

Curriculum
For
M.Ch Surgical Gastroenterology
(Gastrointestinal Surgery)
(3-year course)



All India Institute of Medical Sciences
Nagpur

M.CH. (3 YEARS) SURGICAL GASTROENTEROLOGY CURRICULUM

1. GOAL

This purpose of this program is to train surgeons as superspecialists in complex gastrointestinal and hepatopancreaticobiliary surgery including liver transplant. Candidate should be capable of working as an independent surgeon, be able to train other surgeons and perform basic as well as clinical research in the field of surgical gastroenterology.

2. PROGRAM OUTCOMES

Upon completion of the **M.Ch Surgical Gastroenterology** (Gastrointestinal Surgery) program, the trainee shall be able to acquire certain subject specific competencies in the cognitive, psychomotor, and affective domain which are as follows:

1. COGNITIVE DOMAIN	
S.No.	Competencies
1.1	Acquire a comprehensive knowledge of the basic sciences as relevant to surgical gastroenterology which includes the anatomy, embryology, genetics, physiology and biochemistry related to the digestive tract and the hepatopancreatobiliary system
1.2	Understand the genetic aberrations and anomalies related to fetal development and their management both in pediatric and adult age groups
1.3	Acquire a thorough knowledge of the normal variants and pathological changes related to the digestive tract and hepatopancreatobiliary diseases
1.4	Understand the concept behind basic drugs used including the pharmacology and drug interactions as well as microbes relevant to common surgical gastroenterology problems
1.5	Understand the etiology, pathophysiology, diagnosis and management of all basic and advanced surgical diseases operated by surgical gastroenterologists and HPB surgeons in routine and emergency settings
1.6	Learn the basic principles behind the common radiological and nuclear medicine imaging techniques including various phases and interpretation of

	images including CT, MRI and nuclear scans.
1.7	Acquire knowledge of medicine and critical care relevant in perioperative management of surgical patients including acid base and electrolyte management, fluid management, principles of ventilation, prehabilitation.
1.8	Understand the principles of safe surgery including operability and inoperability. Learn the procedures performed in surgical gastroenterology including surgery of the digestive tract and hepatopancreaticobiliary system, vascular surgery (shunts and vascular resection/anastomosis) and liver transplant
1.9	Acquire a good working knowledge of all basic ward and OT procedures as well as a knowledge of the sophisticated and routine equipment used in surgical gastroenterology such as CUSA, Laparoscope, Energy devices
1.10	Understand the basic principles of scientific research and research methodologies including planning a study, data collection, analysis and interpretation. Also understand how to write a paper and critique the same based on methodology and statistics.
1.11	Possess a basic knowledge of patient selection, perioperative management and operative principles related to liver transplant
1.12	Understand the public health and psychosocial implications of diseases related to the digestive system including complications related to alcohol consumption, tuberculosis and worm related diseases and preventive measures
1.13	Recognize the importance of inter-disciplinary approach in the management and obtain relevant specialist / ancillary services' consultation where appropriate.
2. PSYCHOMOTOR DOMAIN	
S.No.	Competencies
2.1	Understand the presentation including history and examination of all surgical gastroenterological diseases including fetal malformations, oncology and transplant/ cirrhosis.
2.2	Become capable of management of patients suffering from emergent and non-emergent surgical conditions related to the digestive system including ordering of the relevant investigations, avoiding unnecessary investigations and interpreting the results of both laboratory and imaging investigation in light of history and examination findings

