DEPARTMENT OF GENERAL SURGERY
CURRICULUM FOR STUDY GENERAL SURGERY

(i) **GOAL:**
The Broad Goal of The Teaching of Undergraduate Students in Surgery & Allied Specialties is to Produce Graduates Capable of Delivering Efficient First Contact Surgical Care and to Prepare him to be a Teacher of Surgery.

(ii) **OBJECTIVES:**
(a) **KNOWLEDGE:**
At the end of the course, the student shall be able to:
1. Describe Aetiology, Pathophysiology, Principles of diagnosis and management of common surgical problems including emergencies, in adults and children;
2. Define indicators and methods for fluid and electrolyte replacement therapy including blood transfusion;
3. Define asepsis, disinfection and sterilisation and recommend judicious use of antibiotics;
4. Describe common malignancies in the country and their management including prevention;
5. Enumerate different types of anaesthetic agents, their indicators, mode of administration, contraindication and side effects.

(b) **SKILLS**
At the end of the course, the student should be able to:
1. Diagnose common surgical conditions both acute and chorine in adult and children;
2. Plan various laboratory tests for surgical conditions and interpret the result.
3. Identify and manage patients of haemorrhagic, septicemia and other types of shock;
4. Be able to maintain patent air-way and resucitate;
   (a) A critically injured patient;
   (b) Patient with cardio-respiratory failure;
   (c) A drowning case.
5. Monitor patients of head, chest, spinal and abdominal injuries, both adults and children;
6. Provide primary care for a patient of burns
7. Acquire principles of operative surgery, including pre-operative, operative and postoperative care and monitoring;
8. Treat open wound including preventive measures against tetanus and gas gangrene;
9. Identify congenital anomalies and refer them for appropriate management. In addition to the skills referred above in items (1) to (10), he shall have observed/assistant/performed the following:
   (a) incision and drainage of abscess;
   (b) debridement and suturing open wound;
   (c) Venesection;
   (d) Excision of simple cyst and tumours;
   (e) Biopsy of surface malignancy;
   (f) Catherisation and nasogastric intubation;
   (g) Circumcision;
   (h) Vasectomy;
   (i) Peritoneal and pleural aspirations;
   (j) Meatotomy;
   (k) Diagnostic proctoscopy
   (l) Hydrocele operation;
   (m) Endotracheal intubation;
   (n) tracheostomy and cricothyroidectomy;
   (o) Chest tube insertion
10. Diagnose with reasonable accuracy all surgical illness including emergencies.
11. (a) Resuscitate a critically injured patient and a sever patient;
   (b) Control surface bleeding and manage open wound;
12. (a) Monitor patients of head, spine, chest, abdominal and pelvic injury;
   (b) Institute first-line management of acute abdomen.
   (c) **INTEGRATION:**
   The undergraduate teaching in surgery shall be integrated at various stages with different pre and para and other clinical departments.
   (d) **CURRICULUM:**
   Basic principles and practice of surgery covering curative and clinical presentation; investigations; diagnosis and differential diagnosis and comprehensive treatment; conservative as well as operative treatment and post operative care; rehabilitative and preventive aspects of common surgical conditions of all systems and organs of the human body. Applied anatomy; applied physiology; pathology and orthopedics; understanding the disease process; operations for population control and family planning. The subjects enumerated below will be covered in didactic lectures in ward clinics.

