MS General Surgery

Syllabus Theory

The syllabus for the postgraduate examinations in General surgery should fully integrate basic sciences and clinical knowledge. The syllabus should be common to all the Medical College, and may be conveniently divided into 10 modules: 5 core and 5 system modules. The core modules cover topics that relate to all branches of Surgery whereas the system modules cover the specialist components of basic surgical training. The syllabus is indicative of the areas of knowledge expected of candidates. It is not intended to be exhaustive or to exclude other items of knowledge which are similar relevance.

General Cognitive Skills

Core Module I- Peri- operative management (part I)

Pre-Op management
Assessment of fitness for anaesthesia and surgery
Tests of respiratory, cardiac and renal function
Management of associated medical conditions, eg diabetes, respiratory disease; cardiovascular disease: psychiatric disease: malnutrition: anaemia; drug therapy like steroids, anticoagulants and immunosuppressants.
Infection
Pathophysiology of the body’s response to infection
The source of surgical infection- prevention and control
Surgically important micro organisms
Principles of asepsis and antisepsis
Surgical sepsis and its prevention
Aseptic techniques
Skin preparation
Antibiotic prophylaxis
Sterilisation
Investigative and Operative procedures
Excision of cysts and benign tumors of skin and subcutaneous tissue
Principles of techniques of biopsy
Suture and ligature materials
Drainage of superficial abscesses
Basic principles of anastomosis
Anaesthesia
Principles of Anaesthesia
Pre medication and sedation
Local and regional anaesthesia
Care and monitoring of the anaesthetised patient
Theatre- Problems
Surgical technique and technology
Diathermy, Principles and precautions
Explosion hazards in anesthesia and endoscopic surgery
Tourniquets uses and precautions
Prevention of nerve and other injuries in the anaesthetized patient
Surgery and special precautions in hepatitis and HIV carriers
Disorders of coagulation and haemostasis and prophylaxis of DVT

**Core Module 2- Peri operative Management (part 2)**

- Skin and wounds
- Pathophysiology of wound healing
- Classification of surgical wounds
- Principles of wound management
- Incision and their closure
- Suture and ligature materials
- Scars and contractures
- Wound dehiscence
- Dressings
- Fluid Balance
- Assessment and maintenance of fluid and electrolyte balance
- Techniques of venous access
- Nutritional support and TPN, indications and techniques
- Blood
- Blood transfusion, indications, hazards complications and plasma substitutes
- Post OP Complications
- Prevention, monitoring, recognition and management of complications
- Ventilatory support, indications and technique
- Post OP Sequelae
- Pain control
- Immune response to trauma, infection and tissue transplantation
- Pathophysiology of the body’s response to trauma
- Surgery in the immunocompromised patient

**Core Module 3- Trauma**

- Initial Assessment and Resuscitation
- Clinical assessment of the injured patient
- Maintenance of airway and ventilation
- Haemorrhage and shock
- Chest, Abdomen and Pelvis
- Cardiorespiratory physiology as applied to trauma
- Penetrating chest injuries and pneumothorax
- Rib fractures and flail chest
- Abdominal and pelvic injuries
- CNS Trauma
- CNS anatomy and physiology relevant to clinical examination
- Understanding of disorders caused by cranial or spinal trauma
- Interpretation of special investigations
- Intracranial haemorrhage
- Head injuries, general principles of management
- Surgical aspects of meningitis
- Spinal cord injury and compression
- Paraplegia and quadriplegia, principles of management
- Special problems
Pre hospital care
Triage
Trauma scoring systems
Traumatic wounds, principles of management
Gunshots and blast wounds
Skin loss, grafts and flaps
Burns
Facial and orbital injuries
Limb injury
Anatomy and physiology of the peripheral nervous system
Pathophysiology of fracture healing
Non union, delayed union and complications of fractures
Principles of bone grafting
Traumatic oedema, compartment and crush syndromes and fat embolism
Brachial plexus injury