2.3	Be able to formulate a sound treatment plan and monitor the effectiveness of the surgical/ medical intervention performed including identification of complications
2.4	Capable of identifying the indications for operability as well as inoperability in all diseases relevant to surgical gastroenterology and be capable of judging when to operate or manage patients conservatively, and whether emergency or elective surgery is indicated
2.5	Capable of performing all routine surgeries of the digestive tract including esophagectomies, pancreatic and liver resections, biliary system surgeries
2.6	Be able to identify the normal and abnormal postoperative course and formulate management plan in case of complications to manage the same safely
2.7	Be able to manage high risk patients with prolonged critical care requirements including management of fluid, electrolytes, acid base, nutrition, ventilation and other aspects of post op care
2.8	Capable of identifying the formulating multimodality treatment plans in coordination with other ancillary departments including in tumour boards and cirrhosis/ pancreatitis settings
2.9	Capable of commanding a surgical team including the nursing and technical staff for coordinated patient management
2.10	Able to perform pretransplant and post-transplant workup and management of liver transplant patients
2.11	Capable of basic and advanced life support including trauma life support
2.12	Capable of planning scientific studies based on sound statistical and research principle including prospective and retrospective analysis
2.13	Capable of communicating effectively and empathetically with the patient and their relatives to provide all the relevant information for an informed consent as well as be able to break bad news and prognosticate in an empathetic and respectful manner
2.14	Be capable of planning public health programs and interventions related to diseases of the digestive system
2.15	Understand the administrative components of a surgical gastroenterology department including the importance of effective medical record keeping, audits, morbidity and mortality assessments and effective follow up of patients in the

	long term
2.16	Capable of presenting the research and institute data in seminars and conferences at the national and international level
2.17	Capable of starting an independent surgical gastroenterology department anywhere in the country
3. AFFECTIVE DOMAIN	
3.1	Adopt ethical principles in all aspects of surgical gastroenterology practice/ research – Professional honesty, integrity and humility.
	Respect patient’s rights and privileges, right to information and right to seek a second opinion.
3.2	Demonstrate respect, compassion and integrity while dealing with patients, their relatives as well as the support staff
3.3	Develop the skill of listening patiently to the concerns of the patients and their families and respect their wishes and treatment decisions
3.4	Be able to educate and counsel patients effectively and empathetically
3.5	Demonstrate the ability to lead the consult service through interactions with referring and primary doctor and multimodality teams
3.6	Understand team work including effective and equitable distribution of roles among team members and be able to lead a surgical team including the nursing and technical staff among others in both emergency and elective settings
3.7	Develop mutual respect and effectively interact with professional colleagues in the ancillary branches to plan effective multimodality treatment plans including in tumour boards and transplant boards
3.8	Be a sound and effective communicator and teacher and be able to teach the basic concepts of surgical gastroenterology to undergraduate and post graduate students as well as the support staff, including in didactic lectures as well as seminar and one to one interactions and other teaching tools
3.9	Understand the importance of and perform the required documentation and follow up of patients
3.10	Adhere to ethical standards and maintain professionalism while using social media platform for teaching, learning, and communicating
3.11	Develop the skills for effective public health communication and education

	using various tools for education and presentation
3.12	Develop and maintain the highest ethical standards in both clinical practice and while carrying out research
3.13	Develop desired skills to independently manage emergency situations related to gastrointestinal diseases and complications associated procedures /surgeries as mentioned above
3.14	Develop an aptitude for performing administrative tasks such as audit of the patient care and surgeries, morbidity and mortality assessment and presentation of the same in departmental meetings
3.15	Develop the public speaking and interactive skills required to effectively present institute data and research at the national and international conferences and forums
3.16	Develop the aptitude to establish, develop and lead a new surgical gastroenterology department
3.17	Be humble and accept the limitation in his knowledge and skills to ask for help from colleagues when needed

3. ELIGIBILITY CRITERIA

MS/DNB (SURGERY/ GENERAL SURGERY) from an INI/NMC recognized institute shall be the minimum eligibility qualification.

4. SELECTION OF CANDIDATES

The selection shall be through the entrance test conducted by the competent authority.

5. DURATION OF TRAINING

For this postdoctoral course, the training shall be of 3 years duration and will follow the full-time residency pattern. During these years, the candidate shall work as senior resident, who will perform clinical, teaching, research and administrative activities as prescribed in the curriculum.

