bordetella, Brucella, Gardnerella, Pseudomonas
- 6. Non- fermenters
- 6. Miscellaneous bacteria - Helicobacter, Campylobacter, Legionella & Spirillum
- 7. Enterobacteriaceae
- 8. Mycobacteria
- 9. Spirochaetes
- 10. Chlamydiae
- 11. Mycoplasmatales: Mycoplasma, Ureaplasma, Acholeplasma and other Mycoplasmas.



12. Rickettsiae, Coxiella, Bartonella etc.

13. Anaerobic bacteriology –

- a. Introduction to Anaerobic bacteria
- b. Human infections caused by anaerobic bacteria
- c. Collection, transport and handling of anaerobic specimens and cultures
- d. Isolation and identification of anaerobic bacteria
- e. Anaerobic Gram negative bacilli – Bacteroidis, Fusobacterium etc.
- f. Anaerobic Gram positive bacilli – Propionibacterium, Eubacterium, Lactobacillus, Mobiluncus, etc
- g. Clostridium species
- h. Anaerobic Gram positive and negative cocci

Virology

- 1. General characteristics of viruses
 - a. Classification of viruses
 - b. Morphology of viruses
 - c. Replication of viruses
- 5. Pathogenesis and host response of viral infections
- 6. Laboratory diagnosis of viruses
- 7. DNA viruses - Poxviridae, Herpesviridae, Adenoviridae, Hepadna virus and Parvo viruses etc.
- 9. RNA viruses - Enteroviruses, Togaviridae, Flaviviruses, Orthomyxoviruses, Paramyxoviruses, Reoviridae, Rhabdoviridae, Arenaviridae, Bunyaviridae, Filoviruses, Arboviruses, Coronaviridae,
- 10. Retroviridae, Human immunodeficiency virus
- 10. Slow viruses including prions
- 11. Unclassified viruses
- 12. Carcinogenic viruses
- 13. Teratogenic viruses
- 14. Vaccines & anti-viral drugs
- 15. Recent advances in diagnosis of Viral infection

Parasitology

- 1. Introduction to parasitology
 - a. Taxonomical and systemic classification of parasites
 - b. General characteristics of parasites
- 2. Laboratory diagnosis of parasitic infections
- 3. Protozoan parasites - Entamoeba, Free living amoebae, Giardia, Trichomonas, Leishmania, Trypanosoma, Plasmodium, Toxoplasma, Sarcocystis, Cryptosporidium, Microsporidium, Cyclospora. Isospora, Babesia, Balantidium etc.

4. Helminthology –

a. Cestoda (*Diphyllobothrium, Taenia, Echinococcus, Hymenolepis, Dipylidium, Multiceps* etc.)

b. Trematoda (*Schistosomes, Fasciola. Fasciolopsis, Gastrodiscoides, Paragonimus, Clonorchis, Opisthorchis* etc.)

c. Nematoda (*Trichiuris, Trichinella, Strongyloides, Ancylostoma, Necator, Ascaris, Toxocara, Enterobius. Filarial worms, Dracuncul* etc.)

5. Entomology: common arthropods & other vectors

6. Antiparasitic agents

7. Drug resistance in parasites

8. Recent advances in parasitology

Mycology

1. Introduction to Mycology including classification, morphology, nomenclature, reproduction and laboratory diagnosis of fungi

2. Host response to fungal infections

3. Superficial mycoses including Dermatophytes

4. Subcutaneous mycoses- Sporotrichosis, Chromomycosis, Mycetoma and all fungi causing these infections

5. Yeasts and yeast like fungi of medical importance including *Candida, Cryptococcus, Malassezia, Trichosporon, Geotrichum, Saccharomyces* etc.

6. Systemic fungi of medical importance including *Aspergillus, Zygomycetes, Pseudoallescheria, Fusarium, Piedra*

7. Hyphomycetes and hyalohyphomycetes

7. Dimorphic fungi including *Histoplasma, Blastomyces, Coccidioides, Paracoccidioides, Sporothrix, Penicillium marneffe*

8. Fungi causing mycetoma, keratomycosis, otomycosis and opportunistic infections.

9. *Pneumocystis carinii* infection

10. *Rhinosporidium seeberi* & *Loboaloboi*

15. Common laboratory contaminants

16. Mycetism & mycotoxicosis

17. Antifungal agents & invitro antifungal susceptibility tests

18. Newer fungi

19. Recent Advances in diagnosis of fungal infections

Applied Microbiology

1. Epidemiology of various infectious diseases

2. Hospital acquired infections – Types, Surveillance systems, prevention

3. Biomedical waste management in hospital

4. Outbreak investigation

5. Infections of various organs and systems of human body viz. respiratory tract infections, urinary tract infections, central nervous system infections, congenital infections, reproductive tract infections, gastrointestinal infections, hepatitis, pyrexia of unknown origin, infections of eye, ear & nose, septicaemia, endocarditis, haemorrhagic fever etc.

6. Opportunistic infections.

7. Sexually transmitted diseases

8. Vaccinology: principle, methods of preparation, administration of vaccines information technology (Computers) in microbiology

9. Gene cloning

10. Molecular techniques as applicable to microbiology

11. Automation in Microbiology

12. Statistical analysis of microbiological data and research methodology

13. Animal & human ethics involved in microbiological work

Section B

AFFECTIVE DOMAIN

1. Should be able to develop inter- and intra-collaborative communication and work skills to provide the best possible diagnosis.

2. Should be epithetical, etiquette, respectful and ethical approach towards patients, relatives and other health personnel.

Section C

PSYCHOMOTOR SKILLS

1. Collection/transportation of microbiological specimens

2. Preparation, staining, examination and interpretation of direct smears from clinical specimens

3. Inoculation of clinical specimens on solid/liquid media for isolation, purification, identification.

4. Preparation of stains/reagents viz. Gram, Albert's, ZiehlNeelsen (ZN), Silver impregnation

stain and special stains for capsule and spore, KOH, oxidase, Kovac, catalase etc.

5. Preparation, pouring and Sterility tests of different solid/liquid medias and biochemicals like Sugars, Kligler iron agar/Triple sugar iron agar (TSI), Robertson's cooked meat broth, Lowenstein Jensens medium, Sabouraud's dextrose agar etc.

6. Quality control of media and reagents

7. Operation, care and maintenance of various equipments like autoclave, hot air oven, incubators, centrifuge etc.

8. Maintenance and care of microscopes

9. Washing and sterilization of glassware (including plugging and packing)

10. Aseptic practices in laboratory and safety precautions.

11. Identification of bacteria up to species level by using morphotyping and biotyping

12. Preparation of anaerobic isolation and identification medias

13. Isolation and identification of anaerobic media at least upto genus level

14. Motility demonstration techniques: hanging drop, Cragie's tube, dark ground microscopy for *Spirochaetes*

15. Basic identification tests - Catalase test, Oxidase test, slide and tube coagulase tests, niacin and catalase tests for *Mycobacterium*, bile solubility, chick cell agglutination, sheep cell haemolysis, satellitism, CAMP test, and other biochemical tests.

16. Selection of proper drugs for putting up of AST for a particular organism from a particular site.

17. Performance of antimicrobial susceptibility testing eg. Kirby-Bauer, Stoke's method and by automated methods

18. Estimation of Minimal Inhibitory/Bactericidal concentrations by tube/plate dilution methods.

19. Tests for β -lactamase production.

20. Screening and confirmatory tests of Gram negative isolates for ESBL and MBL

21. Screening of *Staphylococci* for Methicillin Resistance.

22. Screening of *Enterococci* for Vancomycin resistance.

23. Interpretation and proper reporting of antimicrobial susceptibility testing.

23. Testing of disinfectants.

24. Quantitative analysis of urine by pour plate method and semi quantitative analysis by standard loop tests for finding significant bacteriuria

25. Bacteriological tests for water, air and milk

27. Maintenance and preservation of bacterial stock cultures

28. Maintenance and preservation of fungal stock cultures

29. Performing and reporting of bacterial, fungal, mycobacterial Quality control and proficiency testing samples

30. Performing and interpretation of basic serological reactions like – rapid ICT's, Widal (Slide and Tube), Latex agglutination tests, VDRL flocculation test etc.

31. Ethical approach towards animal handling and animal inoculation (in case applied)

32. Identification of viruses: Selection of egg of proper age, proper incubation of eggs, monitoring of eggs for development of embryo and egg inoculation and harvesting technique for virus isolation, Tissue culture, Hemagglutination inhibition, Viral load estimation, Polymerase chain reaction

33. Putting drug susceptibility testing for *Mycobacterium tuberculosis* on solid and liquid media.

34. Proper use, operation, maintenance of Automated systems in Microbiology

35. Interpretation of various tests by Automated systems.

36. Molecular testing of various organisms

37. Genotypic antimicrobial susceptibility testing of bacteria by molecular methods.

Anaesthesiology (Syllabus for Degree Course)

01. Human Anatomy and Physiology

Various organ system and cellular components in relation to Anaesthesia including muscles, neuromuscular junction, nerve plexuses, cardiovascular, respiratory, neurological, hepatobiliary, renal, endocrine and temperature homeostasis, theories of mechanism of production of anaesthesia, changes during pregnancy, various tests / investigations to evaluate the functional status of organ systems as applied to Anaesthesia Management , Intensive Care Practise and Pain Relief.

02. Pharmacology

As applied to Anaesthesia, Intensive Care Practise and Pain relief including General Pharmacological Principles, Pharmacokinetics and Pharmacodynamics of Anaesthetic Drugs (including Uptake and Distribution of Inhaled Anaesthesia agents and All the Adjuncts used in Anaesthesia, Drugs used for treatment of various Diseases and Drug Interaction) .

03. Pathophysiology of various diseases

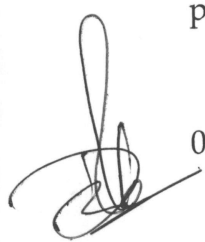
Including disorders of cardiovascular, respiratory, neurological, hepatobiliary, renal, endocrine and immune systems, various tests / investigations to grade / measure the disease process of various organ systems as applied to anaesthesia management, intensive care practices and pain relief.

