



## Department of Medical & Surgical Gastroenterology

S.No	Name of the Fellowship	Eligibility	Duration
01	Fellowship in Advanced GI Endoscopy (ERCP & EUS)	DM/DNB Med Gastro, M.Ch./DNB Surg Gastro	1 yr
02	Fellowship in Hepatology & Liver Transplant Medicine	DM/DNB Med Gastro	1 yr
03	Fellowship in Hepato Biliary & Liver Transplant Surgery	M.Ch./DNB Surg Gastro	1 yr
04	Fellowship in Pediatric GI & Liver Surgery	M.Ch./DNB Surg Gastro, Paed Surg	1 yr
05	Fellowship in Robotic Colorectal Surgery	M.Ch./DNB Surg Gastro, Surg Onco	1 yr
06	Fellowship in Minimal Invasive Gastro Surgery	M.Ch./DNB Surg Gastro	1 yr



## **Fellowship in Advanced GI Endoscopy (ERCP & EUS)**

### **Course Overview**

The Fellowship in Advanced Gastrointestinal (GI) Endoscopy with a focus on Endoscopic Retrograde Cholangiopancreatography (ERCP) and Endoscopic Ultrasound (EUS) is a one-year advanced program designed for gastroenterologists aiming to specialize in complex diagnostic and therapeutic procedures of the gastrointestinal system. This fellowship offers comprehensive training in ERCP and EUS, emphasizing advanced techniques for diagnosing and managing pancreaticobiliary diseases, gastrointestinal cancers, and other complex GI disorders. The program combines theoretical learning, clinical rotations, hands-on procedures, and research, ensuring participants acquire high-level expertise in these specialized endoscopic techniques.

### **Prerequisites**

<b>Criteria</b>	<b>Details</b>
<b>Eligibility</b>	MD in Gastroenterology or equivalent medical qualification
<b>Duration</b>	1 Year (Full-Time)
<b>Mode of Study</b>	Clinical, Theoretical, Hands-on Training
<b>Assessment</b>	Theory, Practical Exams, Clinical Logbook, Research Project

### **Course Objectives**

- Gain expertise in performing and interpreting ERCP and EUS procedures for diagnosing and managing biliary, pancreatic, and gastrointestinal conditions.
- Develop proficiency in advanced techniques of endoscopic interventions, including stent placements, stone extraction, and tissue sampling for pancreatic and biliary diseases.
- Master the techniques for performing EUS-guided fine needle aspiration (FNA) and biopsy to evaluate tumors, cysts, and other lesions.
- Understand the clinical management of patients undergoing ERCP and EUS, including indications, contraindications, and complications.
- Learn about the latest advancements in endoscopic imaging, including elastography and contrast-enhanced EUS.
- Conduct research to explore new technologies, methodologies, and treatment outcomes in ERCP and EUS.

### **Curriculum with Semester-wise Syllabus & Modules**

#### **Semester 1: Fundamentals of ERCP and EUS**

<b>Module</b>	<b>Topics Covered</b>
Introduction to GI Endoscopy	Overview of GI endoscopy, indications, and patient preparation
Basics of ERCP	ERCP anatomy, procedures for bile duct stones, strictures, and sphincter of Oddi dysfunction



Module	Topics Covered
Basics of EUS	EUS anatomy, equipment, indications for EUS in pancreaticobiliary diseases
EUS-guided FNA & Biopsy	Techniques in performing EUS-guided fine needle aspiration and biopsy
Therapeutic ERCP	Techniques in biliary and pancreatic stenting, sphincterotomy, and stone removal
Patient Selection & Pre-Procedure Preparation	Criteria for selecting appropriate candidates for ERCP and EUS, pre-procedural management
Clinical Rotations & Hands-on Training	Supervised clinical rotations and hands-on practice with ERCP and EUS procedures