6. SYLLABUS

Each resident is expected to acquire a thorough theoretical knowledge of the organs of the GI tract as regards anatomy, physiology, pathology of various diseases - congenital / acquired / traumatic / vascular / neoplastic and their detailed principles of management, both medical and surgical.

i. **Oesophagus**

Anatomical details, physiology of swallowing, esophageal manometry, endoscopic ultrasound and other diagnostic techniques, contrast imaging and CT scan, congenital lesions (TOF), Zenker's diverticulum, epiphrenic diverticulum, esophageal trauma, rupture-spontaneous or iatrogenic, corrosive burns- detection, evaluation and management, esophageal motility disorders, Gastro esophageal reflux disease, achalasia, Barrett's esophagus, esophageal cancer- adeno & squamous, various esophageal operations-diverticulectomy, excision of leiomyoma, esophagostomy, myotomy, fundoplication, esophageal resection (Ivor Lewis, Mc Keown, Transhiatal), cervical exploration, esophagogastrostomy, gastric pull-up, gastric and colonic bypass, complications of esophagectomy, management of chylothorax.

ii. **Stomach and Duodenum**

Anatomical details, physiology of gastric secretions, gastro-duodenal motility, diaphragmatic hernia (congenital and acquired), volvulus, pyloric stenosis in children and adults, Foreign bodies (bezoars),stomach trauma, H. Pylori in gastric diseases, peptic ulcer, Zollinger-Ellison syndrome, Gastric tumours, gastric surgery-vagotomy pyloric drainage, gastrojejunostomy, bariatric surgery, gastric tube creation, Roux-en-Y oesophagojejunal anastomosis, postgastrectomy syndromes and complications.

iii. **Biliary System**

Detailed anatomy, bile physiology, enterohepatic circulation, acute cholecystitis, chronic cholecystitis, acalculous cholecystitis, gallstones-pathogenesis and presentation, CBD stones, CBD stricture, cholangitis, postcholecystectomy syndromes, choledochal cyst, polyps of GB, carcinoma of gall bladder, cholangiocarcinoma, parasitic infestations of biliary tree, cholecystectomy-open and

laparoscopic, CBD exploration and drainage, biliary bypass, radical cholecystectomy, choledochal cyst excision, primary sclerosing cholangitis, endoscopic biliary interventions and stenting, hemobilia.

iv. Liver and Portal Hypertension

Segmental anatomy in detail, liver function and tests, liver regeneration, liver failure-diagnosis and management, liver abscess cysts, benign and malignant tumours (HCC, intrahepatic cholangiocarcinoma, hemangioma, FNH, adenoma), cirrhosis, Primary Biliary Cirrhosis, viral hepatitis, radiological imaging modalities (US, CECT, Lipiodol CT, Dynamic CT, MR imaging and radionuclide scanning), percutaneous transhepatic biliary drainage and cholangiography. Liver biopsy, portal hypertension (cirrhotic and non-cirrhotic causes), hepatic venous outflow obstruction, shunt surgery (Proximal lienorenal shunt, cavoatrial, mesocaval, portocaval-side to side), splenectomy and devascularisation, liver resection-anatomic and non-anatomic, liver trauma, hepaticojejunostomy, seg III bypass, Orthotopic liver transplantation, live related transplantation, Caroli's disease, hemobilia.

v. Pancreas

Anatomy, physiology, pancreatic ductal anomalies, acute pancreatitis, chronic pancreatitis-calcific, tropical and alcoholic; endocrine tumours, exocrine tumours of pancreas, cystic neoplasms; pseudocysts of pancreas, haemosuccus pancreaticus; pancreatic operations : pancreatic necrosectomy, pseudocystogastrostomy / jejunostomy, pylorus preserving pancreatoduodenectomy, duodenum preserving pancreatic head resections (Frey's, Beger's), distal pancreatectomy, regional pancreatectomy, total pancreatectomy, lateral pancreaticojejunostomy, Whipple's, pancreatic transplantation.