04. Medicine

As applied to the practice of Anaesthesia including diagnosis and management of Diabetes, Hypertension, Bronchial Asthma, Chronic Obstructive Pulmonary Diseases, Respiratory Failure, ARDS, Myocardial Ischemia / Infarction, Arrhythmia, Shock, Congestive Heart Failure, Acute / Chronic Renal Failure, Head Injury, Unconscious Patients, Status Epilepticus / Asthmaticus, Endocrine Disorders, Diseases related to Dysfunction of Hepatobiliary, Muscular, Connective Tissues and Immune system, Management of Perioperative Infection, Neuromuscular Disorders, Poisoning etc. and interpretation of ECG / Blood Gasses / Other Bio Chemical Values and Function Tests.

05. Physics:

As applied to Anaesthetic gases, vapours, anaesthesia machine, breathing systems, monitors, ventilators, therapeutic devises and other relevant equipment including physical principals involved in their construction and functioning.



06. Perioperative Anaesthesia management

Including pre-operative evaluation, intra-operative managements as well as post-operative care, monitoring (Invasive as well as non-invasive) as applied to various surgical specialities and age groups.

07. Theory and practise of various techniques / aspects of Routine & Emergency cases of General Anaesthesia (e. g., Intravenous / Inhalation, Endotracheal / Mask / LMA / COPA, Spontaneous / Controlled mode of ventilation, induced hypotension / hypothermia etc.), Regional Blocks (Spinal, Epidural and Peripheral Nerve Block) and Local Anaesthesia including various postures required for anaesthetic / surgical procedures, their effects and recent advances for most minor to supra major surgeries in the field of :

General Surgery:

Minor cases like haemorrhoidectomy to supra major cases like Liver Transplant.

Gynaecology and Obstetrics

ENT and Head & Neck

Orthopaedics

Ophthalmology

Paediatric and Neonate :

Difference between adult and paediatric Anatomy, Physiology, Pharmacology, Anaesthesia principals, paediatric / neonatal emergencies, postoperative care, fluid and ventilator management etc.

Cardiac, Vascular & Thoracic:

Conduct of closed heart as well as open heart surgeries (Valvular, Ischemic, Congenital - Cyanotic & Acyanotic), CABG (including off pumps), Pulmonary Cases)Insertion of Double Lumen Tube, one lung anaesthesia), Thymus and Vascular surgeries etc. Ability to goon Cardiopulmonary bypass and disconnect from bypass, Ability to take, manage and interpret Arterial, Central Venous and P. A. Lines, postoperative care, management of re-explorations etc.

Neurosurgery:

Ability to monitor ICP, management of head injuries, bleeds, tumours etc., with raised ICT. Ability to safely manage cases in sitting, prone, lateral, jack-knife positions and Anaesthetic management for neuroradiology procedures.

Urology:

Management of endoscopic surgeries like TURP / TURBT etc., problems related to TURP, extracorporeal shock wave lithotripsy, percutaneous placement of nephrostomy etc., and anaesthetic management of patients with acute and chronic renal failure, anaesthetic management of renal transplant cases of donor as well as recipient.

Plastic

Management of burns contractures, congenial faciomaxillary abnormalities like cleft lip and palate, faciomaxillary injuries like fracture mandible, maxilla, zygoma, panfacial fractures, difficult intubations, microvascular surgeries, reconstructive surgeries, aesthetic surgeries etc.

Dental

Monitored Anaesthesia Care, Anaesthetic management of pedodontia patients, maxillofacial surgeries including YMJ Ankylosis, Awake, retrograde & Fibreoptic intubations.

Endoscopies / laparoscopies

Anaesthetic management, specific requirement and complications of various endoscopies like cystoscopy, ureteroscopy, PCNL, hysteroscopy, thoracoscopy, mediastinoscopy, etc. and Lap. Assisted / laparoscopic surgery like hysterectomy, tube ligation, appendectomy, cholecystectomy etc.

Anaesthesia for various diagnostic, therapeutic and specialized procedures

Anaesthesia for Geriatric patients

Anaesthesia for surgery using LASER

Anaesthesia / Sedation techniques outside operating room

Electroconvulsive shock therapy (ECT), Electrophysiological tests, radiofrequency ablation, cardio version, Cardiac catheterization, Special Anaesthetic considerations in radiology and interventional radiology related to Dye allergies, Embolization, Monitoring / Equipment options in the MRI suite.

08. History of Anaesthesia

09. Airway Management

Assessment of difficult airway, Awake, retrograde, Use of intubating LMA's, Intubating Stylets, Various laryngoscopes designated for difficult airway, Insertion of Combitube, Ability to perform Cricothyrotomy and use of Venturi, Minitrach&Fibreoptic intubations etc.

10. Basic & Advanced Cardiopulmonary & Cerebral Resuscitation (CPCR) for all age group of patients under different situations, e. g., neonates, pregnant females, poisoning cases, trauma victims etc.

11. Acid base & Fluid Management

Including use of Crystalloids, Colloids, blood & blood products

12. Arterial, central Venous and P. A. Lines
Establishment, management and interpretation

13. Anaesthetic drugs used in perioperative care

14. Equipment (Minor to advanced monitoring) -

Their use, maintenance, sterilization and care

15. Medical gases

Knowledge of Manufacturing, Storage and Central pipeline Systems.

16. Day Care / Outpatient Anaesthesia

17. Remote Location Anaesthesia

Anaesthetic practice during disasters and for large turnover surgeries in camps / mass casualties

18. Emergency Anaesthesia

19. Monitored Anaesthesia Care

20. Labour Analgesic

21. Pain relief ; Acute and chronic

22. Critical Care Practice

Including oxygen therapy, respiratory therapy, ventilator support, haemodynamic monitoring, prevention and management of multi organ failure and care of patients with brain damage or brain dead patients for organ Transplant.

23. Advanced Trauma Life Support (ATLS)

24. Occupational Hazards

25. Safety in Anaesthesia

26. Complications of Anaesthetic procedures, its prevention, detection and management

27. Record keeping in Anaesthesia

28. Medical Audit

29. Quality Assurance

30. Anaesthesia standards; e. g., minimum monitoring standard

31. Medico legal aspects in Anaesthesia

32. Ethics in Anaesthesia

33. Principles of Evidence Based Medicine

34. Basic Research Methodology and Clinical Trials

35. Bio - statistics

36. Computers

Utility, computer assisted learning and data storage, Computerized Anaesthesia records.



MEDICINE

(Syllabus for Degree Course)

Course contents:

Basic Science

1. Basics of human anatomy as relevant to clinical practice
 - Surface anatomy of various viscera
 - Neuro-anatomy
 - Important structures/organs location in different anatomical locations in the body
 - Common congenital anomalies
2. Basic functioning of various organ-system, control of vital functions, patho-physiological alteration in diseased states, interpretation of symptoms and signs in relation to patho-physiology.
3. Common pathological changes in various organs associated with diseases and their correlation with clinical signs; understanding various pathogenic processes and possible therapeutic interventions possible at various levels to reverse or arrest the progress of diseases.
4. Knowledge about various microorganisms, their special characteristics important for their pathogenetic potential or of diagnostic help; important organisms associated with tropical diseases, their growth pattern/life-cycles, levels of therapeutic interventions possible in preventing and/or eradicating the organisms.
5. Knowledge about pharmacokinetics and pharmaco-dynamics of the drugs used for the management of common problems in a normal person and in patients with diseases kidneys/liver etc. which may need alteration in metabolism/excretion of the drugs; rational use of available drugs.
6. Knowledge about various poisons with specific reference to different geographical and clinical settings, diagnosis and management.
7. Research methodology and Studies, epidemiology and basic Biostatistics.
8. National Health Programmes.
9. Biochemical basis of various diseases including fluid and electrolyte disorders; Acids base disorders etc.
10. Recent advances in relevant basic science subjects.

Systemic Medicine

11. Preventive and environmental issues, including principles of preventive health care, immunization and occupational, environmental medicine and bio-terrorism.
12. Aging and Geriatric Medicine
 - Biology
 - Epidemiology
 - Neuro-psychiatric aspects of aging
13. Clinical Pharmacology:
 - Principles of drug therapy
 - Biology of addiction
 - Complementary and alternative medicine
14. Genetics:
 - Overview of the paradigm of genetics contribution to health and disease
 - Principles of Human Genetics
 - Single gene and chromosomal disorders
 - Gene therapy
15. Immunology:
 - Innate and adaptive immune systems
 - Mechanisms of immune mediated cell injury
 - Transplantation immunology
16. Cardio-vascular diseases:
 - Approach to the patient with possible cardio-vascular diseases
 - Heart failure
 - Arrhythmias
 - Hypertension
 - Coronary artery disease

- Valvular heart disease
- Infective endocarditis
- Diseases of the myocardium and pericardium
- Diseases of the aorta and peripheral vascular system

17. Respiratory system:

- Approach to the patient with respiratory disease
- Disorders of ventilation
- Asthma
- Congenital Obstructive Pulmonary Disease (COPD)
- Pneumonia
- Pulmonary Embolism
- Cystic Fibrosis
- Obstructive sleep apnoea syndrome and diseases of the chest wall, pleura and mediastinum

18. Nephrology:

- Approach to the patient with renal diseases
- Acid-base disorders
- Acute kidney injury
- Chronic kidney disease
- Tubule-interstitial diseases
- Nephrolithiasis
- Diabetes and the kidney
- Obstructive uropathy and treatment of irreversible renal failure

19. Gastro-intestinal diseases:

- Approach to the patient with gastrointestinal diseases
- Gastrointestinal endoscopy
- Motility disorders
- Diseases of the oesophagus
- Acid peptic diseases
- Functional gastrointestinal disorders
- Diarrhoea

20. Diseases of the liver and gall bladder:

- Approach to the patient with liver diseases
- Acute viral hepatitis
- Chronic hepatitis
- Alcoholic and non-alcoholic steatohepatitis
- Cirrhosis and its sequelae
- Hepatic failure and liver transplantation
- Diseases of the gall bladder and bile ducts