## Semester 2: Advanced Techniques in ERCP and EUS

Module	Topics Covered
Advanced ERCP Techniques	Managing complex biliary strictures, ERCP in post-surgical patients, advanced stone extraction
EUS for GI Cancer Evaluation	Diagnostic role of EUS in evaluating gastrointestinal cancers, including staging and tumor assessment
Contrast-enhanced EUS	Application of contrast agents in EUS for improved diagnostic accuracy
EUS Elastography	Use of elastography in the evaluation of liver diseases and fibrosis
Management of Complications in ERCP & EUS	Prevention, recognition, and management of ERCP and EUS complications
Endoscopic Ultrasound in Pancreatic Diseases	Detailed role of EUS in pancreatic cystic lesions, chronic pancreatitis, and pancreatic cancer
Research Project & Case Studies	Literature review, clinical case discussions, and preparation of a research dissertation

## Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in ERCP and EUS Techniques	Mastery in performing ERCP and EUS procedures for diagnostic and therapeutic purposes
2	Advanced Knowledge in Pancreaticobiliary Diseases	In-depth understanding and management of pancreaticobiliary diseases including biliary strictures, stones, and cancers
3	Competence in Advanced Therapeutic Endoscopy	Ability to perform complex therapeutic procedures such as stone removal, stenting, and sphincterotomy



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Sr. No.	Program Outcome	Description
4	Proficiency in EUS-guided Diagnostics	Mastery in performing EUS-guided tissue sampling for pancreatic, biliary, and gastrointestinal lesions
5	Research and Innovation in Endoscopic Techniques	Engaging in research to advance techniques and improve patient outcomes in ERCP and EUS
6	Managing Complications in Endoscopy	Ability to prevent, recognize, and manage potential complications related to ERCP and EUS

### Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery of ERCP Techniques	Proficiency in performing ERCP for complex biliary and pancreatic diseases
2	Competence in EUS Techniques	Ability to perform and interpret EUS for a range of gastrointestinal and pancreatic conditions
3	Proficiency in Therapeutic Endoscopy	Competence in therapeutic procedures, including stone extraction, stent placement, and tissue sampling
4	Diagnostic Excellence in GI Cancers	Ability to use ERCP and EUS to diagnose and stage gastrointestinal cancers
5	Advanced Research Skills in Endoscopy	Contribution to research in ERCP and EUS, including innovation in techniques and outcomes

### Credits & Assessment Methods

**Total Credits:** 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Hands-on Training & Procedures	10
Research & Dissertation	10

### Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%



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Assessment Type	Weightage
Research Presentation & Dissertation	20%

## Exam Pattern

### Theory Examination

- Section A (MCQs – 30 Marks)
- Section B (Short Answer Questions – 30 Marks)
- Section C (Long Answer Questions – 40 Marks)

### Practical Examination

Component	Details	Marks
ERCP Procedure	Performing ERCP for common biliary and pancreatic conditions	50
EUS Procedure	Performing EUS for diagnostic and therapeutic purposes	50
Therapeutic Endoscopy	Techniques in biliary stenting, stone removal, and sphincterotomy	30
OSCE (Objective Structured Clinical Examination)	Simulated ERCP and EUS procedures with patient scenarios	40

### Viva Voce (Oral Examination)

Component	Details	Marks
Case Presentations	Discussion of clinical cases, treatment decisions, and outcomes	50
Recent Advances in Endoscopy	Presentation on innovations in ERCP and EUS procedures	20
Ethical & Legal Considerations	Discussing ethical challenges and patient care in ERCP and EUS	30

### Research/Dissertation Submission

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20



## Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
<b>Total (Overall)</b>	<b>600</b>	<b>50% Aggregate Required</b>

## Recommended Books & E-Resources

### Textbooks:

- ERCP: The Fundamentals – Brian G. S. Lacy, Brian F. Ginsberg
- Endoscopic Ultrasound – T. K. G. L. Draganov, John M. K. Chang
- Gastrointestinal Endoscopy: Principles and Practice – Peter B. Cotton
- Endoscopy in Gastroenterology – A. B. Petersen, D. A. C. Stollman