1. Response to injury-wound healing and management of wounds infections.
2. Fluid and electrolytes and acid base balance and nutrition.
3. Burns-shock; haemorrhage; blood transfusion; plasma volume expanders; pain relief.
4. Injury - cold, bites, stings, immunology and allergy.
5. Infection - acute and chronic.
6. Tumors - benign and malignant; ulcers and sinuses and cancer biology.
7. Hospital sepsis - sterilization; asepsis and antisepsis.
8. Lymphatic and lymph glands - obstruction and tumours of lymphatics and lymph.
11. Vascular diseases - veins and arteries; gangrene venous thrombosis; varicose veins venous and arterial anastomosis.
12. Tropical diseases - surgical aspects of tuberculosis; amobiasis; filariasis; hydatid diseases; ascariasis; dracunculosis; mycetoma; leprosy; typhoid; tetanus.
15. Neck - branchial cyst; cystic hygroma; thoracic outlet syndrome.
17. Thyroid gland - thyroglossal cyst; goitre; thyriodties and tumours; hypo and hyperthyroidism.
18. Parathyriod; adrenals and pituitary gland diseases.
19. Breast - gynaecomastia; fibroadenoma; fibrodenosis; infections of breast and malignancy of breast.
20. Thorax - anatomy; mechanics of respiration; respiratory function and respiratory failure; chest injuries; foreign bodies; empyema; lung’ abscess; bronchiectasis; surgical aspects of pulmonary T.B. and carcinoma lung.
21. Mediastinum and space occupying lesions.
22. Heart and pericardium - congenital and acquired conditions.
23. Cardiac arrest.
24. Aorta; coronary arteries and peripheral vessels; aneurysms; etc.
25. Modern methods and surgery on heart.
26. Oesophagus - congenital lesions; achalasia; injuries; stricture; diaphragmatic hernias and carcinoma.
27. Stomach and duodenum - hypertrophic pyloric stenosis; peptic ulcer; gastric malignancy; perforation and G.I. heamorrhage.
28. Small intestine - congenital anomalies; injuries; typhoid, tuberculosis; intestinal obstruction and strangulation; perforation and tumours; resection; anastomosis and bypass.
29. Vermiforma appendix - appendicities; tumours.
30. Peritoneum - ascities; peritonities; tumours, omentum, mesentry and retroperitoneal space.
31. Hernias-inguinal; femoral; midline, incisonal and other hernias of abdominal wall and tumours.
32. Colon-congenital anomalies; injuries; colities; tuberculosis; obstruction; perforation and tumours.
33. Rectum and anal canal-congenital anomalies, injuries; inflammtory lesions; prolapse and tumours; piles; fissure; portal hypertension.
34. Liver-abscess; cyst; tumours; portal hypertension.
35. Gall bladder and biliary tract-congenital anomalies; cholelithiasis; neoplasms; obstructive jaundice; chronic cholecystitis.
36. Pancreas-acute pancreatitis; chronic pancreatitis; pseudo cyst and pancreatic tumours.
37. Spleen-injury; splenomegaly; hypersplenism.
38. Acute abdomen and its management.
39. Urinary tract-urinary symptoms-investigations; anuria, curative management and surgical management; kidneys and ureter-congenital anomalies; injury; surgical infection; tuberculosis; obstruction; and tumours; urinary bladder.
40. Male genital system-congenital anomalies; hydrocele; epididymoorchitis; tuberculosis; benign and malignant enlargement of prostate; tumours of testis; urethera and phimosis; peraphimosis and hypospadias; tumours.
41. Family planning procedures-vasectomy-vasovasal and vasoepididymal anastomosis.
42. Organ transplantation-iddnney transplantation; immunosuppression; haemo and peritoneal dialysis; surgical aspects; chronic renal failure.
43. Neurosurgery-head injury-surgical management; skull and brain injury; hydrocephalus; intracranial space occupying lessions; spina bifida; paraplegia; spinal tumours; spinal injuries; spinal cord injury; tuberculosis of spine; peripheral nerve injuries; neuritis; tumours.
(B) **ORTHOPAEDICS**

(a) **KNOWLEDGE:**

The students shall be able to:

1. Explain the principles of recognition of bone injuries and dislocation;
2. apply suitable methods to detect and manage common infections of bones and joints.
3. Identify congenital skeletal anomalies and their referral for appropriate correction or rehabilitation.
4. Recognize metabolic bone diseases as seen in this country;
5. Explain etiogenesis, manifestations, diagnosis of neoplasm affecting bones;

(b) **SKILLS:**

At the end of the course, the student shall be able to:

1. Detect sprains and Deliver first aid measures for common fractures and sprains and manage uncomplicated fractures of clavicle, colles’s forearm, phallanges etc.;
2. Use techniques of splinting plaster, immobilisation etc.
3. Manage common bone inspections, learn indications for sequestration, amputation and corrective measures for bone deformities;
4. Advise aspects of rehabilitation for pollo cerebral palsy and amputation.
5. Splinting (plaster slab) for the purpose of emergency splintage, definitive splintage and post operative splintage and application of thomas splint;
6. Mannual reduction of common fractures-phalangeal, metacarpel, metatarsal and colles’s fractures;
7. Manuul reduction of common dislocations-interphalangeal, metacarpophalangeal, elbow and shoulder exdislocations.
8. Plaster cast application for undisplaced fractures of arm, forearm, leg and ankle;
9. Emergency care of multiple injury patient;
11. Advise about prognosis of poliomyelitis, cerebral palsy, CTEV and CDH;
12. Advise about rehabilitation of emputees and mutilating traumatic and leprosy deformities of hand;
13. Drainage for acute osteomyelitis;
14. Sequestrectomy in chronic osteomyelitis;
15. Application of external fixations;

(c) **APPLICATION:**

Be able to perform certain orthopedic skills, provide sound advice of skeletal and related conditions at primary or secondary health care level.