21. Haematologic Diseases:

- Haematopoiesis
- Anaemias
- Leucopenia and leucocytosis
- Myelo-proliferative disorders
- Disorders of haemostasis and haemopoietic stem cell transplantation

22. Oncology:

- Epidemiology
- Biology and genetics of cancer
- Paraneoplastic syndromes and endocrine manifestations of tumours
- Leukemias and lymphomas
- Cancers of various organ systems and cancer chemotherapy

23. Metabolic diseases- inborn errors of metabolism and disorders of metabolism.

24. Nutritional diseases- nutritional assessment, enteral and parental nutrition, obesity and eating disorders.

25. Endocrine- principles of endocrinology, diseases of various endocrine organs including diabetes mellitus.

26. Rheumatic diseases:

- Approach to the patient with rheumatic diseases
- Osteoarthritis

- Rheumatoid arthritis
- Spondyloarthropathies
- Systemic lupus Erythematosus (SLE)
- Polymyalgia
- Rheumatic fibromyalgia and amyloidosis

27. Infectious diseases:

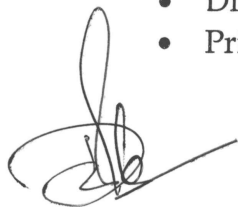
- Clinical Syndromes
- Community acquired clinical syndromes
- Nosocomial infections
- Bacterial diseases- General consideration, diseases caused by gram- positive bacteria, diseases caused by gram- negative bacteria.
 - Miscellaneous bacterial infections
 - Mycobacterial diseases
 - Spirochetal diseases
 - Rickettsia
 - Mycoplasma and Chlamydia
 - Viral diseases
 - DNA diseases
 - DNA and RNA respiratory viruses
 - RNA viruses
- Fungal infections, protozoal and helminthic infections.

28. Neurology- approach to the patient with neurologic diseases, headache, seizure disorders and epilepsy, coma, disorders of sleep, cerebrovascular diseases, Parkinson's diseases and other movement disorders, motor neuron diseases, meningitis and encephalitis, peripheral neuropathies, muscle diseases, diseases of neuromuscular transmission and autonomic disorders and their management.

29. The mental condition characterized by complete self absorption with reduced ability to communicate with the outside world (Autism), abnormal functioning in social interaction with or without repetitive behaviour and/or poor communication etc.

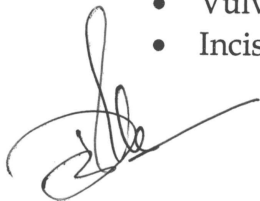
30. Dermatology:

- Structure and function of skin
- Infections of skin
- Papulo-squamous and inflammatory skin rashes
- Photo- dermatology
- Erythroderma
- Cutaneous manifestations of systematic diseases
- Bullous diseases
- Drug induced rashes
- Disorders of hair and nails
- Principles of topical therapy



Gynaecology & Obstetrics (Syllabus for Degree Course)

- Pap Smear
- Wet smear examination
- Post Coital Test
- Endometrial Biopsy
- Endometrial Aspiration
- Dilatation and Curettage / Fractional Curettage / polypectomy
- Cervical Biopsy
- Cryo / Electrocautery of Cervix
- Hysterosalpingography & Hysteroscopy
- Diagnostic Laparoscopy & Hysteroscopy
- Opening & closing of abdomen
- Operations for utero vaginal prolapsed
- Operations for Ovarian tumors
- Vaginal hysterectomy
- Abdominal Hysterectomy
- Myomectomy
- Colposcopy
- Loop Electro Surgical Excision Procedure
- Tuboplasties
- Paracentesis
- Culdocentesis
- Endoscopic surgery (Operative Laparoscopy & Hysteroscopy)
- Repair of genital fistulae
- Operations for Urinary incontinence
- Radical operations for gynaecological malignancies
- Vaginoplasty
- Intrauterine insemination
- Basic ultrasound / TVS
- Hydrotubation
- Vulval Biopsy
- Incision & drainage



Family Planning

- ❖ Intra Uterine Contraception Device insertion/removal
- ❖ Female sterilization
- ❖ Post Partum & Interval
- ❖ Open & Laparoscopic
- ❖ MTP & male Sterilization
- ❖ Manual Removal of Placenta
- ❖ Breech vaginal delivery
- ❖ External Cephalic Version
- ❖ Delivery of twins
- ❖ Management of shock management of postpartum hemorrhage
- ❖ Cervical Cerclage
- ❖ Amnio infusion
- ❖ Instillation of extra amniotic & intra amniotic drugs
- ❖ Non stress Test
- ❖ Suction Evacuation
- ❖ Dilatation & Evacuation
- ❖ Repair of complete perineal tear
- ❖ Repair of cervical tear
- ❖ Caesarean hysterectomy
- ❖ Internal iliac ligation
- ❖ Uterine & Ovarian Artery ligation
- ❖ Destructive operations
- ❖ Reposition of inversion uterus
- ❖ Amniocentesis



Course Contents:

Basic sciences like Anatomy, Physiology, Biochemistry, Microbiology, Pathology, Pharmacology etc. and conversant with the bedside procedures like diagnostic and therapeutic applications.

1. General topics:

1. History of medicine with special reference to ancient Indian texts.
2. Health economics- basic terms, health insurance
3. Medical sociology, doctor-patient relationship, family adjustments in diseases, organizational behavior, conflict resolution
4. Computers- record keeping, computer aided learning, virtual reality, robotics
5. Hazards in hospital and protection: AIDS, hepatitis B, tuberculosis, radiation, Psychological
6. Environment protection- bio-medical waste management
7. Surgical audit, evidence based surgical practice, quality assurance
8. Concept of essential drugs and rational use of drugs
9. Research methodology - library consultation, formulating research, selection of topic, writing thesis protocol, preparation of consent form from patients
10. Bio-medical statistics, clinical trials
11. Medical ethics
12. Consumer protection
13. Newer antibiotics
14. Problem of resistance
15. Sepsis -SIRS
16. Nosocomial infection
17. Advances in imaging technologies
18. Disaster management, mass casualties, Triage
19. O.T. design, technologies, equipment
20. Critical care in surgical practice
21. Response to trauma
22. Wound healing
23. Fluid and electrolyte balance
24. Nutrition
25. Blood transfusion
26. Brain death
27. Cadaveric organ retrieval

1. Systemic Surgery

- Wound healing including recent advances
- Asepsis, antisepsis, sterilization and universal precaution
- Surgical knots, sutures, drains, bandages and splints
- Surgical infections, causes of infections, prevention
- Common aerobic and anaerobic organisms and newer organisms causing infection including Helicobacter Pylori
- Tetanus, gas gangrene treatment & prevention
- Chronic specific infections TB, Filariasis
- Biols, cellulites, abscess, necrotizing fasciitis and synergistic infection
- Antimicrobial therapy rationale including antibiotic prophylaxis, misuse, abuse
- Hospital acquired nosocomial infection causes and prevention including MRSA etc.
- HIV, AIDS and Hepatitis B & C, Universal precautions when dealing with interpretation of blood gas analysis data and management

- Phabdomyolysis and prevention of renal failure
- Shock (septicaemic, hypovolaemic, Neurogenic, anaphylactic), etiology, pathophysiology and management
- Blood and blood components, transfusion indication, contraindication, mismatch and prevention and management of complications of massive blood transfusion
- Common preoperative preparation (detailed preoperative workup, risk assessment according to the disease and general condition of the patient as per ASA grade) and detailed postoperative complications following major and minor surgical procedures
- Surgical aspects and diabetes mellitus particularly management of diabetic foot and gangrene, preoperative control of diabetes, consequences of hypo- and hyper- glycaemia in a postoperative setting
- Consequences and management of bites and stings including snake, dog, human bites.
- Mechanisms and management of missile, blast and gunshot injuries
- Organ transplantation: Basic principles including cadaver donation, related Human Organ Transplant Acts, ethical and medico legal aspects
- Nutritional support to surgical patients
- Common skin and subcutaneous condition
- Sinus and fistulas, pressure sores
- Acute arterial occlusion, diagnosis and initiate management
- Types of gangrene, Burger's disease and atherosclerosis
- Investigations in case of arterial obstruction, amputation, vascular injuries: basic principles and management
- Venous disorders: Varicose veins
- Diagnosis, principles of therapy, prevention of DVT: basic principles and management
- Lymphatic: Diagnosis and principles of management of lymphangitis and lymphedema
- Surgical management of Filariasis
- Burns: causes, prevention and management
- Wounds of scalp and its management
- Recognition, diagnosis and monitoring of patients with head injury, Glasgow coma scale
- Undergo advanced trauma and cardiac support course (certified) before appearing in final examination
- Recognition of acute cerebral compression, indication for referrals.
- Cleft lip and palate
- Oral malignancies
- Salivary gland neoplasms
- Bronchial cyst, cystic hygroma
- Cervical lymphadenitis nonspecific and tuberculosis, metastatic lymph nodes and lymphomas
- Diagnosis and principles of management of goiter
- Thyroglossal cyst and fistula
- Thyrotoxicosis
- Thyroid neoplasms
- Management of solitary thyroid nodule
- Thoracic outlet syndrome
- Management of nipple discharge
- Breast abscess
- Clinical breast examination, breast self examination
- Screening and investigation of breast lump
- Concept of Single Stop Breast Clinic
- Cancer breast diagnosis, staging and multimodality management (common neoadjuvant and adjuvant and palliative chemotherapy protocols and indications of radiation and hormonal therapy, pathology and interpretation of Tumor Markers, breast cancer support groups and counseling)