### Journals & E-Resources:

- Gastrointestinal Endoscopy – <https://www.giejournal.org>
- Journal of Clinical Gastroenterology – <https://journals.lww.com/jcge>
- The American Society for Gastrointestinal Endoscopy (ASGE) – <https://www.asge.org>
- Endoscopy – <https://www.thieme-connect.com>



## Fellowship in Hepatology & Liver Transplant Medicine

### Course Overview

The Fellowship in Hepatology & Liver Transplant Medicine is a one-year advanced program designed for specialists in internal medicine or gastroenterology who wish to gain expertise in the management of liver diseases and liver transplantation. The course provides comprehensive training in the diagnosis, management, and treatment of acute and chronic liver conditions, including cirrhosis, hepatitis, liver failure, and hepatocellular carcinoma (HCC). In addition, the fellowship covers liver transplantation from both a medical and surgical perspective, offering knowledge of pre-transplant evaluation, post-transplant care, and immunosuppressive therapy. The program includes a combination of theoretical lectures, clinical rotations, hands-on training, and research.

### Prerequisites

Criteria	Details
Eligibility	MD in Gastroenterology, Internal Medicine, or equivalent medical qualification
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

### Course Objectives

- Develop advanced knowledge of hepatology, including the pathophysiology, diagnosis, and management of common liver diseases such as cirrhosis, hepatitis, and liver cancer.
- Gain expertise in the medical management of liver transplant recipients, including pre-transplant evaluation, immunosuppression, and post-transplant care.
- Master the indications and contraindications for liver transplantation and understand the multi-disciplinary approach to patient management in liver transplantation.
- Acquire proficiency in advanced liver disease diagnostics, including liver biopsy, imaging techniques, and laboratory tests.
- Learn about novel treatment strategies and interventions for liver diseases, including antiviral therapies, liver regeneration, and liver-directed therapies for HCC.
- Conduct research to advance the understanding and management of liver diseases, liver transplantation, and immunosuppressive therapy.



## Curriculum with Semester-wise Syllabus & Modules

### Semester 1: Basics of Hepatology and Liver Transplantation

Module	Topics Covered
Introduction to Hepatology	Overview of liver anatomy, functions, and common liver diseases
Hepatitis and Viral Hepatitis	Diagnosis, management, and treatment of hepatitis B and C
Cirrhosis and Liver Failure	Pathophysiology, diagnosis, and management of cirrhosis and liver failure
Hepatocellular Carcinoma (HCC)	Diagnosis, staging, and treatment of HCC
Liver Biopsy & Imaging Techniques	Techniques in liver biopsy, ultrasonography, CT, MRI, and elastography
Liver Transplantation: Indications and Evaluation	Pre-transplant evaluation, donor-recipient matching, and transplant candidacy
Clinical Rotations & Hands-on Training	Supervised clinical rotations in hepatology and liver transplant units

### Semester 2: Advanced Hepatology & Liver Transplantation

Module	Topics Covered
Immunosuppressive Therapy	Immunosuppressive medications, managing rejection and complications
Post-Transplant Care	Post-operative management, infection prevention, liver function monitoring
Pediatric Hepatology & Transplantation	Pediatric liver diseases and liver transplantation in children
Liver Transplant Surgery: Surgical Aspects	Surgical techniques in liver transplantation and graft preservation
Innovations in Hepatology & Liver Transplantation	Emerging therapies, gene therapy, regenerative medicine, and xenotransplantation
Research Project & Case Studies	Literature review, clinical case discussions, and preparation of a research dissertation

### Program Outcomes

Sr. No.	Program Outcome	Description
1	Advanced Knowledge in Hepatology and Liver Diseases	Expertise in diagnosing and managing acute and chronic liver conditions, including cirrhosis, hepatitis,