Core-Module- 4 Intensive Care

Cardiovascular
Surgical anatomy of airways, chest wall, diaphragm and thoracic viscera
Mechanisms and control respiration
Interpretation of special investigations, radiology, LFT and ABG
Disorders of respiratory function caused by trauma, acute surgical illness and surgical intervention
Respiratory failure
Complications of thoracic operations
Adult respiratory distress syndrome
Endotracheal intubation, cricothyroidotomy, tracheostomy
Artificial ventilation
Multi system failure
Pathology of multisystem failure
Renal failure, diagnosis and complications
GI tract and liver
Nutrition
Problems in the ICU
Sepsis, predisposing factors and organisms
Complications of thoracic operations
Localised sepsis, pneumonia, lung abcess, bronchiectasis, empyema and mediastinitis
Principles of ICU
Indications for admission
Organization and staffing
Scoring systems
Costs

Core Module 5- Neoplasia and general considerations

Principles of Oncology
Epidemiology of neoplasms and role of cancer registries
Principles of carcinogenesis and pathogenesis relevant to clinical feature, special investigations staging and treatment.
Clinico pathological staging of cancer
Pathology, clinical features, diagnosis and principles of management of common cancers in each surgical specialty
Principles of treatment by surgery, chemotherapy, immunotherapy and hormone therapy
Principles of molecular biology, genetic factors and mechanisms of metastasis
Cancer screening
Screening programmes for various cancers especially of the breast.
Economic and social aspects in screening
Special cancer clinics and multidisciplinary approach
Techniques in management
Terminal care of cancer patients and pain relief
Rehabilitation
Psychological effects of surgery and bereavement
Ethics and the law
Medical /legal ethics and medico legal aspects of cancer surgery
Communication with patients, relatives and colleagues
Outcome of surgery
Decision making in surgery
Evaluation of surgical outcome
Clinical audit & Principles of research and design and analysis of clinical trials
Critical evaluation of technical and pharmaceutical innovations
Health service management and economic aspects of surgical care
Statistics and computing in surgery

**Systemwise Cognitive Skills**

**System Module I - Locomotor system**

Msuculoskeletal anatomy and physiology relevant to clinical examination of the locomotor system and to the understanding of disordered function, with emphasis on effects of acute muculoskeletal trauma.

**Effects of trauma and lower limb**

- Acute trauma
- Common fractures and joint injuries
- Degenerative and rheumatoid arthritis and principles of joint replacement & common foot disorders
- Amputations
- Infections and upper limb
- Common soft tissue injuries
- Infections of bones and joints including implants and prosthesis
- Pain in the neck, shoulder and arm
- Common hand disorders, injuries and infections
- Bone disease and the spine
- Common disorders of infancy and childhood including tumors
- Low back pain and sciatica
- Metabolic bone diseases
- Surgical aspects of paralytic disorders and nerve injuries
- Common disorders of adults including tuberculosis
System Module 2- Vascular System

Surgical anatomy and applied physiology of blood vessels relevant to clinical examination the interpretation of special investigations and the understanding of the role of surgery in the management of cardiovascular disease.
Arterial diseases
Chronic obliterative arterial disease
Carotid disease
Aneurysms
Special investigation techniques in vascular disease
Acute and chronic limb ischaemia and gangrene
General principles of management and reconstructive arterial surgery
Venous diseases
Vascular trauma and peripheral veins
Varicose veins and other disorders of veins in the lower limb
Venous hypertension and post phlebitic leg
Deep venous thrombosis and embolism and their complications
Chronic ulceration of the leg
Lymphatics and spleen
Anatomy and physiology of the haemopoietic and lymphoreticular systems’
Lymph nodes and lymphoedema
Surgical aspects of autoimmune disease
Surgical aspects of disorders haemopoiesis
Spleen, Hyperplasia and splenectomy

System Module 3- Head, Neck and Endocrine

The head
Laryngeal disease and maintenance of airway
Acute and chronic inflammation of ENT
Intracranial complications of ENT infections
Foreign bodies in ENT and epitasis
Salivary gland disease
Eye trauma and common infections
Neck and endocrine
Developmental anatomy and common neck swellings
Surgical anatomy and physiology of endocrine glands relevant to clinical examination, interpretation of special investigations, understanding of disordered function and principles and surgical management
Thyroid gland
Common disorders of parathyroids, adrenals and pituitary
System module 4- Abdomen and Genitourinary