- Recognition and treatment of pneumothorax, haemothorax
- Pulmonary embolism: index of suspicion, prevention/recognition and treatment
- Flail chest, stove in chest
- Postoperative pulmonary complication
- empyema thoracis
- Recognition of oesophageal atresia and principles of management
- Neoplasms of the lung including its prevention by tobacco control
- Cancer esophagus: principles of management including importance of early detection and timely referral to specialist
- Achalasia cardia
- Gastro-esophageal reflux disease (GERD)
- Congenital hypertrophic pyloric stenosis
- Aetiopathogenesis, diagnosis and management of peptic ulcer including role of H.Pylori and its diagnosis and eradication
- Cancer stomach
- Signs and tests of liver dysfunction
- Amoebic liver abscess and its non-operative management
- Hydatid cyst and its medical and surgical management including laparoscopic timely referral to a specialist centre
- Obstructive jaundice with emphasis on differentiating medical versus surgical Jaundice, algorithm of investigation, diagnosis and surgical treatment options
- Neoplasms of liver
- Rupture spleen
- Indications for splenectomy
- Clinical features, diagnosis, complications and principles of management of cholelithiasis and cholecystitis including laparoscopic cholecystectomy
- Management of bile duct stones including endoscopic, open and laparoscopic management
- Carcinoma gall bladder, incidental cancer gallbladder, index of suspicion and its staging and principles of management
- Choledochal cyst
- Acute pancreatitis both due to gallstones and alcohol
- Chronic pancreatitis
- Carcinoma pancreas
- Peritonitis: causes, recognition, diagnosis, complications and principles of management with knowledge of typhoid perforation, tuberculous peritonitis, postoperative peritonitis
- Abdominal pain types and causes with emphasis on diagnosing early intra- abdominal acute pathology requiring surgical intervention
- Intestinal amoebiasis and other worms manifestation (Ascariasis and their surgical complications (Intestinal Obstruction, perforation, gastrointestinal bleeding, involvement of biliary tract)
- Abdominal tuberculosis both peritoneal and intestinal
- Intestinal obstruction
- Appendix: Diagnosis and management of acute appendicitis
- Appendicular lump and abscess

Colon

- Congenital disorders, Congenital mega colon
- Colitis infective/ non infective
- Inflammatory bowel diseases
- Premalignant conditions of large bowel
- Ulcerative colitis
- Carcinoma colon
- Principles of management of types of colostomy
- Principles of management of types of colostomy

Rectum and anal Canal:

- Congenital disorders. Anorectal anomalies
- Carcinoma rectum
- Anal Canal: Surgical anatomy, features and management of fissures, fistula - in- ano
- Perianal and ischiorectal abscess
- Hemorrhoids-Non-operative outpatient procedures for the control of bleeding (Banding, cryotherapy, injection) operative options - open and closed haemorrhoidectomy and stapled haemorrhoidectomy)
- Anal carcinoma
- Clinical features, diagnosis, complication and principles of management of inguinal hernia including laparoscopic repair
- Umbilical, femoral hernia and epigastric hernia
- Open and Laparoscopic repair of incisional/primary ventral hernia
- Urinary symptoms and investigations of urinary tract
- Diagnosis and principles of management of urolithiasis
- Lower Urinary tract symptoms or prostatism
- Benign prostatic hyperplasia: diagnosis and management
- Genital tuberculosis in male
- Phimosis and paraphimosis
- Carcinoma penis
- Diagnosis and principles of treatment of undescended testis
- Torsion testis
- Hydrocele, haematocele and pyocele Varicocele: Diagnosis (Medical Board for fitness)
- Varicoles: Diagnosis (Medical Boards for fitness)
- Acute and chronic epididymo-orchitis
- Testicular tumors
- Principles of management of urethral injuries
- Management of soft tissue sarcoma
- Prosthetic materials used in surgical practice
- Telemedicine, teleproctoring and e-learning
- Communication skills

Clinical cases and Symptoms-based approach to the patient with:

2. Solitary nodule of the thyroid
3. Lymph node in the neck
4. Suspected breast lump
5. Benign breast disease
6. Acute abdominal pain
7. Blunt Trauma Abdomen
8. Gall stone disease
9. Dysphagia
10. Chronic abdominal pain
11. Epigastric mass
12. Right hypochondrium mass
13. Right iliac fossa mass
14. Renal mass
15. Inguino-scrotal swelling
16. Scrotal swelling
17. Gastric outlet obstruction
18. Upper gastrointestinal bleeding
19. Lower gastrointestinal bleeding
20. Anorectal symptoms
21. Acute intestinal obstruction
22. Obstructive jaundice
23. Acute retention of Urine
24. Bladder outlet obstruction
25. Hematuria



26. Peripheral vascular disease
27. Varicose veins
28. New born with development anomalies
29. Hydronephrosis, Pyonephrosis, perinephric abscess
30. Renal tuberculosis
31. Renal tumors
32. Carcinoma prostate
33. Genital tuberculosis in male

Perioperative management of the following:

- Start IV lines and monitor infusions
- State and monitor blood transfusion
- Venous cut-down
- Start and manage a CVP line
- Basic/ advance life support
- Endotracheal intubation
- Insert nasogastric tube
- Proctoscopy
- Urethral catheterization
- Surgical management of wounds
- Biopsies including image guided
- Manage pneumothorax/pleural space collections
- Infiltrations, surface and digital Nerve blocks
- Incise and drain superficial abscesses
- Control external hemorrhage
- Vasectomy (Preferably non-scalpel)
- Circumcision
- Surgery for hydrocele
- Surgery for hernia
- Surgery and Injection/ nanding of piles
- Management of all types of shock
- Assessment and management of burns
- Hemithyroidectomy
- Excision Biopsy of Cervical Lymph node
- Excision of benign breast lump
- Modified Radical mastectomy
- Axillary Lump node Biopsy
- Excision of gynaecomastia
- Excision of skin and subcutaneous swellings
- Split thickness skin fraft
- Management of hernias
- Laparoscopic and open cjolecystectomy
- Management of intestinal obstruction, small bowel resection, perforation and anastomosis
- Colostomy
- Hartmann's procedure for cancer rectum
- Splenectomy (emergency)



RADIOLOGY (Syllabus for Degree Course)

Radio Diagnosis:

1. Basic knowledge in the various sub - specialities of Radiology such as Neuroradiology, GI radiology, Uroradiology, Vascular Radiology, Musculkeletal, Interventional Radiology, Emergency Radiology, Paediatric Radiology and Imaging of breast.
2. Routine and special radiolocia and imaging investigations.
3. Radiological services in acute emergency and trauma including its medico legal aspects.
4. Elicit indications, diagnostic features and limitations of applications of ultrasound, CT and MRI and cost effective algorithm of various imaging techniques in a given problem setting.

Audio Diagnosis :

Part - I Medical Radiation Physics as applied to Radio - Diagnosis

1. Basic concepts :

Radiation and atom - Electromagnetic radiation - Structure of atom - Atomicnucleus - Radioactivity - Nuclear fission and fusion.

2. Production of X - Rays:

X- ray production - X- ray tubes - Tube rating charts - Interaction of electron with target Intensity and quality of x- ray beams.

3. Interaction of radiation with matter :

Particle interaction - photon interaction - coherent scattering photoelectric effect - Compton scattering - pair production - their relative importance.

Attenuation - Attenuation coefficient - Factors affecting attenuation - Applications to Diagnostic Radiology.

4. Radiography :

Film screen radiography - Cassettes - Intensifying Screens - Radiography film - Digital Radiography - Scattered radiation - Methods to reduce scattered radiation - Grid characteristics - Grid artifacts - Moving grids - Air gaps - Filters - Cones and Cylinders - Collimators Radiographics image quality - contrast - Noise - Spatial resolution.

5. Floroscopy :

General principle - Real time imaging - postioning - Fluroscopic equipment optical coupling - photo cameras - spotfilm - cineradiography.

6. Specific radiography:

Stereo radiography - Conventional tomography - Digital subtraction angiography - Mammography - Recent developments in Radiography. Computed Tomography - Basic principles - Historical developments - CT generators - image acquisition - Reconstruction techniques - Artifacts - Display.



7. Modern Imaging systems :

Ultrasound - Basic principles - production of ultrasound - Interaction of Ultrasound with matter - images acquisition - image quality - Artifacts - Doppler ultrasound - Biological safety
Magnetic Resonance Imaging - Basic principles - Image acquisition - Reconstruction techniques - image characteristics - Artifacts - MRI instrumentation - Biological safety.

8. Nuclear Medicine :

Radioactivity - Radionuclide production - Radiopharmaceuticals - Radiation detectors -

Thyroid probe - Well counter - Dose calibrator - Counting Statistics.

Nuclear imaging - Auger scintillation camera - computers in nuclear imaging.

Nuclear tomography - single photon emission computer tomography
positron emission tomography - Recent advances.

9. Radiation Biology :

Biological effects of Radiation - Interaction of radiation with tissue - Cellular Radio - Biology - Response of organs to radiation - Acute radiation syndrome - Radiation induced.

Carcinogenesis - Hereditary effects of radiation - Radiation effect in utero - recent concepts.

10. Radiation protection:

Natural radiation - Occupational exposures - Personnel dosimetry - Film badge - TLD pocket dosimeter - Area monitoring survey meters - Control - Time, distance shielding - Protective barrier specification - Workload, use factors, Occupancy factors - Planning diagnostic and Nuclear Medicine departments.

Guidelines for safe work practice - Regulatory agencies - Atomic energy regulatory agencies - Atomic energy regulatory board - Radiation protection rules in India - ICRP Recommendations - Dose equivalent limits - Recent concepts.