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Sr. No.	Program Outcome	Description
		and HCC
2	Mastery of Liver Transplantation	Proficiency in pre-transplant assessment, post-transplant care, and immunosuppressive therapy
3	Proficiency in Liver Disease Diagnostics	Expertise in advanced diagnostic techniques, including liver biopsy, imaging, and laboratory tests
4	Advanced Knowledge in Immunosuppressive Therapy	Understanding immunosuppressive therapies, managing side effects, and preventing transplant rejection
5	Comprehensive Approach to Liver Transplantation	Competence in the multidisciplinary approach to liver transplant management
6	Contribution to Hepatology & Liver Transplant Research	Engaging in research to improve liver disease management and transplantation outcomes

### Course Outcomes

Sr. No.	Course Outcome	Description
1	Expertise in Managing Chronic Liver Diseases	Proficiency in the treatment and management of chronic liver diseases like cirrhosis and hepatitis
2	Advanced Liver Transplantation Skills	Ability to evaluate, manage, and treat liver transplant candidates and recipients
3	Proficiency in Liver Disease Diagnosis	Competence in diagnosing liver diseases using advanced techniques
4	Management of Post-Transplant Complications	Skills to manage complications such as rejection, infections, and other transplant-related issues
5	Research and Innovations in Hepatology & Transplantation	Ability to conduct research in liver diseases and transplantation to improve clinical practices

### Credits & Assessment Methods

**Total Credits:** 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Hands-on Training & Procedures	10
Research & Dissertation	10



## Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

## Exam Pattern

### Theory Examination

- Section A (MCQs – 30 Marks)
- Section B (Short Answer Questions – 30 Marks)
- Section C (Long Answer Questions – 40 Marks)

### Practical Examination

Component	Details	Marks
Liver Disease Diagnosis	Techniques in diagnosing liver diseases through imaging and biopsy	50
Liver Transplant Management	Managing pre-transplant and post-transplant care	50
Immunosuppressive Therapy	Assessing and managing immunosuppressive therapy for transplant recipients	30
OSCE (Objective Structured Clinical Examination)	Simulated cases involving liver disease and transplantation	40

### Viva Voce (Oral Examination)

Component	Details	Marks
Case Presentations	Discussion of clinical cases in hepatology and liver transplantation	50
Recent Advances in Hepatology	Presentation on innovations in liver disease management and transplant	20
Ethical & Legal Considerations	Ethical issues in liver transplantation and immunosuppressive therapy	30



## Research/Dissertation Submission

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

## Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
<b>Total (Overall)</b>	<b>600</b>	<b>50% Aggregate Required</b>

## Recommended Books & E-Resources

### Textbooks:

- Hepatology: A Textbook of Liver Disease – Eugene R. Schiff, Michael D. Feldman
- Liver Transplantation: A Practical Approach – Neil F. Jones, Michael T. K. Fong
- Manual of Hepatology – Arun J. Sanyal
- The Liver Transplantation Handbook – Stephen M. Olthoff, Alan B. L. Lumsden

### Journals & E-Resources:

- Hepatology – <https://www.hepatologyjournal.org>
- American Journal of Transplantation – <https://onlinelibrary.wiley.com/journal/16006143>
- Liver Transplantation Society – <https://www.livertransplantation.org>
- The American Association for the Study of Liver Diseases (AASLD) – <https://www.aasld.org>



## **Fellowship in Hepato-Biliary & Liver Transplant Surgery**

### **Course Overview**

The Fellowship in Hepato-Biliary & Liver Transplant Surgery is a comprehensive, one-year advanced training program designed for surgeons seeking specialized expertise in the surgical management of liver diseases, liver transplantation, and hepatobiliary surgery. The program combines theoretical knowledge, clinical rotations, hands-on surgical training, and research opportunities in liver transplantation, hepatobiliary surgeries, and complex liver diseases, including liver cancer, cirrhosis, bile duct diseases, and hepatic metastases. The fellowship prepares surgeons to perform advanced liver and biliary surgeries, including living-donor liver transplantation, and to manage complex post-transplant care.