Surgical anatomy of the abdomen and its viscera and the applied physiology of the alimentary and genitor urinary systems relevant to clinical examination, interpretation of common special investigations and understanding of disorders of function, disease and injury.
Abdominal wall
Anatomy of anterior abdominal wall, incisions and laparoscopic access
Anatomy of the groin and acute and elective hernias
Acute abdomen
Common acute abdominal emergencies
Peritonitis and intra abdominal abscess
Paralytic ileus and intestinal obstruction
Fistulas and their management
Investigation of abdominal pain and masses
Gynaecological causes of acute abdomen.
Abdominal trauma
Elective abdominal conditions
Jaundice
Portal hypertension
Gallstones
Pancreatic diseases
Stoma techniques and care
Common anal and perianal disorders
Urinary tract
Urinary tract in infections
Trauma to the urinary tract and haematuria
Urinary calculi
Diseases of prostate and retention of urine
Acute conditions of the scrotum
Renal failure and transplantation
Renal failure and dialysis
Principles of transplantation

System Module-5 Miscellaneous

Paediatric disorders
Neonatal physiology
Problems of anaesthesia and surgery in the new born
Principles of neonatal fluid and electrolyte balance
Correctable congenital abnormalities
Common paediatric surgical disorders
Recent Advances
Detailed Syllabus

I. Historical aspects of surgery

Origin of surgery
Ancient surgical practice
Development surgery and allied specialties
Important social events influenced the development of surgery
Development of modern surgical practice
Contributions of various individuals in development
History of Indian surgery

II. Principles of surgery in general

1. Principles of clinical surgery
2. Principles of pre operative management
3. Intra operative care
4. Principles of post operative care
5. Surgical sepsis, prevention and management
6. Infectious and infestations of surgical importance
7. Principles of nutrition in surgical practice, nutrition in surgical patients and rehabilitation
8. Metabolism in surgical patients
9. Clinical immunology and organ transplantation
10. Surgical technique and principles of operative surgery
11. Surgical technology
12. Trauma management
13. Intensive care and management of critical illness
14. Principles of diagnostic and therapeutic radiology
15. Principles of clinical oncology
16. Principles of pathology in surgical practice
17. Pharmacology in surgical practice
18. Principles of genetics and genetic aspects of surgery

Topics in Detail

1. Principles of clinical surgery

Case taking- History, physical examination, Demonstration of physical signs
Clinical assessment of surgical conditions

2. Principles of Preoperative management

Investigations in surgical practice- Scientific principles, Methodology of investigation of surgical case.

Assessment of fitness for surgery and anesthesia. Tests of respiratory cardiac and renal function Patho- physiology of respiratory , cardiovascular and renal systems. Management of associated medical conditions with a knowledge of pathophysiology
diabetes mellitus, respiratory disease, cardiovascular disease, bleeding disorders, seizure disorders, neurological diseases, malnutrition, anemia, jaundice, steroid, anticoagulant, immune-suppressant and other drugs therapy and drug therapy and management of psychiatric disorders.
Pre medication and sedation
Prophylaxis prevention and risk factors of thromboembolism

3. Intra operative care

Principles of anaesthesia
Care and monitoring of anaesthesia patient
Recovery from anaesthesia, recovery room

4. Principles of post operative care

Post operative management
Post operative monitoring
High dependency unit, intensive care unit
Assessment and maintenance of fluid and electrolyte balance
Care of tubes, drains and dressings
Pathophysiology, prevention, prevention, recognition and management of postoperative complications. Respiratory infections, atelectasis and failure, deep vein thrombosis, pulmonary, embolism, myocardial infarction, cardiac failure and cardiac arrest, haemorrhage, fluid and electrolyte imbalance, shock, retention of urine renal failure, paralytic ileus, constipation, jaundice, sepsis, wound complications hematoma, infection, dehiscence, cerebral complications and psychiatric disorders.
Blood transfusion indications, hazards, complications, plasma substitutes, blood component therapy.
Techniques of venous access
Nutrition in postoperative patients
Post operative drug therapy

5. Surgical sepsis, prevention and management

Surgical infection- wound infection
Surgically important micro organisms
Principles of microbiology of body’s response to infection, SIRS, sepsis, severe, sepsis, septic shock.
Sources of surgical infection- prevention, control, investigation and treatment of surgical infections.
Principles of asepsis and antisepsis
Aseptic techniques, cross infection, sterilization, disinfection
Antibiotic prophylaxis
Principles of antibiotic, therapy, antibiotics in surgery

