

P.G. Curriculum M.S. General Surgery Index

1. Goals
2. Objectives
3. Syllabus
4. Teaching Programme
5. Posting
6. Thesis
7. Assessment
8. Job Responsibilities
9. Suggested Books
10. Model Test Papers

Curriculum

M.S. General Surgery

The infrastructure and faculty of the department of surgery will be as per MCI guidelines

1. Goals

The goal of MS course in Surgery is to produce a competent surgeon who:

- ❖ has acquired the competence pertaining to surgery that is required to be practised in the community and at all levels of health care system
- ❖ has acquired the skills to manage the patients of trauma effectively.
- ❖ has acquired skill in effectively communicating with patient and his attendants.
- ❖ has the desired surgical skills to independently operate on elective and emergency cases
- ❖ is aware of the latest developments in the field of surgery
- ❖ is oriented to principles of research methodology
- ❖ has acquired skills in educating medical and paramedical professionals.

2. Objectives

At the end of the MS course in surgery, the student should be able to

- ❖ practice the specialty of surgery in keeping with the principles of professional ethics
- ❖ recognize and identify the various surgical problems
- ❖ institute diagnostic, therapeutic, rehabilitative and preventive measures to provide holistic care to the patient
- ❖ take detailed history, perform full physical examination and make clinical diagnosis
- ❖ perform relevant investigative and therapeutic procedures
- ❖ interpret important imaging and laboratory results
- ❖ independently perform basic surgical procedures
- ❖ manage surgical trauma emergency efficiently
- ❖ Demonstrate empathy and human approach towards patients and their families.
- ❖ demonstrate communication skills of a high order in explaining management and prognosis, providing counselling and giving health education to patients, families and communities,
- ❖ develop skills as a self-directed learner, recognize continuing educational needs, use appropriate learning resources, and critically analyze relevant published literature in order to practice evidence-based surgery
- ❖ facilitate learning of medical/nursing students, practicing physicians, paramedical health workers and other providers as a teacher/trainer
- ❖ organize and supervise the desired managerial and leadership skills

3. Syllabus

During the training period, efforts are always made that adequate time is spent in teaching the students skill required for performing basic surgical procedures and making them accustomed to handling difficult trauma and critical patients.

3.1. Theory

- ❖ Diagnostic and interventional radiology.
- ❖ Preparing a patient for surgery
- ❖ Anaesthesia and pain management
- ❖ Acute life support and critical care
- ❖ Fluid and Electrolyte balance and transfusion products
- ❖ Nutrition
- ❖ Wounds,tissue repair and scars
- ❖ Basic surgical skills and anastomosis
- ❖ Principles of laparoscopic surgery
- ❖ Wound Infection
- ❖ Sterile precautions and theatre safety
- ❖ Parasitic infections.
- ❖ AIDS.
- ❖ Transplantation
- ❖ Cyst,ulcers and sinus
- ❖ Principles of Oncology
- ❖ Day Surgery
- ❖ An approach to surgical audit
- ❖ Surgical ethics
- ❖ Clinical trials and statistics
- ❖ **Plastic & reconstructive surgery:** Skin grafting, Flaps-Principles of Soft Tissue Coverage, Hypospadias, Principles of microvascular surgery with special reference to vessel repair.
- ❖ Burns
- ❖ Accident and Emergency Surgery
- ❖ Warfare injuries
- ❖ Craniocerebral trauma (Head Injury),Spinal Injuries
- ❖ Elective Neurosurgery- Brain tumours, spinal cord tumours,hydrocephalus , spinal dysraphism
- ❖ Cleft lip & palate
- ❖ Maxillofacial injuries
- ❖ Oral and Oropharyngeal cancer
- ❖ **Disorders of salivary glands-** Anatomy,clinical features, investigations, examination, Medical and surgical treatment of stone,infection and tumour in the salivary glands
- ❖ **Pharynx, larynx and neck-**Anatomy and physiology clinical features,investigations, diagnosis and emergency treatment of airway obstruction and tumours
- ❖ **Thyroid-** Development and anatomy, physiology and investigations,medical and surgical treatment of thyroid problems
- ❖ **Parathyroid and adrenal glands-** Surgical concept of parathyroid and adrenal disorders,investigations, role of surgery, management of various cancers
- ❖ **Breast-** Surgical anatomy, investigations, anomalies, management of benign and malignant breast disorders.