### **Prerequisites**

<b>Criteria</b>	<b>Details</b>
<b>Eligibility</b>	MS in General Surgery or equivalent postgraduate degree
<b>Duration</b>	1 Year (Full-Time)
<b>Mode of Study</b>	Clinical, Theoretical, Surgical Training
<b>Assessment</b>	Theory, Practical Exams, Clinical Logbook, Research Project

### **Course Objectives**

- Gain in-depth knowledge of liver transplantation, including indications, donor selection, and pre-operative and post-operative care.
- Master complex hepatobiliary surgical procedures, including resection, biliary reconstruction, and liver transplantation techniques.
- Develop proficiency in managing complications related to liver transplantation, including rejection, infection, and biliary tract issues.
- Gain expertise in living donor liver transplantation (LDLT) and its application in liver failure patients.
- Understand and practice the principles of hepatobiliary surgery for diseases such as cholangiocarcinoma, hepatocellular carcinoma (HCC), and cirrhosis.
- Conduct research on advancing surgical techniques, outcomes, and innovations in liver transplant and hepatobiliary surgery.

### **Curriculum with Semester-wise Syllabus & Modules**

#### **Semester 1: Fundamentals of Hepato-Biliary & Liver Transplantation Surgery**

<b>Module</b>	<b>Topics Covered</b>
Introduction to Hepato-Biliary Surgery	Overview of liver anatomy, physiology, and diseases of the liver and biliary system
Liver Transplantation: Basics & Indications	Indications for liver transplantation, donor-recipient matching, and organ allocation systems



Module	Topics Covered
Preoperative Evaluation for Liver Transplantation	Pre-transplant work-up, assessment of liver function, and patient optimization
Surgical Approaches in Liver Resection	Techniques for liver resection, anatomical and non-anatomical resection
Living Donor Liver Transplantation	Donor evaluation, living-donor surgical techniques, and ethical considerations
Postoperative Management in Liver Transplantation	Post-transplant care, immunosuppressive therapy, and complications management
Clinical Rotations & Hands-on Training	Supervised rotations in hepatobiliary surgery and liver transplantation units

## Semester 2: Advanced Hepato-Biliary Surgery and Liver Transplantation

Module	Topics Covered
Advanced Liver Transplant Techniques	Advanced techniques in liver transplantation, including split-liver and domino transplantation
Biliary Reconstruction and Liver Surgery	Management of bile duct injuries, biliary anastomoses, and complex biliary reconstruction
Hepatocellular Carcinoma (HCC) & Liver Surgery	Surgical management of HCC, including resection and transplant eligibility
Cholangiocarcinoma and Hepato-Biliary Malignancies	Resection techniques for cholangiocarcinoma and metastatic liver cancers
Post-Transplant Complications and Management	Rejection, infection, graft dysfunction, and hepatobiliary complications post-transplant
Innovations in Hepato-Biliary & Liver Transplant Surgery	Minimally invasive liver surgery, robotic liver transplantation, and novel surgical approaches
Research Project & Case Studies	Literature review, clinical case presentations, and preparation of research dissertation

## Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Hepato-Biliary Surgery	Mastery of surgical techniques for liver resection and biliary reconstruction
2	Advanced Skills in Liver Transplantation	Proficiency in performing liver transplants, including living-donor liver transplants (LDLT)
3	Mastery of Post-Transplant Care	Expertise in managing post-transplant complications and immunosuppressive therapy



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Sr. No.	Program Outcome	Description
4	Advanced Knowledge in Surgical Management of HCC & Malignancies	Ability to manage hepatocellular carcinoma (HCC) and cholangiocarcinoma surgically
5	Research and Innovations in Hepato-Biliary Surgery	Ability to conduct research to improve surgical outcomes and techniques
6	Multidisciplinary Management Skills	Competence in collaborating with hepatologists, transplant specialists, and surgical teams

### Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery of Hepato-Biliary Surgical Techniques	Proficiency in liver resections, bile duct surgeries, and complex biliary reconstructions
2	Advanced Liver Transplantation Techniques	Ability to perform liver transplantation, including LDLT and donor-recipient matching
3	Expertise in Post-Transplant Complications Management	Skills in managing transplant-related complications such as rejection, infections, and graft dysfunction
4	Knowledge of Liver Cancer Surgery	Ability to surgically treat hepatocellular carcinoma, cholangiocarcinoma, and liver metastases
5	Conducting Research in Liver Transplant and Hepato-Biliary Surgery	Ability to analyze outcomes and innovations in liver transplant and hepatobiliary surgery
6	Advanced Clinical Decision Making and Patient Care	Competence in decision-making regarding surgical approaches and post-operative care for complex liver diseases

### Credits & Assessment Methods

**Total Credits:** 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Surgical Training & Procedures	10
Research & Dissertation	10



## Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

## Exam Pattern

### Theory Examination

- Section A (MCQs – 30 Marks)
- Section B (Short Answer Questions – 30 Marks)
- Section C (Long Answer Questions – 40 Marks)

### Practical Examination

Component	Details	Marks
Hepato-Biliary Surgical Techniques	Techniques in liver resections, biliary surgeries, and transplant procedures	50
Liver Transplantation Procedures	Conducting liver transplant surgeries, including LDLT	50
Post-Transplant Care	Managing post-transplant complications and immunosuppressive therapy	30
OSCE (Objective Structured Clinical Examination)	Simulated cases involving liver surgery and transplantation	40

### Viva Voce (Oral Examination)

Component	Details	Marks
Case Presentations	Discussion of complex hepatobiliary cases and surgical decisions	50
Recent Advances in Liver Surgery	Presentation on emerging technologies and surgical advancements	20
Ethical & Legal Considerations	Ethical challenges in liver transplantation and surgical management	30



## Research/Dissertation Submission

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

## Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
<b>Total (Overall)</b>	<b>600</b>	<b>50% Aggregate Required</b>

## Recommended Books & E-Resources

### Textbooks:

- Hepatobiliary Surgery – Peter M. Moser, John R. H. Morris
- Liver Transplantation: A Practical Approach – Neil F. Jones, Michael T. K. Fong
- Textbook of Hepato-Pancreato-Biliary Surgery – M. M. Yeo, Andrew K. M. Leung
- Surgical Management of Liver Disease – Jeffrey M. L. Peters, David S. R. C. Steele

### Journals & E-Resources:

- Liver Transplantation – <https://onlinelibrary.wiley.com/journal/16006143>
- Hepato-Gastroenterology Journal – <https://www.journals.lww.com/hepato>
- Journal of Hepato-Biliary-Pancreatic Sciences – <https://onlinelibrary.wiley.com/journal/18680393>
- The American Association for the Study of Liver Diseases (AASLD) – <https://www.aasld.org>





## Fellowship in Pediatric Gastrointestinal & Liver Surgery

### Course Overview

The Fellowship in Pediatric Gastrointestinal & Liver Surgery is a comprehensive, one-year advanced training program designed for surgeons specializing in the treatment of pediatric gastrointestinal and liver conditions. This fellowship program offers in-depth theoretical knowledge, hands-on surgical training, and clinical exposure in the areas of pediatric liver diseases, liver transplantation, gastrointestinal surgeries, and minimally invasive pediatric surgery. Fellows will develop expertise in the management of complex congenital and acquired gastrointestinal disorders, liver diseases, and related surgical interventions, with a focus on pediatric care.

### Prerequisites

Criteria	Details
Eligibility	MS in Pediatric Surgery or equivalent postgraduate degree
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Surgical Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

### Course Objectives

- Gain proficiency in the surgical management of pediatric liver diseases, including congenital conditions and liver failure.
- Master pediatric liver transplantation procedures, including donor and recipient selection, surgical techniques, and post-transplant care.
- Acquire skills in managing complex pediatric gastrointestinal conditions such as Hirschsprung's disease, biliary atresia, and liver tumors.
- Learn advanced minimally invasive techniques for pediatric gastrointestinal and liver surgeries.
- Understand the principles of post-operative care, including immunosuppressive therapy, graft monitoring, and complications management.
- Conduct research to advance the field of pediatric gastrointestinal and liver surgery, improving outcomes and treatment techniques.