vi. Peritoneum, Omentum, Retroperitoneum

Recesses, reflections, subdiaphragmatic spaces, peritonitis – primary, secondary and tertiary, tuberculosis, mesenteric cyst, pseudomyxoma peritonei, ascites (diagnosis, investigation and management), retroperitoneal tumours, diagnostic laparoscopy and laparotomy.

vii. Spleen

Anatomy, splenic function, haemolytic anaemias, splenomegaly, hypersplenism, splenic trauma, cysts and granulomas, physiological effects of splenectomy, OPSI, splenic vein thrombosis, splenic artery aneurysms, splenectomy, splenic preservation.

viii. Small Intestine

Mesenteric vascular anatomy, intestinal physiology, Ladd's band, malrotation, volvulus, hernia, intestinal obstruction, ileocaecal TB, lymphoma, tumours of small intestine, Meckel's diverticulum, intussusception, small bowel gangrene, intestinal resections, lengthening and transplantation, mesenteric ischaemia, short gut syndrome, small bowel fistulae, Crohn's and other inflammatory bowel diseases, enteral feeding, home/parenteral nutrition.

ix. Colon, Rectum and Anal Canal

Anatomy, physiology. colonic motility, physiology of defaecation and anal continence; Hirschsprung's disease, anorectal malformations, rectal prolapse, SRUS, pseudoobstruction (Ogilvie syndrome), descending perineum syndrome, anismus and constipation, anal incontinence; haemorrhoids, fissure, fistulae and anal stricture; polyps and other benign tumours-hereditary and familial polyposis syndrome, ulcerative colitis and Crohn's disease, amoebic colitis, ischaemic colitis, diverticulitis. lower GI haemorrhage, carcinoma of the colon, rectum, anal canal; Operations-APR, anterior resections, segmental colectomies, pelvic exenterations, colostomy, ureterosigmoidostomy, hemicolectomies, urinary diversions, surgery for anal incontinence, rectal prolapse and complex fistulae, restorative proctocolectomy and ileoanal pouch anastomosis.

x. Liver Transplant Programme

Each resident is expected to be conversant with the issues related to liver transplantation viz. recipient selection and workup, pre-transplant evaluation, Transplant of human organs act, immunology in relation to transplant and rejection, brain dead donor management - before and during retrieval, donor harvesting procedure, recipient management - operative and post-transplant care and follow up, donation after cardiac death – indication and steps, organ preservative solutions, living donor transplant, domino transplant, auxiliary transplant, induction and maintenance immunosuppressive therapies in liver transplant, combined liver kidney

transplant, ABO incompatible match, short and long term complication associated with transplantation, paediatric transplantation and retransplant.

xi. Stoma Care and its Management

Identification of various kinds of stoma including ileostomy/ colostomy/ jejunostomy/ gastrostomy/ esophagostomy/ urostomy/ bilious and enteric fistulas; temporary and permanent stomas, planning a stoma and stoma site, pre and post operative counselling of stoma patients, identifications of complications associated with stomas and their management, identification of appropriate stoma appliances, indications for closing a stoma/restoration of bowel continuity, nutritional management in stoma patients

xii. General Topics

Tumour genetics-oncogenes, tumour markers, genetic and familial syndromes including their diagnosis and management, AIDS, hepatitis and surgeons, rational use of blood and blood products, management of patients with comorbidities, disorders of coagulation, chemotherapeutic and radiotherapeutic management, management of infections like tuberculosis and hydatid disease, nutritional management of patients – enteral and parenteral, prehabilitation, postoperative physiotherapy including respiratory physiotherapy, Basic life support, advanced cardiac life support, trauma life support, CPR, iatrogenic complications of surgery like enterocutaneous fistulae, biliary strictures, intrabdominal sepsis/collections, management of chronic liver disease, LIVER FAILURE and its management (acute/ chronic including indications for emergency liver transplant), PORTAL HYPERTENSION and its management (Cirrhotic/non cirrhotic),