- ❖ **Thorax**-Surgical anatomy and physiology, investigations, role of surgery in management of chest trauma and surgical oncology as applied to chest surgery
- ❖ **Cardiac Surgery**-Role of surgery in cardiac diseases, investigations, management
- ❖ **Arterial disorders**-Nature of occlusive arterial diseases, acute arterial occlusion, severely ischaemic limb, aneurysm diseases, clinical features, investigations ,treatment options
- ❖ **Venous disorders**-Venous anatomy, physiology, varicose veins ,DVT, Venous insufficiency and ulcers
- ❖ **Lymphoedema**-Functions, development, causes, clinical features, investigations , treatment
- ❖ **Oesophagus**-Anatomy,physiology,clinical features,investigations,treatment of benign and malignant disorders
- ❖ **Stomach and duodenum**-Anatomy and pathophysiology,clinical features, investigations, management of benign and malignant disorders
- ❖ **Liver**-Anatomy,clinical features,investigations management of liver trauma, infections, tumours
- ❖ **Spleen**- Anatomy, pathology,clinical features investigations , Management of splenic trauma
- ❖ **Gall bladder and bile ducts**-Surgical anatomy,physiology,clinical features,investigations , treatment of benign and malignant disorders
- ❖ Pancreas
- ❖ Peritoneum,Omentum,mesentery and retroperitoneal space
- ❖ Small and large intestines
- ❖ Intestinal Obstruction
- ❖ Vermiform Appendix
- ❖ Rectum
- ❖ Anus and anal canal
- ❖ Hernias,umbilicus and abdominal wall
- ❖ Genitourinary system:Urinary symptoms, investigation of the urinary tract and anuria, kidney and ureters,urinary bladder,prostate and seminal vesicles,urethra and penis,testis and scrotum
- ❖ Postoperative care
- ❖ **Paediatric Surgery**: Preparation of Paediatric Surgery patients pre & post operative, Soft tissue tumour, Causes of Neonatal Obstruction, Anorectal malformation, Hypertrophic Pyloric stenosis, Undescended Testis, Hirschsprung's disease, Oesophageal atresia with tracheo-esophageal fistula, Wilms tumour, Malrotation of gut

3.2. Practical

- ❖ **History and examination**: History taking and examination as relevant to General Surgery.
- ❖ **Monitoring Skills**: Temperature recording, capillary blood sampling,arterial blood sampling,venous blood sampling, cardio-respiratory monitoring, pre & post operative patient monitoring and management accordingly.
- ❖ **Therapeutic Skills**: Tracheostomy, chest tube insertion, suturing, catheterization, Ryle's tube insertion, airway management, nasogastric feeding, endotracheal intubation, cardiopulmonary resuscitation, venepuncture and establishment of vascular access, administration of fluids, blood, blood components, parenteral nutrition, common dressings, abscess drainage and basic principles of rehabilitation, bed sores management,

- ❖ **Diagnostic Skills:** Interpretation of X-rays/CT/MRI ,ultrasonographic abnormalities and laboratory tests.
- ❖ **Surgical Skills:**Observation of general layout and working of OT,understanding the importance of management and maintaining the sanctity of OT,scrubbing,working and sterilization of OT instruments, equipments eg electrocautery etc., Laparoscopic Set, shifting of OT patients, pre operative work up of patients, acquisition of basic surgical skills to perform minor/medium surgeries independently (suprapubic cystostomy, Urethral Dilatation, Cystolithotomy, Varicocele, Orchidectomy, Ureterolithotomy, Excision of Cyst & I&D, Excision of Breast Lump, Surgery of Hydrocele, appendectomy, Herniotomy, Hernia repair, umbilical hernia, Exploratory laparotomy for perforation, Haemorrhoidectomy, Fistulectomy, Fissurectomy Circumcision and Skin grafting
- ❖ Assist in major surgeries,handling of all types of surgical emergencies,post operative management of patient in recovery, ICU and ward, Waste disposal .

4. Teaching Program

4.1. General Principles

Acquisition of practical competencies being the keystone of postgraduate medical education, postgraduate training is skills oriented.

Learning in postgraduate program is essentially self-directed and primarily emanating from clinical and academic work. The formal sessions are merely meant to supplement this core effort.

4.2. Teaching Sessions

In addition to bedside teaching rounds, in the department there are daily hourly sessions of formal teaching per week comprising of seminars, case presentations, journal clubs, clinical meetings and central sessions.