### Curriculum with Semester-wise Syllabus & Modules

#### Semester 1: Fundamentals of Pediatric Gastrointestinal & Liver Surgery

Module	Topics Covered
Introduction to Pediatric Liver & GI Surgery	Overview of pediatric liver diseases, gastrointestinal anatomy, and common pediatric GI disorders
Pediatric Liver Diseases	Hepatitis, cirrhosis, congenital biliary atresia, metabolic liver diseases



Module	Topics Covered
Pediatric Liver Transplantation	Indications, donor-recipient matching, surgical techniques, and post-operative care
Gastrointestinal Disorders in Children	Hirschsprung's disease, malrotation, gastroschisis, and intestinal obstruction
Pediatric Minimally Invasive Surgery	Laparoscopic techniques for pediatric GI and liver surgery
Preoperative Evaluation & Work-Up	Assessment of liver function, pre-surgical preparation, and optimization for pediatric patients
Clinical Rotations & Hands-on Training	Surgical exposure to pediatric liver and GI cases under supervision

## Semester 2: Advanced Pediatric GI & Liver Surgery Techniques

Module	Topics Covered
Pediatric Liver Resection	Techniques for resection of benign and malignant liver lesions in children
Biliary Atresia & Reconstruction	Surgical treatment options for biliary atresia, including Kasai procedure
Pediatric Liver Tumors	Diagnosis, surgical management, and liver transplantation for pediatric liver tumors
Liver Transplantation in Children	Advanced techniques in pediatric liver transplantation, including living-donor liver transplant (LDLT)
Post-Transplant Care & Immunosuppression	Management of post-liver transplant complications, immunosuppressive therapy, and graft monitoring
Advanced Minimally Invasive Techniques	Robotic-assisted liver and GI surgery in pediatrics
Research Project & Case Studies	Clinical case presentations and preparation of research dissertation

## Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Pediatric Liver Diseases	Mastery in diagnosing and surgically managing pediatric liver diseases such as biliary atresia and metabolic liver diseases
2	Advanced Pediatric Liver Transplantation Skills	Proficiency in performing pediatric liver transplants, including LDLT and post-transplant care
3	Competence in Pediatric Gastrointestinal Surgeries	Expertise in performing surgeries for pediatric GI disorders such as Hirschsprung's disease and malrotation



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Sr. No.	Program Outcome	Description
4	Mastery of Minimally Invasive Pediatric Surgery	Advanced knowledge of laparoscopic and robotic techniques for pediatric liver and GI surgeries
5	Research and Innovation in Pediatric Liver & GI Surgery	Ability to conduct and contribute to research aimed at improving pediatric surgical outcomes
6	Advanced Post-Operative Care Skills	Proficiency in managing pediatric post-transplant care and GI surgeries, including immunosuppressive therapy and complication management

### Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery of Pediatric Liver Surgery Techniques	Ability to perform complex liver resections, biliary surgeries, and liver transplantation in pediatric patients
2	Advanced Knowledge in Pediatric Liver Transplantation	Expertise in donor-recipient matching, liver transplant procedures, and managing post-transplant care
3	Expertise in Pediatric GI Disorders and Surgery	Ability to treat congenital and acquired GI disorders through surgical interventions
4	Proficiency in Minimally Invasive Pediatric Surgery	Mastery of laparoscopic and robotic-assisted techniques for pediatric liver and GI surgery
5	Effective Management of Post-Operative Complications	Knowledge of managing complications after liver transplantation and GI surgery in children
6	Research Competence in Pediatric Liver & GI Surgery	Ability to design and conduct clinical research in the field of pediatric GI and liver surgery

### Credits & Assessment Methods

**Total Credits:** 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Surgical Training & Procedures	10
Research & Dissertation	10



## Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

## Exam Pattern

### Theory Examination

- Section A (MCQs – 30 Marks)
- Section B (Short Answer Questions – 30 Marks)
- Section C (Long Answer Questions – 40 Marks)