xiii. Critical Care in surgical patients

systemic inflammatory response syndrome (SIRS), multiple organ dysfunction syndrome (MODS), intensive care and respiratory support – invasive and noninvasive ventilation, surgical nutrition - parenteral and enteral, renal failure/ AKI and its management including various modalities in dialysis, shock – types of shock and their

management, disorders of coagulation and anticoagulation therapy – when to start and when to stop, fluid and electrolyte management, acid base imbalance management, rational use of blood and blood products – indications, complications, massive transfusion protocols, ventilator management – different modes of ventilators, indications to intubate and indications to extubate, ventilator associated complications, management of cardiac and vascular complication including MI, arrhythmias, pulmonary embolism, DVT, indication for ICU/ HDU/ward level care

i. Gastrointestinal Radiology and Intervention

Basics and interpretation of CT scans and MRI including their various phases and their interpretation, PET scan, Nuclear Imaging including but not limited to HIDA scan, Gastric Emptying Time, Gastroesophageal Reflux studies, Scintigraphy studies in neuroendocrine tumours, Cholangiography, Fluoroscopic studies including Barium studies, USG/CT guided biopsy, Bedside USG and doppler assessment, Percutaneous drain placement including PTC/PTBD, Portal vein embolization, TACE/TARE, Hepatic ablation procedures, point of care ultrasound, doppler imaging of the splenoportal axis and post-transplant assessment of vessels using doppler,

ii. Diagnostic and Interventional Endoscopy

UGI and LGI endoscopy, Side viewing endoscopy, ERCP and cholangioscopy including spyglass, Endoscopic Ultrasound, Endoscopic pressure monitoring (Manometry) of esophagus and rectum, Endoscopic/ EUS guided biopsy and stenting (Plastic/ Metallic)

iii. Recent advances

Minimally invasive surgery including Robotic surgery, 3D laparoscopy, thoracoscopy and VATS, Indocyanine green (ICG) and similar modalities, newer energy sources, advances in tumour and vascular embolization, artificial intelligence and its role in surgery

iv. Research Methodology and Basic Statistics

Types of studies, selecting the appropriate research methodology, collection of data including cluster sampling, systematic bias, analysis of data, basic statistics and statistical analysis, randomization, critical analysis of research articles.

7. PRACTICAL COMPETENCIES AND SURGICAL SKILLS TO BE ACHIEVED

A. SURGICAL SKILLS

No exhaustive list is possible, and the maximum extent of surgical exposure a candidate would acquire would depend on his/her competence. However, a basic level of surgical competence is essential by the end of the course.

i. Esophagus

Heller's Myotomy, Fundoplication, THE + gastric pull up, TTE + gastric pull up, Colonic pull up

ii. Stomach and Duodenum

TV + Poloroplasty, Billroth I & II gastrectomy, Radical gastrectomy, Duodenectomies

iii. Small Intestine

Resection and anastomosis, Ileostomy closure, Feeding jejunostomy, Diverting and loop ileostomies and jejunostomies

iv. Large Intestine

Rt/Rt extended hemicolectomy, Lt/Lt extended hemicolectomy, APR, Ant.Resection, Restorative Proctocolectomy, Ileal J Pouch and anastomosis

v. Pancreas

Pancreatic Necrosectomy, Cyto-gastrostomy/jejunostomy, Lateral pancreatico-jejunostomy, Pancreaticoduodenectomies, Distal Pancreatectomies, RAMPS, Frey's Procedure, Enucleation of pancreatic tumors

vi. Biliary surgery

Cholecystectomy (Lap/Open), Radical cholecystectomy, CBD Exploration/CDD, Hepaticojejunostomy Roux-en-y, Segment III Hepaticojejunostomy, Biliary stricture and fistula surgery, Cholangiography, Cholangioscopy