4.3 Teaching schedule

The suggested teaching schedule of the department will be as follows:

1. Seminar
2. Case Presentation
3. Journal Club
4. Case Presentation
5. Clinical Meeting
6. Central session (held in hospital auditorium regarding various topics like CPC, guest lectures, student integrated seminars, grand round, sessions on basic sciences, biostatistics, research methodology, teaching methodology, health economics, medical ethics and legal issues).

Lectures on different topics are given by the consultants every month.

- ❖ All sessions are attended by the faculty members. All PGs are supposed to attend the sessions except the ones posted in Surgical ICU and emergency.
- ❖ All the teaching sessions are assessed by the consultants at the end of session and kept in the office for internal assessment.

- ❖ The P.G. residents in 3rd year take preferably undergraduate classes in the evening. This helps them to prepare and make them confident in clinical presentation. The undergraduate students are encouraged to clarify their doubts and sharpen their clinical skills.
- ❖ Ward rounds may be service or teaching rounds. Service rounds should be taken every day for the care of patients and every unit should have **grand rounds** for teaching purpose. Entry of both the rounds should be made in Log Book.
- ❖ Inter departmental meetings particularly between Pathology, Gastroenterology and Radio-diagnosis are being held at least once a month, and entries of interesting cases should be made in the log book.
- ❖ Recommended that at least two state level CME programmes should be attended by each student during the three year tenure.
- ❖ Attending conferences is encouraged although it is optional.

5. Postings

The postgraduate student rotates through all the clinical units in the department. In addition, following special rotations are also undertaken:

- ❖ Emergency: 4 months
- ❖ Surgical ICU 4 months
- ❖ Superspecialities (Neurosurgery, Plastic Surgery, Paediatric Surgery & Urology)
- ❖ Posting at one area will be for 2 months

During first year the resident will work under direct supervision of the 2nd & 3rd year residents/senior residents and consultant on call. He/she will be responsible for taking detailed history, examination of patients as per the file record and send appropriate investigations as advised by the seniors and making discharge cards. Initially all procedures are to be observed and then done under supervision of seniors and during 2nd / 3rd year can do procedures independently. In 2nd year, resident is posted in emergency, Surgical ICU and specialities. In 3rd year, resident is also encouraged to make independent decisions in management of cases and perform surgery independently. He /she is also involved in teaching of undergraduate students.

6. Thesis:

- ❖ Every candidate shall carry out work on an assigned research project under the guidance of a recognized postgraduate teacher, the project shall be written and submitted in the form of a Thesis.
- ❖ Every candidates shall submit thesis plan to the University within time frame set by university.
- ❖ Thesis shall be submitted to the University six months before the commencement of theory examination i.e. for examination May/June session, 30th November of the preceding year of examination and for November/December session 31st May of the year of examination.
- ❖ The student will (i) Identify a relevant research problem (ii) conduct a critical review of literature; (iii) formulate a hypothesis; (iv) determine the most suitable study design; (v) state the objectives of the study; (vi) prepare a study protocol; (vii) undertake a study according to the protocol; (viii) analyze and interpret research data, and draw conclusions; (ix) write a research paper.

7. Assessment

All the PG residents are assessed daily for their academic activities and also periodically.

7.1. General Principles

- ❖ The assessment is valid, objective, and reliable.
- ❖ It covers cognitive, psychomotor and affective domains.
- ❖ Formative, continuing and summative (final) assessment is also conducted in theory as well as practicals. In addition, thesis is also assessed separately.

7.2. Formative Assessment

The formative assessment is continuous as well as end-of-term. The former is based on the feedback from the senior residents and the consultants concerned. All the consultants of the unit in which resident is working will give marks based on performance. These marks will be summated over a period of tenure. End-of-term assessment is held at the end of each semester (upto the 5th semester). Formative assessment will not count towards pass/fail at the end of the program, but will provide feedback to the candidate.

7.3. Internal Assessment

The performance of the Postgraduate student during the training period should be monitored throughout the course and duly recorded in the log books as evidence of the ability and daily work of the student. Marks should be allotted out of 100 as followed.

Sr. No.	Items	Marks
1.	Personal Attributes	20
2.	Clinical Work	20
3.	Academic activities	20
4.	End of term theory examination	20
5.	End of term practical examination	20

1. Personal attributes:

- ❖ **Behavior and Emotional Stability:** Dependable, disciplined, dedicated, stable in emergency situations, shows positive approach.
- ❖ **Motivation and Initiative:** Takes on responsibility, innovative, enterprising, does not shirk duties or leave any work pending.
- ❖ **Honesty and Integrity:** Truthful, admits mistakes, does not cook up information, has ethical conduct, exhibits good moral values, loyal to the institution.
- ❖ **Interpersonal Skills and Leadership Quality:** Has compassionate attitude towards patients and attendants, gets on well with colleagues and paramedical staff, is respectful to seniors, has good communication skills.