6. Infections and infestations of surgical importance

Bacterial- Clostridial- tetanus, gas gangrene
Salmonella
Mycobacteria- tuberculosis, leprosy
Treponema- syphilis
Actinomycosts
Anthax
Chancroid, gonorhea, LGV, granuloma inguinale
Viral- Herpes simplex infections
Cytomegalovirus infection
Viral hepatitis- A,B,C,D,E
HIV infection- AIDS
AIDS and surgical practice
Fungal candida, Aspergillus, Mycetoma
Parasitic- Hydatid disease, filariasis, amoebiasis, malaria ascariasis

7. Principles of nutrition in surgical practice, nutrition in surgical patients and rehabilitation

Nutrition assessment in surgical practice including pre operative and post operative malnutrition.
Nutritional requirement
Indication of nutritional support
Routes of administration- techniques, indications, management, complication,
Nutritional Monitoring
Total parenteral nutrition
Principles of rehabilitation and physiotherapy, methods of limiting morbidity.

8. Metabolism in surgical patients

Metabolism of protein and carbohydrate
Protein requirements and turnover
Respiratory quotient
Energy- caloric requirements
Caloric- Nitrogen ratio, Role of fat as caloric source, Regulatory mechanism metabolic response to trauma, surgery, sepsis and starvation.

9. Clinical immunology & Organ transplantation

Immune system- components, function
Immune response
Major histocompatibility complex (MHC)
Immune suppression, immune suppressive drugs, problems with immune suppression
Transplantation
Immunology
Organ donation, preservation
Tissue typing
Technical aspects of transplantation of kidney, heart pancreas, lung, liver, heart lung and intestine
Ethical aspects of organ transplantation
Indian Law of Organ Transplantation
10. **Surgical technique and principles of operative surgery**

Skin preparation  
Local anaesthesia-techniques  
Incision, placement and techniques of closure  
Suture & ligature materials  
Suture techniques, anastomosis, tissue handling  
Dressings  
Tubes and drains, Catheters Cannulae  
Methods of hemostasis  
Principles of wound Management  
Classification of surgical wounds  
Pathophysiology of wound heating  
Scars &Contracture, wound dehiscence  
Excision of cysts and benign tumors of skin & subcutaneous tissue  
Drainage of abscess  
Growing, Masks, Scrubbing up, Gloves  
Customs and conduct in operative theatre (Basic surgical skills training mandatory)

11. **Technology in surgical practice**

Diathermy principles. Usage, precautions  
Lasers in surgical practice-principles, usage, precautions  
Ultrasonic’s in surgical practice  
Endoscopic in surgical practice  
Endoscopes, thoracoscope, laparoscope scientific operation complications  
Instruments for operative surgery  
Operating for operative surgery  
Operating microscopes  
Monitors in surgical practice  
Ventilators  
Properties of various implant materials  
Operation theatre technology  
Technology of illumination (lighting) in surgical practice  
Computers in surgical practice  
Robots in surgical practice  
Internet and surgeon  
Tele surgery  
Applications of principles of information technology in surgical practice

12. **Trauma management**

Applied basic sciences relevant to the assessment of injured patients and to the understanding of  
Disorders of function caused by trauma hemorrhage and shock  
Epidemiology of trauma in-India  
Mechanisms of trauma-blunt, sharp & Blast injury.  
Metabolic response to trauma  
Principles of pre- hospital are. First and ambulance service emergency management team, transport of trauma patients
Clinical assessment and management of trauma victim
Priority decisions in trauma management
Resuscitation – airway breathing & circulation management
Monitoring & repeated clinical assessment
Management of airway
Management of hemorrhage and shock
Management of traumatic wounds
Traumas scoring systems
Burns
Management of skin loss
Management of fractures, pathophysiology of fracture healing, immobilization of fracture treatment
Chest injuries, management of cardiac lemonade
Abdominal trauma
Head & spinal trauma
Pelvic injuries. Perineal, rectal and vaginal injuries and maxillofacial injuries
Traumatic edema and compartment syndrome

13. Intensive care and management of critical illness

Intensive care-principles & practice
Intensive care unit-structure & function
Indication of admission to ICU
Clinical assessment of critically ill
Scoring systems
Monitoring in ICU
Transportation of the critically ill patients
Applied cardiovascular and respiratory physiology. And assessment
Pathophysiology of shock & management
Respiratory and cardiovascular support
Cardiopulmonary resuscitation
Acute renal failure, dialysis
Hepatic failure-assessment and management
Selective decontamination of gut
Alimentary system management
Nutrition. Fluids & electrolyte management. In critically ill
Prevention of stress ulceration
Psychological & behavioral problems in ICU patients
Management of unconscious patient
Multiple organ dysfunction syndrome

