

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 Module2- 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 abscess, 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

Musculoskeletal anatomy and physiology relevant to clinical examination of the locomotor system and to the understanding of disordered function, with emphasis on effects of acute musculoskeletal 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 auto immune disease

Surgical aspects of disorders haemopoiesis

Spleen, Hyperplenism 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 epistaxis

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, 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, gonorrhoea, 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 healing

Scars & Contracture, wound dehiscence

Excision of cysts and benign tumors of skin & subcutaneous tissue

Drainage of abscess

Gowning, 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 care. 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 inotropics, 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

Fundamentals of genetics- chromosomes, genes, genetic code. Structure of DNA mutations.
 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.

Applied genetics in cancer management cellular biology of cancer tumor viruses, ontogenesis tumor suppressor genes. Genetic basis of carcinogenesis. Familial cancers, genetic basis of familial cancers, screening of familial cancers.
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 Neuro 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

Bronchiectasis

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

Epididymo orchitis

Testicular tumors

Fourniers gangrene

Carcinoma of scrotum

Infertility investigations, management

Impotence –Management

Prosthetics in urological surgery

Principles of operative surgery- exposure of kidney, nephroectomy, 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, gastroschisis, exomphalos, umbilical & inguinal hernia, phimosis, undescended testis.
 Hypertrophic pyloric stenosis

Torsion testes, acute scrotum
 Acute abdomen in neonates and children
 Pediatric malignancies- neuroblastoma, neuroblastoma
 Jaundice biliary atresia
 Malrotation of intestine
 Intestinal atresia
 Meconium ileus
 Imperforate anus
 Hirschsprung'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 endopelvic, 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
Appendectomy-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

1. Text book of Operative General Surgery- Farquharson
2. Emergency surgery- Hamilton Bailey

Surgical Anatomy

1. Regional Applied Anatomy –Last
2. Synopsis of Surgical Anatomy- Lee Mc Gregor
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.