2. Clinical Work:

- ❖ **Availability:** Punctual, available continuously on duty, responds promptly on calls and takes proper permission for leave.
- ❖ **Diligence:** Dedicated, hardworking, does not shirk duties, leaves no work pending, does not sit idle, competent in clinical case work up and management.

- ❖ **Academic ability:** Intelligent, shows sound knowledge and skills, participates adequately in academic activities, and performs well in oral presentation and departmental tests.
 - ❖ **Clinical Performance:** Proficient in clinical presentations and case discussion during rounds and OPD work up. Preparing Documents of the case history/examination and progress notes in the file (daily notes, round discussion, investigations and management) Skill of performing bed side procedures and handling emergencies.
3. **Academic Activity:** Performance during presentation at Journal club/ Seminar/ Case discussion/Stat meeting and other academic sessions. Proficiency in skills as mentioned in job responsibilities.
 4. **End of term theory examination** conducted at end of 1st, 2nd year and after 2 years 9 months
 5. **End of term practical/oral examinations** after 2 years 9 months.

Marks for **personal attributes** and **clinical work** should be given annually by all the consultants under whom the resident was posted during the year. Average of the three years should be put as the final marks out of 20.

Marks for **academic activity** should be given by the all consultants who have attended the session presented by the resident.

The Internal assessment should be presented to the Board of examiners for due consideration at the time of Final Examinations.

7.4. Summative Assessment

- ❖ Ratio of marks in theory and practicals will be equal.
- ❖ The pass percentage will be 50%.
- ❖ Candidate will have to pass theory and practical examinations separately

A. Theory Examination (Total= 400)

Paper	Title	Marks
Paper 1:	Basic sciences as applied to Surgery	100
Paper 2:	Principles and practice of Surgery	100
Paper 3:	Operative Surgery	100
Paper 4:	Recent advances in Surgery	100

B. Practical Examination and Viva voce (Total=400)

Long Case (s)	- One	150
---------------	-------	-----

8. Job Responsibilities

During first year, the resident should work under direct supervision of the 2nd & 3rd year residents/senior residents and consultant on call. He/she will be responsible for taking detailed history, examination of patients as per the file record and send appropriate investigations as advised by the seniors and making discharge cards. Initially all the procedures are to be observed and then performed under supervision of seniors and during 2nd / 3rd year should do procedures independently. In 2nd year, resident should be posted in emergency, Surgical ICU and specialties concerned. In 3rd year, resident is encouraged to make independent decisions in management of cases and perform surgery independently. He /she is involved in teaching of undergraduate students.

9. Suggested Books

9.1. Core Books

- ❖ Bailey & Love's- Short Practice of Surgery
- ❖ Farquaharson's Text Book of General Surgery
- ❖ Current Surgical Diagnosis & Treatment
- ❖ S.Das Manual on Clinical Surgery

9.2. Reference Books

- ❖ Hamilton Bailey Demonstration of Clinical signs & Symptoms in surgery
- ❖ Emergency Surgery By Baily H
- ❖ Dudley's Atlas of General Surgery
- ❖ Pye's Surgical Handicraft
- ❖ Mastery of Surgery by Baker R.J Vol. I & II
- ❖ Schwartz-Principles of Surgery
- ❖ Recent Advances, Talyer
- ❖ Sabiston Text Book of Surgery, Part I & II
- ❖ Maingot's Abdominal Operations
- ❖ Oxford Text Book of Surgery Vol.I,II & III by Morris and Wood
- ❖ S.Das Text Book on Surgical Short Cases
- ❖ Mastery of Thoracic Surgery
- ❖ Text Book of Hepatobiliary Surgery-Blumgart
- ❖ Textbook Colorectal Surgery by Corman Marwin L.
- ❖ Laparoscopic Surgery Technique-Darsi
- ❖ Zollinger Altas of Surgical Operation
- ❖ Surgery of Alimentary Tract Vol 1 & 2 Shackelford

9.3. Journals

- ❖ Annals of Surgery
- ❖ Archives of Surgery
- ❖ British Journal of Surgery
- ❖ Journal of Neurosurgery
- ❖ Journal of Neurosurgery : Spine
- ❖ Journal of Neurosurgery : Pediatrics