14. Principles of diagnostic & therapeutic radiology

Imaging methods and principles of functioning-plain radiography contrast radiography ultrasound, CT scan, MR imaging scintigraphy etc.
Imaging of body systems
Interventional radiology-importance in surgical context- binary vascular, renal etc.
15. Principles of clinical oncology

Molecular biology of cancer
Carcinogenesis
Molecular basis of carcinogenesis tumor kinetic
Genetics & cancer
Pathological classification of tumors- in general
Staging of cancers
Mechanisms of metastasis
Premalignant conditions
Epidemiology of common cancers, cancer registers
Diagnostic modalities
Cancer screening. Tumor markers
Clinical problems associated with cancer
Treatment modalities in general surgery chemotherapy, radiotherapy, hormonal therapy immunotherapy
Terminal care of cancer patients psychological factors, pain relief

16. Principles of pathology in surgical practice

Biopsy techniques & cytological examination
Excision biopsy, incision biopsy, FNAC brush cytology, endoscopic biopsy
Basics of handling of specimen
Tissue processing, cutting & staining
Frozen section biopsy
Enzyme histochemistry
Immunohistochemistry
Electron microscopy

17. Pharmacology in surgical practice

Principles related to drug action
Half life, bioavailability , volume of distribution, clearances, drug interaction advice
Drug reactions
Drug therapy in surgical practice-anticoagulants, diuretics inatropics, drugs, steroids, analgesics
Drug therapy in of diabetes mellitus, hypertension and bronchospasm
Drug therapy in young and old age
Drug usage in pregnancy
Drug usage in diseased states-renal failure, liver disease cardiac failure

18. Principles of genetics & genetic aspects of surgical practice

Inheritance, polymerase chain reaction gene mapping.
Applied genetics in diagnosis and management pedigree analysis, prenatal diagnoses, common genetic diseases encumbered in surgical practice. Screening consideration counseling.

Gene therapy

**III) General Principles in Surgical Practice**

Decision making in surgical practice
Principles of good surgical practice
Consent for surgical treatment informed consent unconscious patient, consent for children, mental handicap and psychiatric illness. Informed consent and surgical research – Nuremburg code.
Surgical Audit
Economic aspects in surgical practice
Principles of management in surgical care delivery
Principle of management in surgical care delivery
Principle of referral practice in surgery
Medical documentation & information systems
Quality assurance in surgical practice
Principles of research and design & analysis of clinical trials
Quality of Life assessment – part of surgical research
Critical evaluation – literature and innovations
Medicolegal aspects in surgical practice
Ethical aspects in surgical practice
Communication with patients, relative and colleagues
Decision, certification and declaration of death
Decision on brain death
Psychological effects of Surgery and bereavement
Civil responsibilities of surgeon in practice

**IV) Systemwise Operative Surgery**

1 Abdominal surgery
2 Haemopoietic
3 Vascular surgery
4 Head and neck surgery
5 Endocrine surgery
6 Breast
7 Thoracic surgery
8 Plastic and reconstructive surgery
9 Genito urinary surgery
10 Nervo surgery
11 Orthopedics and traumatology
12 Pediatric surgery
13 Faciomaxillary surgery
14 Minimal Access Surgery
Operative Surgery of Systems in detail

1) Abdominal Surgery

Surgical anatomy of abdomen & viscera
Applied physiology of GIT
Clinical presentation, pathology and pathophysiology of disease process
Investigative modalities & indications
Management decisions
Condition affecting Stomach, duodenum Small Intestine, Hepatobiliary System
Pancreas and Large Intestine & Appendix
Abdominal wall hernia, complication, management
Conditions affecting retroperitoneum, retroperitoneal tumors
Mesentery, peritoneal cavity, mesenteric tumors, peritonitis, ascites, mesothelioma, intraperitoneal abscesses
Surgical management of obesity
Abdominal trauma – investigation and management with respect to organ involvement.
Abdominal emergencies – investigation, management
Principles of operative surgery-
Decision making Pre-operative preparation
Incisions and access
Abdominal closure methods.
Laprostomy
Gastrostomy, ileostomy, colostomy and ostomy management
Gastrointestinal fistulae – management