vii. **Portal Hypertension**

Splenectomy + Devascularisation, Proximal lienorenal shunt

viii. **Liver Surgery**

Major hepatic resection, Wedge resections, Hydatid cyst excision

B. CLINICAL SKILLS

- 1) Elicit the pertinent history and examination details
- 2) Order and interpret relevant investigations including laboratory/radiological/nuclear scans and endoscopic investigations
- 3) Prepare a working diagnosis and management plan
- 4) Identify level of care required including emergency/elective; primary/secondary/tertiary care
- 5) Identify the normal and abnormal perioperative course, pick up complications early and formulate a management plan for the same
- 6) Capable of managing perioperative patients in a holistic manner including:
 - (i) critical care management, ICU and HDU level care
 - (ii) management of ventilators, identify ALI/ VAP and manage
 - (iii) acid base and fluid management
 - (iv) manage vascular complications including DVT
 - (v) manage perioperative cardiac and renal issues including AKI/ MI/ arrhythmias
 - (vi) Rational blood use – blood components, indications for each, complications related to transfusion including TRALI and their management, avoidance of overuse of blood products, massive transfusion protocols
 - (vii) Prehabilitation of patients including exercise, diet and respiratory physiotherapy
 - (viii) Appropriate Nutritional management
 - (ix) Postoperative physiotherapy – respiratory and physical

- (x) Stoma care and management, stoma counselling, identification and management of complications related to various kinds of stomas including esophagostomy, urostomy and longstanding intestinal fistulas
- 7) Maintain appropriate records and followup
 - 8) Identify and coordinate with multidisciplinary team for multimodality treatment plan
 - 9) Able to attend intradepartmental consults and seek help where needed
 - 10) Capable of performing and interpreting the following radiological investigations :
 - (i) USG abdomen and doppler studies – hepatic artery and portal vein doppler
 - (ii) Intraoperative Ultrasound
 - (iii) Intraoperative endoscopy
 - (iv) Intraoperative cholangiography
 - (v) CT scan including its different phases and order the relevant phases, types of contrast and indications for oral/iv/rectal contrast and fistulograms
 - (vi) Fluoroscopy – types of contrast and which contrast to be used, timings to interpret level of GIT (swallow/ follow through/ enema)
 - (vii) Therapeutic use of hypertonic contrast and contrast studies
 - (viii) MRI and its different phases
 - (ix) PET scan and nuclear scans including HIDA, Technetium scans
 - (x) Therapeutic nuclear modalities specifically in neuroendocrine tumors, PPRT
 - (xi) Percutaneous drainage of collections and biliary drainage, percutaneous biopsy
 - (xii) Upper GI endoscopy and colonoscopy
 - (xiii) ERCP
 - (xiv) pH monitoring and manometry
 - 11) Capable of taking informed consent
 - 12) Develop a respectful attitude towards patients and colleagues; good communication skills and ethical values in practice
 - 13) Be capable of identifying and reporting rare diseases/ idiosyncratic reactions

8. STRUCTURE OF THE TRAINING PROGRAM - POSTING SCHEDULE

S. No.	Posting	Duration	Timing
1.	Department of Surgical Gastroenterology	33 months	1 st to 6 th Semester
2.	Medical Gastroenterology Endoscopy suite (Endoscopy, EUS, ERCP, Endoscopic Interventions)	2 months	4 th Semester
3.	Interventional Radiology	1 month	4 th Semester

9. ACADEMIC ACTIVITY

Sr No	Teaching/Learning Activity	Frequency
1.	Clinical Case presentation	Once a fortnight
2.	Clinical grand rounds	Once a fortnight
3.	Operative procedure planning and discussion	Before every case
4.	Journal Club	Once a fortnight
5.	Seminars/Webinars	Once a fortnight
6.	Radiology/Nuclear Medicine meet	Once a fortnight
7.	Mortality and Morbidity meets/Audit	Once a month
8.	Dissertation review	Once every 6 months

10. DISSERTATION

A dissertation based on either a clinical or a basic science research topic will be carried out by each trainee as an essential component of the curriculum. This will be performed under the guidance of a recognized postgraduate teacher with the purpose of inculcating in the trainees a scientific bent of mind and capabilities to perform independent research. Dissertation work will be carried out in accordance with institutional protocol.