(d) **INTEGRATION:**
Integration with anatomy, surgery, pathology, radiology and forensic medicine be done.

(e) **ORTHOPEDICS:**

A. Didactic lectures-trauma.
1. Introduction including definition of Various Terms; Scope of Subject; Brief History; Classification of Conditions and introduction to latest developments.
2. Bone and Joint Injuries-fractures; Dislocation and Sprains, Definitions; Terminology; Epiphyseal Injuries; Healing of Fractures.
4. Treatment of Fractures-Principles; Aims of Treatment; Operative Management and Rehabilitation and Prevention of Joint Stiffness; Compound Fractures (Open Fractures); Principles and Management.
5. Complications of Fractures-(A) Injury To Blood Vessels (B) Injury To Nerves (C) Delayed Union; Nonunion (D) Myositis Ossificans (E) Avascular Necrosis (F) Budeck's Atrophy (G) Fat Embolism.
6. Joint Injuries and Soft Tissue Injuries-Sprains; Ruptures of Ligaments and Dislocation; Traumatic Synovitis; Tendon Ruptures and Hemarthrosis.
7. Fractures of Upper Limb-Supracondylar Fractures of Humerus; Colies Fracture.
10. Injuries of the knee joint-ligament injuries; Meniscus Injuries and Internal Derangement.
11. Peripheral Nerve Injuries-Anatomy; Effects; Nerve Degeneration and Regeneration; Classification and Management.
13. Dislocation-Shoulder; Elbow and Hip; Habitual and Recurrent Dislocation of Shoulder and Patella.
14. Specific Nerve Injuries-Brachial Plexus; Radial Nerve; Median Nerve; Plexus Nerve; Sciatic Nerve; Thoracic Outlet Syndrome.

B. Didactique Lectures-Non-Trauma:
1. Osteomyelitis-Acute; Chronic and Pyoartrosis.
2. Osteomyelitis Tuberculosis-Introduction; Pathology; Principles of Management.
4. Arthritis-Types and Classification; Rheumatoid Arthritis-Pathology; Diagnosis and Treatment.
5. Osteoarthritis-Pathology; Diagnosis and Management-Osteoarthritis of Hip and Knee.
6. Rickets-Osteomalacia; Hyperparathyroidism; Genu Valga.
7. Poliomyelitis-Cerebral Palsy and Spina Bifida.
8. Spondylosis-Lumber and Prolapsed intervertebral Disc; Lumbar Spinal Canal Stenosis and Spondylolisthesis.
10. Perthes diseases and Epiphysitis-slipped upper femoral Epiphysis; Congenital Subluxation and Dislocation of Hip.
11. Congenital-Club Foot, Flat Foot.
12. Bone Tumours-Classification; General Principles of Management and Secondary Deposits in Bones; Amputation.
14. Still's Disease; Other Condition Related to Rheumatoid Arthritis.
15. Neuropathic Joint Shoulder Hand Syndrome; Tennis Elbow. Tunnel Syndrome, Trigger Finger;
16. Scoliosis.
17. Flat Foot-Painful Planter Fasciculities; Calcaneal Spur; Calcification at Tendoachilies Insertion.
18. Traction-Splints (Bohler and Thomas); Application; Splints; Arthrodesis etc.
19. Plaster of Paris-Plaster Cast Application; General Principles.
20. Surgical Instruments-Pertaining to Bone Surgery and General Set only (Nospecialized Instruments).
22. Covering of Important and Common Topics From the Ones Listed in Clinical Term.
(C) OPHTHALMOLOGY

(i) GOAL:
The Broad Goal of the Teaching of undergraduate Students in Ophthalmology is to provide such knowledge and skills to the student that shall enable him/her to practice as a clinical and as a primary Eye care physician and also to function effectively as a community health leader to assist in the implimentation of national programme for the prevention of Blindness and Rehabilitation of the visually imparired, and to prepare him to be a teacher of ophthalmology.