2. Haemopoetic and lymphatic system

Anatomy & physiology of spleen, lymphnodes and lymphatics system investigative modalities
Splenomegaly - causes, management
Splenic trauma, splenic conservations, management of Lymphedema

3. Vascular surgery

Vascular anatomy of body
Newer concepts in vascular physiology endothelium dependent relaxation factor
Pathology of aneurysms, thrombosis, embolism, atherosclerosis Investigative modalities in vascular surgery
Doppler, Duplex scan, angiogram, DSA, Magnetic Resonance Angiogram. Angioscopy,
Transcutaneous oxygen tension
Varicose veins
Deep vein thrombosis
Vascular malformations
Occlusive arterial diseases – evaluation, management
Arterial aneurysms – Aortic aneurysms
Vascular trauma
Angioplasty & endovascular procedures
Vascular prosthesis, vascular reconstruction Principles of operative surgery vascular bypass,
Carotid body tumor.
Mesenteric and renal vascular disease

4. Head and neck surgery
Surgical anatomy of nasopharynx, oropharynx oral cavity and neck salivary glands,
nose & ear, & Principles of investigation.
Neck lumps – differential diagnosis, pathology, investigations and management
Thyroglossal cyst, fistula
Lymphangiomas
Neurogenic tumors of neck
Head and neck cancers – management
Neck dissections for malignancy – radical, modified radical, functional and selective
neck injuries
Diseases of salivary glands, salivary gland tumors
Principles of operative surgery- head and neck
Reconstruction after radical surgery – head and neck

5. Endocrine Surgery
Surgical anatomy of thyroid, parathyroid and adrenal
Physiology of thyroid parathyroid and adrenal’
Disorders in function
Principles of investigation of disease process
Hyperthyroidism hypothyroidism
Solitary nodule thyroid- pathology investigation
Diseases affecting thyroid gland
Tumours of thyroid papillary carcinoma, follicular carcinoma, medullary carcinoma
anaplastic carcinoma investigations, management.
Surgery of thyroid gland- thyroidectomy- technique complications
Hyper parathyroidism, hypoparathyroidism
Parathyroid tumors
Surgery of parathyroid
Functional disorders of adrenal gland
Tumors of adrenal gland
Pheochromocytoma
Neuroendocrine tumors- carcinoids
Paraneoplastic syndromes

6. Breast
Surgical anatomy and applied physiology
Investigations for breast disease
Mammogram
Breast infections
Nipple discharge, breast lumps- pathology and investigations
Benign breast disease mastalgna
Carcinoma of breast- epidemiology, aetiology and risk factors, pathology, staging, investigations and treatment:
Carcinoma breast during pregnancy & lactation
Mastectomy- principles of operative surgery
Excision biopsy of breast lumps
Breast conservation in malignancy
Breast reconstruction
Aesthetic breast surgery
Gynaecomastia male breast
Male breast cancer

7. Thoracic Surgery

Surgical anatomy of chest, mediastinum, airway & lungs, diaphragm, heart ad great vessels in thorax and esophagus.
Surgical physiology of chest, pulmonary system esophagus and heart
Bronchoscopy & mediastinoscopy
Trauma to chest- principles of clinical examination, investigations and management
Pneumothorax
Tube thoracostomy
Pleural effusion
Infections of lung, pulmonary tuberculosis
Emphyema
Bronchectasis
Emphysema
Pulmonary aspergillosis
Tumors of pleura and lungs ; Thoracoscopy; thoracoscopic surgery
Techniques of thoracotomy & thoracic surgery
Mediastinal tumors
Deformities of chest wall
Chest wall tumors
Investigations for esophageal disease- esophagoscopy, manometry, ambulatory pH monitoring; Gastro esophageal reflux disease
Hiatus hernia
Barret’s esophagus
Esophageal trauma
Esophageal diverticula
Tumours of esophagus
Surgery of esophagus
Congenital anomalies of heart & great vessels and surgical management
Cardiopulmonary by pass- general principles
Principles of myocardial revascularization surgery, coronary artery bypass graft (CABG)
Injury to heart and great vessels
Aneurysms of thoracic aorta, aortic dissection
Complications of thoracic surgery
Diaphragmatic hernia, eventration of diaphragm, traumatic rupture of diaphragm
8. Plastic and Reconstructive surgery