- ❖ Journal of Plastic , Reconstructive and Aesthetic Surgery
- ❖ Journal of Trauma
- ❖ Journal of Urology
- ❖ Neurosurgery clinics of North America
- ❖ Plastic & Reconstructive Surgery
- ❖ Surgery
- ❖ Surgical Clinics of North America
- ❖ Urologic Clinics of North America
- ❖ Indian Journal of Surgery
- ❖ Journal of Minimal Access Surgery
- ❖ Journal of Indian Association of Paediatric Surgery
- ❖ Indian Journal of Burns
- ❖ Indian Journal of Thoracic and Cardio vascular Surgery
- ❖ Journal of Emergency Trauma and Shock
- Current problems in Surgery

10. Model Test Papers

MODEL QUESTION PAPER

MS (Surgery)

Paper-I

Basic sciences as applied to surgery

*Max. Marks:100**Time: 3 hrs*

- **Attempt ALL questions**
 - **Answer each question & its parts in SEQUENTIAL ORDER**
 - **ALL questions carry equal marks**
 - **Illustrate your answer with SUITABLE DIAGRAMS**
-

- I Describe in detail the surgical anatomy of liver.
- II Describe the normal sequential rotation of gut in fetal life and consequences of malrotation of gut.
- III Describe pathophysiological changes of portal hypertension.
- IV Explain Development and surgical anatomy of thyroid.
- V Explain Surgical anatomy of inguinal canal in relation to hernia formation.
- VI Explain Embryology, clinical features and its implication for treatment of Branchial cyst.
- VII Discuss Lymphatic drainage of breast.
- VIII Surgical anatomy of anal canal in relation to fistula in ano.
- IX Describe ano-rectal malformation.
- X Describe surgical anatomy of venous system of leg.

MODEL QUESTION PAPER

MS (Surgery)

Paper-II

Principles and practice of Surgery

*Max. Marks:100**Time: 3 hrs*

- **Attempt ALL questions**
 - **Answer each question & its parts in SEQUENTIAL ORDER**
 - **ALL questions carry equal marks**
 - **Illustrate your answer with SUITABLE DIAGRAMS**
-

- I Describe in brief hypovolemic shock, its pathophysiology and management.
- II Describe pathology, clinical presentation and surgical management of carcinoma stomach.
- III Describe etiology and management of hydronephrosis
- IV Elaborate pathology, clinical features, investigations and treatment of BHP
- V Describe development pathology, clinical features and management of APKD
- VI Explain ANDI of breast
- VII Compare Acute VS chronic arterial occlusion
- VIII Describe the management of deep burns
- IX Describe general principles of management of blunt abdominal injury
- X Describe clinical features and management of liver abscess

MODEL QUESTION PAPER

MS (Surgery)
Paper-III
Operative Surgery

*Max. Marks:100**Time: 3 hrs*

- **Attempt ALL questions**
 - **Answer each question & its parts in SEQUENTIAL ORDER**
 - **ALL questions carry equal marks**
 - **Illustrate your answer with SUITABLE DIAGRAMS**
-

- I Describe the indications, techniques and complications of neck dissections.
- II Describe indications, techniques and complications of esophagectomies.
- III Enumerate types of and describe any one of the Liver resections
- IV Enumerate the Complications of TPC with IPAA
- V Classification and management of Bile duct Injuries
- VI Describe Thoracic outlet syndrome
- VII How will you manage a case of Buerger's disease
- VIII Enumerate various Abdominal incisions and discuss their advantage and complications
- IX Describe the complications of Transurethral Prostate resection
- X Describe Damage control surgery

MODEL QUESTION PAPER

MS (Surgery)

Paper-IV

Recent advances in Surgery

*Max. Marks:100**Time: 3 hrs*

-
- **Attempt ALL questions**
 - **Answer each question & its parts in SEQUENTIAL ORDER**
 - **ALL questions carry equal marks**
 - **Illustrate your answer with SUITABLE DIAGRAMS**
-

- I Describe the use of radio frequency in surgery
- II Discuss Recent advances in the treatment of carcinoma breast.
- III What is N.O.T.E.S and its current status
- IV Describe T.E.M.S
- V Give an overview of treatment of Ulcerative colitis
- VI Discuss the recent advances in Treatment of varicose veins
- VII Outline Uses and advantages of robotic surgery
- VIII Discuss the recent advances in abdominal compartment syndrome
- IX Describe the latest concepts in the management of BHP
- X Describe the recent advances in management of carcinoma esophagus