(ii) OBJECTIVES:
(a) KNOWLEDGE:
At the end of the Course, The student shall have knowledge of:

1. Common Problems Affecting the eye;
2. Principles of Management of major Ophthalmic Emergencies;
3. Main Systematic Diseases Affecting the eye;
4. Effect of Local and Systematic Diseases on Patient’s Vision and the necessary action required to minimise the sequale of such diseases;
5. Adverse drug reactions with special reference to ophthalmic manifestations;
6. Magnitude of Blindness in India and its Main causes;
7. National Programme for control of Blindness and its implimentation at various levels;
8. Eye care education for prevention of eye problems;
9. Role of Primary Health Center in Organization of Eye Camps;
10. Organization of Primary Health Care and the Functioning of the Ophthalmic Assistant;
11. Integration of the National Programme for the Control of Blindness with the other national health programmes;
12. Eye Bank organization;

(B) SKILLS:
At the end of the course, the student shall be able to:

1. Elicit a history pertinent to general health and ocular status;
2. Assist in diagnostic procedure such as visual acuity testing, examination of eye, schiotz Tonometry, staining for corneal Pathology, confrontation perimetry, subjective refraction including correction of presbyopia and Aphakia, Direct Ophthalmoscopy and conjunctival samear Examination and cover test;
3. Diagnose and treat common problems affecting the eye;
4. Interpret Ophthalmic Signs in relation to common systemic disorders;
5. Assist/Observed Therapeutic Procedure Such As Subconjunctival, Corneal Conjunctival Foreign Body Removal, Carbolic Cautery for corneal ulcers, Nasolacrimal Dust syringing Tarsorraphy.
6. Provide First in major ophthalmic Emergencies;
7. Assistant to organise community surveys for visual check-up;
8. Assistant to Organise Primary eye care service through primary health centers;
9. Use Effective Means of Communication with the Public and Individual to motivate for surgery in cataract and for eye donation;
10. Establish report with his seniors colleagues and paramedical workers, so as to effectively function as a member of the eye care team;
11. He/She shall be able to Diagnose and manage common ophthalmological conditions such as:
   Trauma, Acute conjunctivitis, Allergic Conjunctivitis, Xerosis, Entropion, Corneal Ulcer, Liridocyclitis, Myopia, Hypermetropia, Cataract, Glaucoma, Ocular Injury and sudden loss of vision;
12. He shall be able to carry out assesment of refractive errors and advise its correction;
13. He shall be able to diagnose ocular changes in common systemic Disorders;
14. He/She shall be able to Perform Investigative Procedures such as:
   Tonometry, Syringing, Direct Ophthalmoscopy, subjective refrection and fluorescein staining of cornea;
15. He/She shall have carried out or assisted the following procedures:
   1. Subconjunctival Injection; Ocular Bandaging;
   3. Removal of Concretions; Epilation and electroysis
   5. Corneal foreign body removal
   6. Cauterization of corneal Ulcers;
   7. Chalazion Removal
   8. Entropion Correction
   9. Suturing Conjunctival Tears
   10. Lids Repairs
   11. Glaucoma Surgery (Assisted);
   12. Enucleation of eye in cadaver
16. He/She shall have full knowledge on available methods for Rehabilitation of the Blind.

(C) **INTEGRATION:**

The undergraduate training in ophthalmology will provide an integrated approach towards other disciplines especially Neuro Sciences.
(D) **OTORHINOLARYNGOLOGY:**

(i) **GOAL:**

The Broad Goal of the Teaching of Undergraduate students in Otorhinolaryngology is that the under graduate students have acquired adequate knowledge and skills for optimally dealing with common Disorders and Emergencies and principles of Rehabilitation of the impaired Hearing and to prepare him to be a teacher of Oto-Rehino Laryngology.

(ii) **OBJECTIVES:**

(a) **KNOWLEDGE:**

At the end of the Course, the student shall be able to:

1. Describe the basic pathophysiology of common ear, nose and throat (ENT) diseases and emergencies;
2. Adopt the rational use of commonly used drugs, keeping in mind their adverse reactions;

(b) **SKILLS:**

At the end of the course, the student shall be able to:

1. Examine and diagnose common Ear, Nose and Throat (ENT) Problems including the premalignant and malignant Disorders of the head and neck;
2. Manage Ear, Nose and Throat (ENT) problems at the first level of care and be able to refer whenever necessary.
3. Assist/carry out minor surgical procedures like ear syringing, ear dressing, nasal packing etc;
4. Assist in certain procedures such as tracheostomy, endoscopies and removal of foreign bodies.