Activity	January admission	July admission
Selection of topic in consultation with PG Guide	March/ April	September/October
Approval by Department PG Committee		
Institute Scientific Committee approval	May / June	November/December
Institute Ethics Committee approval		
Final approval letter by Academics Section	30 th June	31 st December
Final submission to academic section	30 th June (Third Year)	31 st December (Third Year)

11. LOG BOOK

The candidate must maintain a log book of the work carried out by them and the training program undergone during the period of training including details of procedures assisted or done independently by the trainees. The log book shall be checked and assessed periodically by the faculty members imparting the training. Maintenance of performance record in log book is mandatory.

12. ASSESSMENT

A. FORMATIVE ASSESSMENT

- i. TOTAL 1200 MARKS – 600 FOR THEORY AND 600 FOR PRACTICALS
- ii. THEORY INTERNAL EXAM SCHEDULE

S. No.	SCHEDULE	MARKS	PATTERN
1.	End of First Year	100 (1 paper)	10 Questions x 10 marks each
2.	End of Second Year	100 (1 paper)	10 Questions x 10 marks each
3.	Pre professional Exam	400 (4 x 100 mark papers)	As per the Final Professional Exam
	Total	600 marks	

iii. PRACTICAL INTERNAL EXAM SCHEDULE

S. No.	SCHEDULE	MARKS	PATTERN
1.	End of First Year	100 (1 paper)	2 LONG CASES X 30 MARKS EACH
2.	End of Second Year	100 (1 paper)	20 MARKS – HISTOPATHOLOGY AND RADIOLOGY 20 MARKS – VIVA VOCE
3.	Pre professional Exam	400 (4 x 100 mark papers)	As per the Final Professional Exam
	Total	600 marks	

B. 6 MONTHLY PROGRESS REPORT

The progress of the trainees will be monitored with the help of a **six monthly structured report**. The report will contain details pertaining to attendance, teaching-learning activities, clinical duties, teaching assignments, practical work, marks obtained at intermediate examinations, papers / posters presented, research publications and progress of dissertation work. The performance of the student will be graded by the PG Guide and

the Head of the Department. The report will be submitted as per the following schedule:-

Report	July Session		January Session	
	Period	Submission date	Period	Submission date
First	July to December	7 th January	January to June	7 th July
Second	January to June	7 th July	July to December	7 th January
Third	July to December	7 th January	January to June	7 th July
Fourth	January to June	7 th July	July to Decemebr	7 th January
Fifth	July to Decemebr	7 th January	January to June	7 th July
Sixth	January to June	10 th June	July to December	10 th November

C. ESSENTIAL PRE-REQUISITE TO APPEAR FOR SUMMATIVE ASSESSMENT

- i. Minimum 80% attendance
- ii. Minimum of four satisfactory 6 monthly progress reports
- iii. Acceptance of the Dissertation
- iv. Minimum **one** scientific paper/poster presentation at International / National / State Conference
- v. Minimum **one** research paper – published / accepted for publication / sent for publication in a peer-reviewed indexed scientific Journal
- vi. Successful completion of research methodology program at induction
- vii. Minimum 50% marks in theory and practical separately in the formative assessment

D. SUMMATIVE ASSESSMENT/ FINAL PROFESSIONAL EXAMINATION

At the end of the training, summative assessment will be carried out in the following pattern: -