Part II

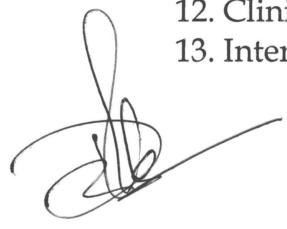
Radiology - Course contents :

1. Musculo - Skeletal system
2. Respiratory system
3. Cardiovascular system
4. Gastrointestinal system
5. Urogenital tract
6. CNS including Spine
7. Imaging of Obstetrics & Gynecology
8. ENT, EYES, Teeth, Soft tissue, Breast
9. Endocrine System
10. Clinically applied radio - Nuclide imaging
11. Contrast agents



Training in different organs system :

1. Musculoskeletal system - Interpretation of disease of muscles, soft tissue, bones and joints including congenital, inflammatory, traumatic, metabolic and endocrine neoplastic and miscellaneous conditions.
2. Respiratory system - Diseases of the chest wall, diaphragm, pleura and airways, pulmonary infections, pulmonary vasculature, pulmonary neoplasm, diffuse lung disease, mediastinal disease, chest trauma, post-operative lung and x-ray in intensive care.
3. Cardiovascular system - Diseases and disorders of the cardiovascular system (Congenital and acquired condition) and the role of imaging by conventional radiology, ultrasound, colour Doppler, CT, MRI, Angiography and Isotope studies.
4. Gastro intestinal tract and Hepato - biliary pancreatic system - diseases and disorders of mouth, pharynx, salivary glands, esophagus, stomach, small intestine, large intestine, diseases of omentum, peritoneum and mesentery, acute abdomen, abdominal trauma. Disease and disorders of Hepato - biliary pancreatic system.
5. Urogenital system - various diseases and disorders of Genito - Urinary system including congenital, inflammatory, traumatic, neoplastic, calculus disease and miscellaneous, degenerative, metabolic conditions.
6. Central Nervous system including imaging (conventional and newer methods) and Interpretation of various diseases and disorders of the head, neck and spine covering congenital, infective, Vascular, Traumatic, neoplastic, degenerative, Metabolic and miscellaneous condition.
7. Radiology of Emergency Medicine.
8. Radiology of Obstetric and Gynecology
9. Evaluation of Breast by imaging and interventions.
10. ENT, Eyes and teeth
11. Endocrine glands.
12. Clinical applied radionuclide Imaging
13. Interventional Radiology related to different systems of body.



1. Basic Science in Ophthalmology
2. Trauma and Emergency Ophthalmology
3. Disorders of the lids, lacrimal drainage apparatus, orbit and oculoplasty
4. External eye disease, sclera, cornea
5. Optics and refraction, contact lenses and low visual aids
6. Lens and Glaucoma
7. Uvea and Vitreo retinal diseases
8. Disorders of the optic nerve, visual pathway Neurophthalmology
9. Ocular motility, strabismus, pediatric ophthalmology
10. Community Ophthalmology

1. Basic Science in Ophthalmology

ANATOMY

The orbit and adnexa

Osteology

Eyelids

Conjunctiva

Lacrimal gland and accessory glands, and lacrimal drainage system

Extraocular muscles (including stability and movement of eyeball)

Intraorbital nerves, vessels and vascular supply, and orbital fat and fascia

Ocular anatomy

Including detailed topographical and microscopic anatomy of ocular Structures, including blood supply, particularly with respect to function and relevance to clinical disease states

Conjunctiva

Cornea

Sclera

Limbus and aqueous outflow pathways

Iris and pupil

Lens and zonular apparatus

Ciliary body

Choroid

Retina and retinal pigment epithelium and associated structures

Vitreous

Optic nerve

The Cranial cavity

Osteology of the skull

Meninges, blood supply, nerve supply

Venous sinuses

Foramina and their contents

Cranial fossae

Pituitary glands and its relations

Trigeminal ganglion

Central nervous system

Cerebral hemisphere and cerebellum

Surface appearance

Internal structure

Cortical areas

Ventricles

Formation and circulation of cerebrospinal fluid

Blood supply and venous drainage

Microscopic anatomy

Brain stem

Midbrain

Pons

Medulla and fourth ventricle

Nuclei of cranial nerves

Cranial nerves

Origin, course and distribution

Spinal Canal

Including spinal cord, venous plexus, meninges, and subarachnoid space

Specilised anatomy of visual system

Visual pathways - visual cortex, cortinal connections and associated areas

Structures involved in control of eye movements

Autonomic nervous system and the eye

Head and neck anatomy

Special areas to be covered include:

Nose, mouth and paranasal air sinuses

Lateral wall of nose, septum, vessels and nerves, oseteology, anatomy, relations and development of air sinuses

The face and scalp

Muscles, nerves and vessels, temporal fossa, zygomatic arch, salivary glands and temporomandibular joints

The infratemporal fossa and pterygopalatine fossa

Muscles, vessels, nerves, carotid sheath, ptergopalatine ganglion

General topography of the neck

Posterior triangle, anterior triangle, suprahyoid region, prevertebral region, root of the neck

Respiratory system

The anatomy of the mouth, pharynx, soft palate and larynx with particular reference to bulbar palsies and trachoesotomy

Lymphathic drainage of the head and neck

Including face

Ocular Physiology

Biochemistry of tears, aqueos and vitreous humuor

Physiology and biochemistry of cornea

Lacrimal system

Lens metabolism

Retina photoreceptors, including vitamin A metabolism and phototransduction

Retinal pigment epithelium

Choriod

Blood - ocular barrier

Physiology of vision

Visual acuity

Accommodation

Pupillary reflexes

Light detection and dark adaptation

Colour vision

Electrotophysiology of the visual system

Visual fields and visual pathways (including retinotopic organization)

Processing of light stimuli

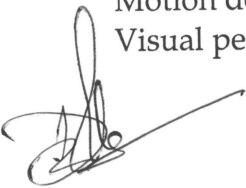
Contrast sensitivity

Eye movements

Stereopsis

Motion detection

Visual perception



GENETICS

- Chromosomes and cell division
- Methods of genetic analysis
- Mendelian inheritance
- X - linked inheritance
- Mitochondrial inheritance
- Linkage analysis and disequilibrium and population genetics
- Chromosomes mapping
- Gene mutations
- Oncogenes, and genetics of malignancy (including retinoblastoma)
- Inherited ocular disease : including for example retinispigmentosa, aniridia, chorodaemia, stationary night blindness, Norrie's diseases
- Genetic of ocular disorders and of general condition which contain an ocular component
- Principles of gene therapy

MOLECULAR AND CELL BIOLOGY

- Cell organelles, receptors and receptor signaling
- Plasma membrane
- Cytoskeleton and its relating to cell motility and contractility
- Nucleus
- Cell - cell communication
- Protein synthesis - pre - and post - transcriptional and translational control
- Molecular biology of protein synthesis

RECEPTOR PHYSIOLOGY

- Secondary messengers and intracellular signaling
- Understanding of molecular biological techniques (also in relation to genetics)
- Including: Polymerase chain reaction
- Northern and Southern Blotting
- In situ hybridization
- Extracellular matrix (particularly with respect to ocular structures)
- Collagen synthesis - types and functions
- Proteoglycans, glycoprotiens, fibronectin, laminin and gylcosaminoglycans

Retinal neurochemistry

PHARMACOLOGY

- Pharmacokinetics and pharmacodynamisc
- Drug receptor and secondary messengers: cellular mechanisms of drug action
- Methods of drug delivery for ophthalmic agents, pharmacokinetics of individual

Methods

Pharmacology of:

- Cholinergic and adrenergic systems
- Drug control of intraocular pressure
- Serotonin
- Histamine
- Anti - inflammatory agents
- Anti - infective agents
- Immunosuppressants
- Local anaethetics
- Mechanism of drug toxicity and drugs which specifically cause ocular toxicity



MICROBIOLOGY
Principles of Infection

Culture media

Bacteria

Gram staining and classification

Exo and endotoxins

Mechanisms of virulence and pathogenicity

Synergic infections

Antibiotics : including mechanisms of action, bacterial resistance

Host defence mechanisms against bacterial infection, with particular reference to ocular defence

Commensal eye flora

Viruses

Classifications

Structure and replication

Host defence against viral infection

Antiviral agents

Specific antiviral agents : mechanisms of action

Laboratory methods for viral detection

Viral infections of the eye

HIV AND AIDS

Classification, diagnosis, laboratory diagnosis and monitoring of HIV Infection

Neuro - ophthalmic opportunistic infections

Anti HIV agents

Fungi

Classification : Ocular fungal infections

Host factors which predispose to fungal infection

Antifungal agents

Others

Toxoplasmosis

Chlamdia

Acanthamoeba

Helminthic infections

Antimicrobials

PATHOLOGY

CLINICAL FEATURES AND MANAGEMENT OF:



Eyelid tumors

Tumors of Conjunctiva and cornea

Uvealtumors

Retinoblastoma (including genetics)

Metastatic disease to the eye and orbit

Orbital tumors in children and adults

● Cornea

Inflammation, including graft rejection, dystrophies and degenerations

Lens

Cataract formation

Uvea

- Inflammation
- Vascular disease
- Infection
- Tumors

Retina

- Vascular disease
- Degenerative disease
- Dystrophies
- Detachment
- Infection
- Tumors

Optic nerve

- Vascular disease
- Toxic
- Inflammatory and neoplastic disease

- Phacomatoses
- Glaucoma

Orbit

- Inflammations
- Tumors

Pathological findings in the eye and orbit in systemic disease

- Diabetes
- Thyroid disease
- Vascular disease

Pathology of infectious disease

- Cornea
- Intraocular
- Orbital
- Intracranial

Vitamin metabolism and deficiency states

IMMUNOLOGY

- Innate and acquired immunity
- Effector mechanisms of immune response
- Humoral immunity and antibody class and function
- Cellular immunity
- Immunity against microbes (see microbiology)
- T and B cells: cluster differentiation, phenotype, T and B cell activation
- MHC antigens, antigen presenting cells and antigen processing



Immune mechanisms of tissue damage

Interleukins, complement

Immunodeficiency (see microbiology) and immunosuppression (see pharmacology)

Organ transplantation and Pathophysiology of allograft rejection

OPTICS AND REFRACTION

PHYSICAL OPTICS

Properties of light

Visible light and its place in the electromagnetic spectrum

Wavelength and frequency

Propagation of light

Wave and particle theory

Fluorescence and phosphorescence

Absorption and transmission of electromagnetic radiation by the eye

Ophthalmic hazards of different electromagnetic radiations

Diffraction, interference, polarization, transmission and absorption

Laser theory

History and development of lasers

Properties of laser light

Coherence

Solid crystal lasers

Gas discharge tube laser

Dye lasers

Q switching

Pulsed and continuous wave lasers

Laser hazards and safety

GEOMETRIC OPTICS

Basic

Reflection at plane and curved surfaces, the images produced and their character including ray diagram