Principles of plastic surgery- tissue handling excision & revision of scars and contractures, skin grafting flaps microsurgery, bone grafting nerve repair.
Reimplantation of amputated limbs, digits and organs
Care of burns and complications
Cosmetic Surgery
Reconstructive surgery reconstruction after head and neck surgery reconstruction of chest wall defects, reconstruction of abdominal wall
Hernia surgery
Craniofacial surgery

9. Genito urinary surgery

Surgical anatomy and physiology of genitor urinary system
Symptomatology and clinical examination
Investigations- GU disease
Oliguria, anuria- investigation, management
Congenital anomalies- genitourinary system
Hematuria
Infections of urinary tract
Tuberculosis of kidney and urinary tract
Renal trauma, trauma of urinary tract
Tumors of kidney and urinary tract
Urinary retention
Urinary incontinence
Urinary fistulae
Urinary diversion
Diseases of prostate and seminal vesicles
Carcinoma of prostate
Hypospadias, epispadias, phimosis
Urethral injuries
Extravasation of urine
Urethral strictures
Paraphimosis
Carcinoma of penis
Imperfect descent of testes
Torsion testes
Hydrocele, scrotal swellings- investigations, pathology, treatment
Epididiymo orchitis
Testicular tumors
Fourniers gangrene
Carcinoma of scrotum
Infertility investigations, management
Impotence –Management
Prosthetics in urological surgery
Principles of operative surgery- exposure of kidney, nephrectomy, surgery for renal injuries
Genitourinary stents
Renal transplantation
10. Neurosurgery

Fundamental anatomy of skull & brain
Investigations in neurosurgical practice- CT scan, angiogram, MRI Biopsies
Congenital anomalies of central nervous system
Skull tumors
Head injury – assessment, classification, investigation, treatment
Intracranial pressure monitoring
Brain tumors- pathology, treatment
Intracranial infections- meningitis, brain abscess
Intracranial hemorrhage
Hydrocephalus
Principles of operative surgery- burr hole, craniotomy, reconstruction of skull bone defects, drainage of intracranial hematoma
Post operative management in neurosurgical patients
Stereotactic surgery

11. Orthopedics and Traumatology

Surgical anatomy of upper limb lower limb, pelvis and spine
Osteoarthritis
Ankylosing spondylitis
Osteomalacia
Osteomyelitis, Joint infections
Joint effusions
Joint and bony deformities and correction
Bone tumors, soft tissue tumors
Deformities of spine
Paraplegia, quadriplegia
Tuberculosis of bones, joints and spine
Tumors of spinal cord and vertebrae
Management of fractures
Fractures and dislocations- upper limb and lower limb
Pelvic fractures
Spinal trauma
Tendon injuries and management
Joint replacement
Peripheral nerve injuries and repair
Hand infections and injuries
Amputations

12. Pediatric surgery

Essentials of anatomy of neonate
Physiology of new born
Principles of surgery and anaesthesia in new born and children
Fluid and electrolyte management
Common congenital anomalies- cleft lip, cleft palate, tracheoesophageal fistula, gastrochisis, exomphalos, umbilical & inguinal hernia, phimosis, undescended testis.
Hypertrophic pyloric stenosis
Torsion testes, acute scrotum  
Acute abdomen in neonates and children  
Pediatric malignancies- neproblastoma, neuroblastoma  
Jaundice biliary atresia  
Malrotation of intestine  
Intestinal atresia  
Meconium ileus  
Imperforate anus  
Hirschprung’s disease  
Bleeding per rectum, hematuria

13. Facio- maxillary surgery

Surgical anatomy of face and facial skeleton  
Imaging anomalies  
Surgical principles of correction and techniques of correction of faciomaxillary congenital anomalies  
Principles of surgery of face  
Surgical techniques placement of incisions  
Tumors of face pathology and management  
Tumors of facio- maxillary skeleton pathology investigations and management  
Jaw tumors, malignant tumors of mandible maxilla  
Congenital and developmental anomalies of teeth  
Impacted unerupted teeth  
Odontomes, odontogenic tumors  
Dental caries, dental infections, alveolar abscess periodontal disease  
Surgically important complications of dental disease  
Osteomyelitis of jaw  
Swellings of gums  
Cysts of jaw  
Faciomaxillary trauma principles of management- assessment, primary management maintaining airway imaging, surgical principles of treatment  
Features of maxilla- Le Fort Classification  
Fractures of mandible dislocation  
Fracture of zygomatic bone and arch  
Innovations in faciomaxillary surgery cranio orbital- Facial surgery