(c) **INTEGRATION:**

The undergraduate training in Ear, Nose, and Throat (ENT) will provide an integrated approach towards other disciplines especially neuro sciences, ophthalmology and general surgery.
(E) ANAESTHESIOLOGY:

(i) GOAL:
The broad goal teaching of under graduate students in anaesthesiology is to provide basic knowledge of Anaesthesia and resuscitation.

(ii) OBJECTIVE:
1. Perform the pre-anaesthetic check up and describe pre-anaesthetic medications.
2. Perform venepuncture and setup intravenous drip.
3. Perform laryngoscopy and endotracheal intubation.
4. Perform lumbar puncture, spinal anaesthesia and simple nerve blocks.
5. Conduct simple general anaesthetic procedures under supervision.
6. Monitor patients during anaesthesia and post operative period.
7. Recognise and manage problems associated with emergency anaesthesia.
8. Maintain anaesthetic records.
9. Recognise and treat complications in post operative period.
1. Perform Cardio-Pulmonary Brain Resuscitation (C.P.B.R.) correctly, including recognition of cardiac arrest.
(F) **RADIOLOGY:**

(i) **GOAL:**

The broad goal of teaching the undergraduate medical students in the field of radio-diagnosis should be aimed at making the students realize the basic need of various radio-diagnostic tools in medical practice. They shall be aware of the techniques required to be undertaken in a different situations for the diagnosis of various ailments as well as during prognostic estimations, and to prepare him to be a teacher in radio-diagnosis.

(ii) **OBJECTIVES:**

(a) **KNOWLEDGE:**

The student shall be able to:

1. understand basics of x-ray productions and its uses and hazards;
2. appreciate and diagnose various radiological changes in disease conditions of the chest and the mediastinum, skeletal system, gastrointestinal track, hepatobiliary system and genitourinary (G.U.) system;
3. Learn about various imaging techniques, including isotopes computerised tomography (C.T.), ultrasound, magnetic resonance imaging (M.R.I.) and D.S.A.

(b) **SKILLS:**

At the end of the course the student shall be able to:

1. Use basic protective techniques during various imaging procedures;
2. Interprete common X-ray radiodiagnostic techniques in various community situations;
3. Advice appropriate diagnostic procedures inspecialised circumstances to appropriate specialist.
4. Handle all aspects "Emergency room" radiology like-
   (a) all acute abdominal conditions;
   (b) all acute traumatic condition with emphasis on head injuries;
   (c) diffrenciation between medical and surgical radiological emergencies;
5. Basic hazards and precautions in radio-diagnostic practices.

(c) **RADIOLOGY:**

1. X-rays production: uses and properties of x-rays; danger of radiation and the measures to be adopted for protection of patients and the medical personel.
2. General Knowledge – use of x-ray machine in department; x-ray fields in use in different imaging modalities and dark room techniques.
3. CAT scan-physics; its role as an imaging modalities.
4. Ultra sound-physics, its properties and uses.
6. Specialised procedures-practical training in Barium meal; Barium enema; IVP; myelography; etc.
7. Normal radiological anatomy-including cross sectional anatomy.
8. Radio logical appearances of common pathology during reporting session. Didactic lecture-following topics should be covered in class-rooms.

1. Bones and joints-bone infections; avascular necrosis; bone tumours; skeletal disorders of metabolic and endocrinal origin.

2. Inflammatory diseases of lungs, tumours of lungs; mediastinal.

3. Cardiovascular system-congenital heart diseases; acquired heart diseases, diseases of pericardium.

4. G.I. Tract and abdomen-barium meal, barium enema, acute abdomen.

5. Hepatobiliary system-diseases of liver, diseases of gall bladder, and pancreas, special emphasis on the role of ultra sound and C.T. in this diseases.


7. Ear, Nose and Throat-pharynx and larynx, paranasal, sinuses, mastoid.

8. Central nervous system-abnormal skill, inflammatory diseases of spine, myelography and spinal cord tumours, the role of newers imaging modalities e.g. CAT scan and MRI.