THEORY	4 PAPERS X 100 MARKS = 400 MARKS
PRACTICAL	2 CLINICAL CASES + WARD ROUNDS + VIVA = 400 MARKS
TOTAL	800 MARKS

THEORY

There shall be 4 papers; each of 3 hours duration carrying 100 marks each

PAPER I	Basic Sciences in Surgical Gastroenterology, Trauma, Transplant	Each paper will have 10 questions of 10 marks each 10 ques x 10 marks = 100 marks each
PAPER II	Surgical Gastroenterology (Upper GI, Lower GI, HPB)	
PAPER III	Surgical Gastroenterology (Upper GI, Lower GI, HPB)	
PAPER IV	Recent Advances	Total = 400 marks

PRACTICAL

CLINICAL CASE	History taking, physical examination, interpretation of clinical findings, differential diagnosis, investigations, prognosis and management	2 CASES X 100 MARKS = 200 MARKS
WARD ROUNDS	Discussion of practical problems in the perioperative management of patients undergoing surgery, communication skills and consent	2 CASES X 50 MARKS = 100 MARKS
VIVA VOCE	I. Instruments, tubes, catheters and Operative procedures II. Radiology and Nuclear imaging III. Surgical pathology IV. Research work, thesis and logbook evaluation	4 X 25 MARKS = 100 MARKS
TOTAL		400 MARKS

In order to be declared successful in summative assessment, the candidate must score:

1. Minimum 40% marks in each paper and aggregate of 50% marks in order to be declared pass in theory exam
2. Minimum 50% marks required in Theory & Practical separately, in order to be declared successful in summative exam

13. RECOMMENDED READING

List of recommended Books and Journals is given as below. However the edition and details will change from time to time.

Recommended Textbooks
<ol style="list-style-type: none">1. GI SURGERY ANNUALS – AIIMS NEW DELHI2. Sabiston’s textbook of surgery3. Shackelford’s textbook of GI surgery4. Blumgart’s textbook of liver, biliary tract and pancreas5. Fischer’s Mastery of Surgery6. Coran’s textbook of colorectal surgery7. Pearson’s esophageal surgery8. Beger’s pancreatic diseases9. Goligher; textbook of colorectal disorders10. Busuttil: Liver transplantation11. Maingots Abdominal Operations12. Schwartz: principles of surgery13. Netter’s Atlas of Surgery14. Zollinger’s Atlas of Surgical Operations15. Surgical Gastroenterology – Sanjeev Haribhakti
Recommended Journals
<p>National</p> <ol style="list-style-type: none">1. Indian Journal of Surgery2. Indian Journal of Gastroenterology3. Tropical Gastroenterology4. Indian Journal of Pancreatology5. National Medical Journal of India

International

1. British Journal of Surgery
2. Annals of Surgery
3. Journal of Gastrointestinal surgery
4. Gut
5. Surgical Clinics of North America
6. Archives of Surgery
7. HPB
8. Transplantation
9. American Journal of Surgery
10. World Journal of Surgery
11. World Journal of Gastroenterology
12. Gastroenterology
13. Pancreas
14. Diseases of Colon and rectum
15. Digestive Surgery
16. Annals of Surgical Oncology
17. The Lancet
18. Nature

Society Guidelines /Learning resources

1. NCCN Guidelines
2. ATLS
3. ACLS/BLS
4. ERAS
5. THO ACT
6. Indian Society of Organ Transplant (ISOT)
7. AASLD and EASL Guidelines
8. ASCO and ESMO Guidelines
9. ICMR Guidelines

Online Learning Resources

1. <https://www.uptodate.com/contents/search>
2. www.researchgate.com
3. PUBMED CENTRAL
4. COCHRANE REVIEW
5. NCCN GUIDELINES APP
6. PGI CHANDIGARH GASTROENTEROLOGY APP
7. MEDSCAPE APP
8. IHPBA AND IASG WEBSITE RESOURCES
9. <https://notto.gov.in/>
10. ZTCC,Nagpur