14. Minimal Access Surgery (MAS)

Evolution of MAS  
Demerits of conventional open surgery  
Nature and principles of MAS  
Scope of MAS- Laparoscopic, Thoracoscopic, Endoluminal (CPI and vascular), Perivisceral endoscopic endopelic, intra articular joint surgery, intracranial spinal combined (MAS combined with open surgery, combined MAS)  
Techniques of MAS- in GI surgery, Urological surgery, Thoracic Surgery, Orthopaedics, cardiovascular surgery and Neurosurgery  
Pathophysiology of pneumo peritoneum  
Principles of anaesthesia relating MAS  
Hazards & limitations of MAS
Innovations- in principles and technology of MAS
Standardization of training in MAS

**Syllabus of Practicals**

1. **Clinical Skills expected**
   a. Diagnosis and management of acute abdominal emergencies
   b. Total parenteral nutrition
   c. Initial Assessment and resuscitation of head, chest and abdominal injuries

3. **Practical skills expected**

   **A) General Surgery & Specialities**

   Endoscopy & Laparoscopy-Assisting ten cases.
   Thoracic and peritoneal aspiration and drainage-fifty cases
   Draining abscesses-five hundred cases
   Standard surgical approaches
   Laparotomy-one hundred cases
   Removal of simple cutaneous and subcutaneous swellings-five hundred cases
   Appendicectomy-fifty cases
   Strangulated hernia-thirty cases
   Bowel resection and anastomosis-ten cases
   Hernioplasty-thirty cases
   Varicose veins-twenty cases
   Sigmoidoscopy and minor anal- rectal procedures-fifty cases
   Excision of breast lumps-fifty cases

   **B) Orthopaedics**

   **Clinical skills expected**

   a) Fracture and elective outpatient clinics
   b) Assessment and management of acute musculo-skeletal trauma

   **Practical Skills expected**

   a) Aspiration of joints and injection of steroids-twenty case

**Evaluation**

1) Six monthly **internal assessment** ( both theory & practical ) of students shall be conducted & feedback given to them.
2) Logbook

Logbooks serve as a document of the trainee's work. The trainee shall maintain this Logbook of the special procedures/ operations performed by him / her during the training period right from the point of entry and its authenticity shall be assessed monthly by the concerned Postgraduate Teacher / Head of the Department. This shall
be made available to the Board of Examiners for their perusal at the time of his / her appearing at the final Examination. The logbook should record clinical cases seen and presented, & procedures & tests performed & seminars, journal club and other presentations. Logbook entries must be qualitative and not merely quantitative, focusing on learning points and recent advances in the area and must include short review of recent literature relevant to the entry. Diploma students, also, should maintain a similar logbook.

3) A Checklist for evaluation of Seminar, Journal Club and Clinical Presentations done by the Candidates shall be maintained for each candidate and evaluated on a quarterly basis.

**Recommended Reading**

**General Surgery**

1. Short practice of surgery – Bailey and Love
2. Essential Surgical practice- Cuschieri
3. Meingot’s Abdominal Operations
4. Principles of Surgery by Schwartz

**Clinical Surgery**

1. Demonstrations of physical signs and Clinical surgery- Hamilton Bailey
2. Manual on Clinical Surgery Das
3. Clinical Surgery Pearls – by Dr. R. Dayananda Babu

**Emergency and Operative Surgery**

2. Emergency surgery- Hamilton Bailey

**Surgical Anatomy**

1. Regional Applied Anatomy –Last
2. Synopsis of Surgical Anatomy- Lee McGregor
3. Surgical Anatomy and Technique by Skandelakis

**Surgical Pathology**

1. Basic Pathology – Robbins
2. Pathology for Surgeons in Training- Gardner

**Miscellaneous**

Any one standard textbook each on Orthopaedic surgery, Critical care, Statistics and Medical Ethics
Journals

Indian Journal of Surgery
British Journal of Surgery
Annals of Surgery
Surgical clinics of North America
World Journal of Surgery
Asian Journal of Surgery
And all other indexed Surgical Journals.