Refraction

Refractive index

Critical angle

Total internal reflection

Prisms (including Fresnels), power and notation

Lenses

Spherical lenses

Cardinal point, axes and principal ray diagrams

Character of images produced

Power and notation of lenses

Magnification

Thin and thick lenses and their formulae

Prismatic effect of decentring lenses

Principles of the pin hole

Principles of the stenopaenic slit

Aspheric lenses and their use in ophthalmology

Cylindrical lenses and their focal characteristics

Maddox rod

Jackson's cross cylinder

Astigmatic lenses

Conoid of Sturm

Circle of least confusion

Confocal optics



CLINICAL OPTICS

Basics

- Optics of the normal eye including accommodation, accommodative reserve, near sykineses and the changes in accommodative reserve with time
- The schematic and reduced eye
- Refractive indices of ophthalmic media including the tear film
- The effect of pupil diameter
- Use of the pinhole
- Visual acuity
- Snellen and Log MAR theory
- Contrast sensitivity gratings and the Peli - Robson Test

Refractive error and its correction

Emmetropia

- Myopia and hypertropia:
- Prevalence, inheritance, aetiology and associations

Astigmatism

- Regular and irregular astigmatism and principles of its correction
- Pinhole, stenpaecic slit and contact lens in its investigation
- Keratospic patterns in regular and irregular astigmatism
- Accommodative reserve and its variation with age

Aphakia

Pseudophakia

Clinical refraction

- Retinoscopy including recognition of abnormal retinoscopy reflexes
- Retinoscopy and prescribing in children
- Cycleplegic agents, their effects and hazards
- Subjective refraction
- Pinhole and Duochrome test
- Interpupillary distance and back vertex distance
- Decentring of lenses
- Anisometropia and aniseikonia and the practical limits for spectacles
- Prescribing for presbyopia
- Muscle balance tests

Spectacles lenses

Spectacle lenses and their notation

- Transposition
- Spherical equivalent
- Identification of unknown lenses
- Recognition of plus and minus lenses clinically
- Detection of prisms
- Neutralization and focimetry
- Use of the Geneva lens measures and its limitations
- Aberrations of the lenses and their minimization
- Bifocal, multifocal and varifocal lenses
- Best form lenses



Contact lenses

- Classification
- Mmaterials
- Advantages over spectacles (especially for high ametropia)

Optical principles of refractive surgery

- Radial keratotomy
- Surface laser
- LASIK
- Principles of intracorneal rings
- Phakic intraocular lenses
- Clear lens extraction

Correction of high ametropia

Optical advantages and disadvantages of different methods

The candidate should have a detailed knowledge of :

Direct and indirect ophthalmoscope

Retinoscope

Slit - lamp biomicroscope

Applanation tonometer

Operating microscope

Focimeter

The candidate should be familiar with the optical principles of :

Slit - lamp diagnostic and therapeutic lenses

Telescopic low visual aids

Autorefractors

Keratometer

Endothelial specular microscope and confocal microscope

Placid and elevation computerized corneal topography

Zoom lenses

Lee screen / hess chart

Synoptophore

Fundus and slit - lamp cameras

Scanning laser ophthalmoscope

EXTERNAL EYE AND CORNEA

Eyelid

General and dermatological problems and eyelid margin disease, including meibomian gland dysfunction

Dry eye - causes, symptoms and management

2. Trauma and Emergency Ophthalmology

Essential topics/ experience

To have become familiar with the following:

- superficial ocular trauma :including assessment and treatment of foreign bodies, abrasions and minor lid lacerations
- severe blunt ocular injury : management of hyphaema - recognition and initial management of more severe injury
- Severe orbital injury : recognition and initial care of corneal and scleral wounds : recognition of aqueous leakage and tissue prolapsed
- Retained intraocular foreign body : anticipation from history, confirmation of X-ray and CT scan
- Sudden painless loss of vision : recognition of retinal arterial occlusion, central retinal vein occlusion, acute ischaemic optic neuropathy, optic neuritis, urgency of treatment
- Severe intraocular infection: recognition and initial investigation and management of hypopyon
- Acute angle closure glaucoma : recognition and acute reduction of intraocular pressure.
- Liason with Radiological department, microbiologist, ENT and Faciomaxillary surgeons.

Practical Skills

- Removal of superficial foreign bodies
- Corneal epithelial debridement
- Repair of minor conjunctival / lid laceration
- YAG iridotomy

- Eye protection and prevention of injury
- Lateral canthotomy and inferior cantholysis for retrobulbar haemorrhage
- Chemical / alkali burns of the conjunctiva and cornea
- Drug penetration into the eye and vitreous
- Use of intravitreal antibiotics, including dosage and potential complications.

3. Disorders of the lids, lacrimal drainage apparatus, orbit and oculoplasty

Essential experience

- Abnormal lid position : including assessment of ectropion, entropion, ptosis, trichiasis, lagophthalmos and exposure
- Abnormal lid swelling, including chalazion, stye, retention cysts, pappilloma and basal cell carcinoma
- The watering eye, including the distinction between excessive lacrimation and epiphora, blepharitis, recognition and investigation of nasolacrimal abstruction.

- Orbital swelling, including dysthyriod eye disease, distinguishing intraconal from extraconal space occupying lesions, orbital cellulituis, recognition of compressive optic neurapathy.
- Liason with Neurosurgons, ENT, Endocrinologists and orbit reconstruction Services.

Practical Skills

- Use of exophthalmometer
- Syringing and probing
- Incision and curettage for chalazion
- Wedge biopsy and removal of papilloma, etc.
- Tarsorrhaphy
- Electrolysis / cryotherapy for trichiasis
- Surgery to involutionalectropion / entropion

Background theory / principles

To have gained and awareness of the following:

- Sebaceous carcinoma of lid and squamous cell carcinoma
- Cicatricial malposition of the lids
- Management of ptosis and blepharospasm
- Canaliculus repair
- Dacryocystorhinostomy
- Orbital and lacrimal tumors and their treatment
- Inflammatory orbital and lacrimal diseases and their treatment
- Paranasal sinus disease
- Use of radiographs, MRI, CT scan
- Enucleation, evisceration and fitting of prosthesis
- Exenteration

4. External eye disease, sclera, cornea and anterior area

Essential experience

- Infectious external disease, including viral, bacterial and chlamydial conjunctivitis.
- The dry eye, including symptoms, assessment of reduced tear production and tear film stability and treatment.
- Allergic and atopic eye disease recognition and management
- Corneal ulceration from viral and bacterial disease, marginal keratitis
- Complications of contact lens wear
- Corneal oedema, opacity and ectasia, indications for corneal transplantation, standards of care in donor eye procurement, signs of corneal graft rejection and other complications.
- Epithelitis, recognition and management
- Anterior uveitis, including classification, differential diagnosis, system associations, investigations and treatment.
- Liaison with microbiology, immunology.

Practical Skills

- Conjunctival sampling and corneal scraping for microbiological investigations.
- Pachometry for corneal thickness
- Keratometry and Placido's disc
- Removal of corneal sutures
- Retrieval of donor eyes for transplantation (5)

Background theory / principles

Acanthamoeba keratitis and fungal keratitis

- Cicatricialconjunctival disease
- Punctal occlusion
- Corneal topography and specular microscope
- Corneal stromal dystrophies, interstitial keratitis
- Corneal biopsy, indications
- Chemical injury of the cornea and conjunctiva
- Therapeutic contact lenses and their complications
- Corneal transplantation, immunology of rejections
- Limbal stem cell transplantation
- Autoimmune corneal and sclera disease including peripheral ulcerative keratitis
- Use of immunosuppressive therapies
- Management of pterygium
- Conjunctival and uveal tumors
- Aniridia and other dysgenesis
- Fuchs heterochromic cyclitis.

5. Optics and refraction, contact lens and low vision aids

- Ametropia, including hypermetropia, myopia, astigmatism and their complications.
- Accommodation problems, including spasm and presbyopia.
- Knowledge of contact lens fitting, indications, management and complications.
- Low vision aids services and rehabilitation of a low vision patient.

Practical skills

To have undertaken (under supervision until proficient) the following:

- Retinoscopy with trial lenses and subjective refraction.
- Correction of refractive error by spherical, cylindrical and multi-focal lenses.
- Lens neutralization and use of focimeter.

● Background theory / principles

To have gained an awareness of the following:

- Basis of spectacle intolerance from poor dispensing or defective prescription.
- Use of log MAR charts in assessments of acuity.
- Alternatives to capsular IOL fixation.
- Combined cataract and glaucoma / corneal transplantation surgery.
- Ectropion and Marfan's syndrome.
- Contact lenses and refractive surgery.
- Therapeutic contact lenses.
- Fluidics and ultrasonics.
- Intraocular lens design and biomaterials.

6. Disorders of lens and glaucoma

Essential topics / experience

To have become familiar with the following:

- Lens opacifications, including type of cataract, relationship of symptoms, contribution to visual loss in co-morbidities, systemic associations, cataract surgery and its complications.
- Pseudoexfoliation of the lens capsule, including its recognition and significance.
- Calculation of intraocular lens power, according to the patient's needs.
- Glaucoma suspects, including ocular hypertension.
- Rubeotic glaucoma recognition, differential diagnosis and management.
- Hypotensive agents, topical and systemic drugs affecting intraocular pressure and their complications.
- Glaucoma drainage surgery, indications, complications and their treatment.
- Hypotony, including its causes and consequences.

Practical Skills

To have undertaken (under supervision until proficient) the following:

- Applanation tonometry
- Assessment of peripheral and central anterior chamber depth, including pachymetry.
- Assessment of irido-corneal angle structures by gonioscopy.
- Methods of optic disc cup measurement.
- Visual field testing, including Goldmann/kinetic perimetry and automated static perimetry.

Backgrounds theory / principles

To have gained an awareness of the following:

- Risk factors for primary open-angle and normal-tension glaucoma
- Other secondary glaucoma's, including phacolytic, pigmentary, erythroclastic, pseudo-exfoliative and silicone-oil glaucoma.
- Posner Schlossman syndrome.
- Chronic closed angle glaucoma.
- Malignant glaucoma.
- Tonopen, Perkins and non-contact tonometry.
- Scanning laser ophthalmoscopy and nerve fiber layer analysis.
- Argon laser trabeculoplasty.
- Prevention of glaucoma bleb failure e.g. using anti-metabolites.
- Drainage tubes and stents.
- Cycloablation.

Vitreoretinal Disorders:

Essential topics/experiences

To have become familiar with the following:

- Diagnosis and management of anterior, intermediate and posterior uveitis.
- Flashes and floaters, complications of posterior vitreous detachment and recognition of retinal tears.
- Retinal detachment, classification, predisposition, recognition and urgency of treatment, recognition of proliferative vitreoretinopathy.
- Diabetic retinopathy, classification, screening strategies, management.
- Hypertensive and arteriosclerotic retinopathy, including macroaneurysms and branch retinal vein occlusion.
- Retinal vascular occlusions, recognition of ischaemic and exudative responses, rubeosis.
- Macular diseases, including recognition of age-related maculopathy, subretinal neovascularization, cystoid macular oedema, macular hole, related symptomatology and urgency of treatment.
- Fluorescein angiography, indications, complications and interpretation.

Practical | Skills

Slit lamp examination and the use of various contact fundus lenses

- Scleral indentation with indirect ophthalmoscopy.
- Retinal drawing.
- Cryopexy and laser (via slit-lamp and direct ophthalmoscope delivery systems) for retinal tear.

Background Theory/Principles

To have gained an awareness of the following:

- B-Scan ultrasound for opaque media.
- Vitreoretinal surgery, including closed intraocular microsurgery, sclera bucking and internal tamponade.
- Intraocular foreign body, complications and management.
- Other vasoproliferative vitreoretinopathies including sickle cell retinopathy, retinopathy of prematurity, Eales' disease.
- Genetic vitreoretinal disease-Sticker syndrome, X-linked retinoschisis.
- Asteroid hyalosis.
- Choroido-retinal coloboma.

Background theory/Principles

To have gained awareness of the following:

- Fundus imaging including scanning laser ophthalmoscopy.
- Indocyanine green angiography.
- Electro diagnostic tests and dark adaptation.
- Genetic retinal disease, retinal dystrophies, retinoblastoma.
- Differential diagnosis and treatment of malignant melanoma.
- Macular laser photocoagulation, principles and laser safety.
- Toxic maculopathy and central serous retinopathy.
- Intraocular lymphoma.
- Intermediate and posterior uveitis, toxoplasmosis, toxocara and sympathetic ophthalmia, retinal vasculitis.
- Coats' disease, other telangiectasis and the retinal phakomatoses.
- AIDS-related opportunistic infections and anti- AIDS treatment.

8. Disorders of the optic nerve and visual pathways- Neurophthalmology

Essential topics/experience

To have become familiar with the following:

- Swollen optic disc, differential diagnosis, recognition and evaluation of papilloedema, ischaemic optic neuropathy (arteritic and non-arteritic), acute optic neuritis and congenital optic disc anomalies.
- The atrophic optic disc, recognition and differential diagnosis, clinical evaluation of optic nerve function.
- Visual pathway disorders, identification of site and nature of lesion from history, examination and investigations, transient ischaemic attacks.
- Examination of cranial nerve palsies particularly III, IV, VI, VII and V nerve.

Practical Skills

To have undertaken (under supervision until proficient) the following:

- Goldmann visual fields
- Examination of the cranial nerves
- Temporal artery biopsy

Background Theory/Principles.

To have gained an awareness of the following:

- Benign intracranial hypertension
- Compressive optic neuropathy
- Optic nerve glioma
- Chiasmal lesions
- Visual evoked responses
- Neuro-imaging including CT, MRI and carotid Doppler
- Carotid endarterectomy
- Multiple sclerosis and its ophthalmic manifestations
- Higher cortical dysfunction, including the visual agnosias

9. Strabismus and paediatric Ophthalmology

Essential Topics/Experience

To have become familiar with the following:

- Concomitant strabismus, screening strategies, epicanthus, accommodative aspects, interpretations of orthoptic report, indications for surgery.
- Amblyopia, anisometropic, stimulus-deprivation, strabismic prevention and treatment using occlusions.
- Incomitant strabismus, cranial nerve palsies including diabetic mononeuropathies, significance of painful third nerve palsy and of pupil sparing, prediction of post operative diplopia.
- | The approach to infants, children and their parents.
- Ophthalmia neonatorum, diagnosis and management.
- Congenital nasolacrimal obstruction; recognition and management.
- Ametropia in children, significance and treatment
- The apparently blind infant, normal and delayed visual maturation
- Paediatric cataract surgery and paediatric glaucoma.

Practical Skills

To have undertaken (under supervision until proficient) the following:

- Eye movement evaluations
- Cover test (including alternate and prism)
- Stereo tests
- Cycloplegic refraction
- Horizontal muscle surgery

- Synoptophore examination

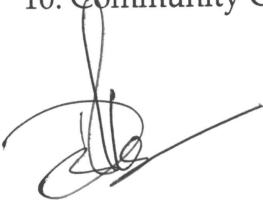
37

Background theory/Principles

To have gained awareness of the following:

- Nystagmus
- Ocular motility syndromes (duane's, brown's)
- Use of botulinum toxin
- Ocular myopathies and the neuromuscular junction
- Supranuclear eye movement disorders
- Fresnel prisms
- Oblique muscle, vertical muscle and adjustable suture surgery
- Electromyography.
- Assessment of vision in children, fixation, preferential looking, single and linear optotype tests.
- Cycloplegic refraction and prescribing for children
- Fundoscopy in children
- Ocular albinism Congenital nystagmus
- Congenital glaucoma, diagnosis and management
- Congenital cataract, diagnosis and management including prevention of amblyopis
- Leucocoria, differential diagnosis including retinoblastoma
- Retinopathy of prematurity, screening and treatment
- Paediatric neurological diseases
- Ophthalmic signs of child abuse
- Orbital Cellulitis presenting in children
- Orbital tumours in children, including rhabdomyosarcoma

10. Community Ophthalmology



Chest and Respiratory Medicine (Syllabus for Degree Course)

Structure & Functions of Respiratory System, Cardiovascular system and mediastinum.

1. Anatomy
2. Development & Aging of Respiratory system
3. Physiology
4. Pathophysiology
5. Microbiology
6. Genetics
7. Pharmacology
8. Pathology
9. Immunology & Defence Mechanisms
10. Molecular Biology
11. Biochemistry

Airways

1. Asthma
2. Acute bronchitis
3. Chronic bronchitis/COPD
4. Bronchiolitis
5. Bronchiectasis
6. Airway Stenosis, megaly&malacia
7. Tracheoesophageal Fistula
8. Upper Airway disease
9. Vocal Cord Dysfunction
10. FB Aspiration
11. GERD

Thoracic Tumours

1. Lung Cancer
2. Metastatic Pulmonary tumours
3. Mesothelioma
4. Metastatic & Other pleural tumours
5. Benign intrathoracic tumours
6. Mediastinal tumours
7. Chest Wall tumours
8. Sarcoma
9. Lymphoma and related diseases

Non TB Respiratory Infections

1. Upper Respiratory Infections
2. Lower Respiratory Infections
3. Community acquired pneumonia
4. Nosocomial pneumonia
5. Pneumonia in the immune compromised host
6. Other Pneumonias
7. Parapneumonia effusion & Empyema
8. Parasitic infections
9. Fungal Infections
10. Parasitic Infections
11. Epidemic Viral Infections



Tuberculosis

- 1. Pulmonary TB
- 2. Extrapulmonary TB
- 3. TB in the immuno compromised diseases
- 4. Latent TB infections
- 5. Non tuberculosis mycobacterial disease
- 6. Drug resistant Tuberculosis
- 7. Tuberculosis control programme

Pulmonary vascular Diseases

- 1. Pulmonary Embolism
- 2. Pulmonary edema
- 3. Primary Pulmonary Hypertension
- 4. Secondary Pulmonary Hypertension, CorPulmonale
- 5. Vasculitis and Diffuse pulmonary hemorrhage
- 6. Abnormal A-V communication
- 7. Hepatopulmonary Syndrome

Occupational and Environmental diseases

- 1. Occupational Asthma
- 2. Reactive airway dysfunction syndrome
- 3. Pneumoconiosis and Asbestos related Disease
- 4. Hypersensitivity pneumonitis
- 5. Dust and Toxic gas inhalation disease
- 6. Indoor pollution related diseases
- 7. Outdoor pollution related diseases
- 8. Smoking related disease
- 9. High altitude Disease
- 10. Diving related disease, Aviation and Sports related pulmonary disorders
- 11. Disability evaluation and compensation.

Diffuse Parenchymal (interstitial) Lung diseases

- 1. Sarcoidosis
- 2. Idiopathic Interstitial pneumonias including Idiopathic Pulmonary Fibrosis (IPF) NSIP, COP, AIP, RB-ILD, DIP, LIP.
- 3. Cryptogenic organizing Pneumonia of unknown etiology/ Bronchiolitis obliterans organizing Pneumonia (BOOP)

Latrogenic Diseases

- 1. Drug induced lung diseases
- 2. Complications of invasive procedures
- 3. Radiation induced Diseases

Acute Injury

- 1. Inhalation Lung Injury
- 2. Traumatic thoracic injury

Respiratory Failure

- 1. Acute Lung injury and Acute Respiratory Distress Syndrome
- 2. Obstructive lung Disease
- 3. Neuromuscular Disease
- 4. Chest wall Diseases
- 5. Other restrictive lung diseases



Pleural Diseases

1. Pleurisy
2. Pleural Effusion
3. Chylothorax
4. Haemothorax
5. Fibrothorax
6. Pneumothorax

Diseases of the Chest Wall and Respiratory muscles including the Diaphragm

1. Chest wall deformities
2. Neuromuscular disorders
3. Phrenic nerve Palsy
4. Diaphragmatic hernia

Mediastina Diseases excluding tumours

1. Mediastinitis
2. Medistinal Fibrosis
3. Pneumomedistinum

Pleuropulmonary manifestations of systemic/Extra pulmonary disorders

1. Collagen Vascular disease
2. Cardiac disease
3. Abdominal disease
4. Haematological disease
5. Obesity
6. Hyperventilation syndrome

Genetic and Development Disorders

1. Cystic Fibrosis
2. Primary Ciliary Dyskinesia
3. Alpha-1 antitrypsin deficiency
4. Agenesis, Aplasia and Hypoplasia
5. Sequestration

Respiratory Diseases and Pregnancy

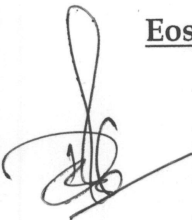
1. Asthma
2. Cystic fibrosis
3. Tuberculosis
4. Sarcoidosis
5. Restrictive Lung Diseases
6. Pregnancy induced respiratory diseases

Allergic disease (IgE mediated)

1. Upper airway diseases
2. Asthma
3. Allergic Bronchopulmonary aspergillosis
4. Anaphylaxis

Eosinophilic Diseases

1. Non-asthmatic eosinophilic bronchitis
2. Acute and chronic eosinophilic pneumonia
3. Hypereosinophilic syndrome
4. Churg-strauss syndrome



Sleep related disorders

- 1. Obstructive sleep apnoea
- 2. Central sleep apnoea
- 3. Upper airway resistance syndrome
- 4. Obesity hypoventilation syndrome

Immunodeficiency Disorders

- 1. Congenital immunodeficiency syndrome
- 2. Acquired immunodeficiency syndrome
- 3. HIV related diseases
- 4. Graft versus host diseases
- 5. Post-transplantation immunodeficiency

Orphan Lung Diseases

- 1. Langerhans cell histiocytosis
- 2. Lymphangiomyomatosis
- 3. Pulmonary alveolar proteinosis
- 4. Amyloidosis

Symptoms and Signs

- 1. Dyspnoea
- 2. Wheeze
- 3. Stridor
- 4. Hoarseness
- 5. Cough
- 6. Sputum production
- 7. Chest pain
- 8. Haemoptysis
- 9. Snoring
- 10. General symptoms of disease including fever, weight loss, oedema, Nocturia and Day time somnolence
- 11. Abnormal findings on inspection including cyanosis, abnormal breathing patterns, finger clubbing, chest wall deformities, superior vena cava syndrome and Horner's syndrome.
- 12. Abnormal findings on palpation and percussion
- 13. Abnormal findings on auscultation

Pulmonary Function Testing

- 1. Static and Dynamic Lung Volumes-Interpretation and Performance
- 2. Body Plethysmography- Interpretation
- 3. Gas transfer- Interpretation
- 4. Blood gas assessment and Oximetry- Interpretation and Performance
- 5. Bronchial provocation testing- Interpretation and performance
- 6. Cardiopulmonary exercise testing- Interpretation and performance
- 7. Assessment of respiratory mechanics- Interpretation
- 8. Compliance measurement- Interpretation
- 9. Respiratory muscle assessment- Interpretation
- 10. Ventilation perfusion measurement - Interpretation
- 11. Shunt measurement - Interpretation
- 12. Sleep studies- Interpretation and performance
- 13. Measurement of regulation of ventilation- Interpretation

Other Procedures

1. Blood test and serology relevant to Respiratory medicine
2. Analysis of exhaled breath components including NO, CO and breath condensate
3. Sputum induction
4. Sputum analysis
5. Tuberculin skin testing
6. Allergy skin testing
7. Thoracic ultrasound imaging
8. Thoracentesis
9. Closed needle pleural biopsy
10. Medical Bronchoscopy
11. Flexible bronchoscopy
12. Transbronchial lung biopsy
13. Transbronchial needle aspiration
14. Endobronchial ultrasound
15. Bronchalveolar lavage
16. Bronchography
17. Rigid bronchoscopy
18. Interventional bronchoscopic technique including, fluorescent bronchoscopy, branchytherapy, endobronchial radiotherapy, afterloading laser and electrocoagulation cryotherapy, Photodynamic therapy and airway stents.
19. Transthoracic needle aspiration & biopsy
20. Fine needle lymphnode aspiration for cytology
21. Right heart catheterization
22. Chest X-ray
23. Flouroscopy

Procedures performed collaboratively

1. Thoracic imaging (X-ray, CT, MRI)
2. Nuclear medicine techniques (Pulmonary and Bone scan PET)
3. Electrocardiogram
4. Echocardiography
5. Ultrasound
6. Transoesophageal ultrasound
7. Oesophageal pH monitoring
8. Cytology/Histology
9. Microbiology testing

Treatment modalities and prevention measures

1. Systemic and inhaled drug therapy
2. Chemotherapy
3. Other systemic antitumor therapy
4. Immunotherapy including de-/hypo sensitization
5. Oxygen therapy
6. Ventilator support (Invasive/Non-invasive/CPAP)
7. Cardiopulmonary resuscitation
8. Assessment for anaesthesia/Surgery
9. Endobronchial therapies
10. Intercostal tube drainage
11. Pleurodesis
12. Home care
13. Palliative



14. Pulmonary rehabilitation
15. Nutritional interventions
16. Surfactant therapy
17. Gene therapy
18. Principles of stem cell therapy
19. Smoking cessation
20. Vaccination and infection control
21. Other preventive measures

Core generic abilities

1. Communication including patient education and public awareness
2. Literature appraisal
3. Research
4. Teaching
5. Audit/quality assurance of clinical practice
6. Multidisciplinary teamwork
7. Administration
8. Ethics

Competence in the fields shared with other specialties

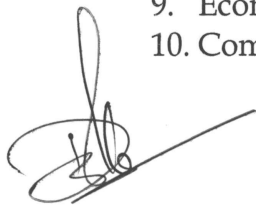
1. Intensive care
2. High dependency unit

Knowledge of associated fields relevant to adult Respiratory medicine

1. Thoracic surgery
2. Radiotherapy
3. Paediatric respiratory medicine
4. Chest physiotherapy
5. Other relevant medical specialties

Further areas relevant to respiratory medicine

1. Epidemiology
2. Statistics
3. Evidence based medicine
4. Quality of life measures
5. Psychological factors in the development of respiratory diseases
6. Psychological consequences of chronic respiratory diseases
7. Public health issues
8. Organization of Health care
9. Economics of health care
10. Compensation and legal issues



ENT (Syllabus for Degree Course)

Course Contents:

1. Anatomy and Physiology of Ear, Nose and Throat, Trachea and Oesophagus
2. The generation and reception of speech
3. Radiography of the ear, nose, throat
4. Bacteriology in relation to Otorhinolaryngology
5. Allergy and rhinitis
6. Anaesthesia for Otolaryngology
7. Pharmacology of drugs used in ENT
8. Electrolyte, fluid balance/shock conditions
9. Facial nerve stimulation test
10. Audiometric tests like pure tone Audiometry, Impedance Audiometry, Specialized tests of hearing including SISI, Tone decay, ABLB, speech discrimination score, etc.
11. Vestibular tests like caloric testing (Water and Air) stopping test, Fukuda's test
12. Evoked responses audiometry.
13. BERA

Ear:

1. The functional and physical examination of the vestibular system
2. Tinnitus
3. Traumatic conductive deafness
4. Chronic suppurative otitis media
5. Management of chronic suppurative otitis media
6. Complications of infections of middle ear
7. Tumours of the middle ear cleft and temporal bone
8. Diseases of the otic capsule-otosclerosis
9. The deaf child
10. Acoustic neuroma
11. Ototoxicity
12. Presbycusis
13. Diagnosis and management of sudden and fluctuant sensorineural hearing loss
14. Meniere's disease
15. Examination of vertigo
16. Facial paralysis
17. Rehabilitation of adults with acquired hearing loss- hearing aids
18. The cochlear Implants
19. Otoacoustic emission

Nose:

1. Examination of the nose
2. Facial/ Trauma
3. Congenital diseases of the nose
4. The nasal septum/ Deviated Nasal Septum (DNS)
5. Foreign bodies in the nose, rhinolith
6. Epistaxis
7. Nasal polyposis

8. Acute sinusitis
9. Chronic sinusitis
10. Nasal allergy/Fungul allergic sinusitis
11. Complications of acute and chronic sinusitis
12. Tumours of nose and sinuses
13. Functional endoscopic sinus surgery (FESS)

Throat:

1. Methods of examination of the mouth and pharynx
2. Diseases of the mouth
3. Diseases of the salivary glands
4. Diseases of the tonsils and adenoids (excluding neoplasms)
5. Tumours of the pharynx
6. Hypopharyngeal diverticulum (pharyngeal Pouch)
7. Congenital diseases of the larynx
8. Laryngeal disorder in singers and others voice users
9. Neurological affections of larynx and pharynx
10. Cervical node dissection
11. Skin grafts in Otolaryngology and reconstructive methods including regional and distant flaps for repair of defects after excision of tumours or trauma
12. Micro laryngeal surgery

Miscellaneous and head and neck:

1. Cranial nerves
2. Raised intracranial tension-causes, diagnosis, management with particular reference to otitis hydrocephalus
3. Cervical fascia, facial spaces in neck, retro-pharyngeal and parapharyngeal Abscesses
4. Anatomy and physiology of thyroid gland, diseases of the thyroid and carcinoma of thyroid
5. Head and neck reconstruction surgery

Drugs used in ENT:

1. Antibiotics/ Antihistaminic
2. Nasal vasoconstrictors
3. Antifungul agents

General:

1. Physiology of circulation, regulation of blood pressure, reaction of body to haemorrhage, patho-physiology of shock, fluid balance, blood transfusion and its hazards, fluids replacements therapy, burns
2. Agents used in shock like states

Desirable:

1. The ears and nasal sinsuses in the aerospace environment
2. Physiological consideration of pressure effects on the ear and sinsuses in deep water diving
3. The principles of cancer immunology with particular references to head and neck cancer



4. Principles of chemotherapy in head and neck cancer
5. Recording of nystagmus of ENG and its interpretation

Ear:

1. Traumatic lesions of the inner ear
2. Inflammatory lesions of the vestibular and auditory nerve

Nose:

1. Cosmetic surgery of the nose
2. Non-healing granuloma of the nose
3. LASER surgery

Throat:

1. Disorders of speech
2. Lower respiratory conditions in Otolaryngology

Miscellaneous and head and neck:

1. Anatomy of mediastinum

A handwritten signature in black ink, consisting of a large loop at the top, followed by several smaller loops and a long horizontal stroke extending to the right.