### Practical Examination

Component	Details	Marks
Pediatric Liver & GI Surgery Techniques	Conducting pediatric liver surgeries and GI procedures	50
Pediatric Liver Transplantation	Performing pediatric liver transplantation and managing post-transplant care	50
Minimally Invasive Techniques	Laparoscopic and robotic-assisted surgery for pediatric liver and GI cases	30
OSCE (Objective Structured Clinical Examination)	Simulated pediatric surgery scenarios	40

### Viva Voce (Oral Examination)

Component	Details	Marks
Case Presentations	Discussion of pediatric liver and GI surgery cases and clinical decisions	50
Recent Advances in Pediatric Liver & GI Surgery	Presentation on advancements in pediatric liver transplantation and minimally invasive surgery	20
Ethical & Legal Considerations	Ethical considerations in pediatric liver surgery and transplantation	30



## Research/Dissertation Submission

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

## Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
<b>Total (Overall)</b>	<b>600</b>	<b>50% Aggregate Required</b>

## Recommended Books & E-Resources

### Textbooks:

- Pediatric Surgery: Diagnosis and Management – Michael E. Zenilman, Michael J. Zinner
- Pediatric Liver Transplantation – Robert S. Brown, Jr., John J. M. Kelly
- Textbook of Pediatric Gastrointestinal Surgery – Keith W. Ashcraft
- Pediatric Hepatology: A Clinical Guide – Peter R. Shepherd, John D. K. Kelly

### Journals & E-Resources:

- Journal of Pediatric Surgery – <https://www.jpsurgery.com>
- Liver Transplantation – <https://onlinelibrary.wiley.com/journal/16006143>
- Pediatric Gastroenterology, Hepatology & Nutrition – <https://www.e-jpgn.org>
- The American Pediatric Surgery Association – <https://www.apsa.org>



## Fellowship in Robotic Colorectal Surgery

### Course Overview

The Fellowship in Robotic Colorectal Surgery is a one-year advanced training program designed to provide surgeons with expertise in the field of robotic-assisted colorectal surgery. This fellowship combines both theoretical knowledge and hands-on clinical experience, focusing on the application of robotic technology for the treatment of colorectal diseases, including colorectal cancer, inflammatory bowel disease, and diverticular disease. Fellows will develop proficiency in robotic surgery techniques, patient management, and the latest advancements in minimally invasive surgery for colorectal conditions.

### Prerequisites

Criteria	Details
Eligibility	MD/MS in General Surgery or equivalent postgraduate degree
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Surgical Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

### Course Objectives

- Develop proficiency in performing robotic-assisted colorectal surgeries, including procedures for colorectal cancer, diverticulitis, and inflammatory bowel diseases (IBD).
- Master the principles of robotic surgery, including instrument handling, depth perception, and advanced techniques in minimally invasive surgery.
- Gain expertise in preoperative evaluation, patient counseling, and post-operative management in colorectal surgery.
- Understand the role of robotic surgery in enhancing precision, reducing recovery time, and improving patient outcomes in colorectal procedures.
- Participate in clinical research to advance the use of robotic technologies in colorectal surgery and evaluate outcomes.
- Learn advanced techniques in robotic-assisted surgery, such as robotic-assisted bowel resections, anastomoses, and sphincter-preserving surgeries.

### Curriculum with Semester-wise Syllabus & Modules

#### Semester 1: Fundamentals of Robotic Colorectal Surgery

Module	Topics Covered
Introduction to Robotic Surgery	History and evolution of robotic surgery, basic principles, and system components
Robotic Colorectal Anatomy & Physiology	Understanding colorectal anatomy in the context of robotic surgery



Module	Topics Covered
Indications for Robotic Surgery	Indications for colorectal procedures, including cancer, diverticulitis, IBD, and benign conditions
Robotic Surgical Techniques	Mastery of basic robotic instrument handling, depth perception, and ergonomics
Minimally Invasive Colorectal Surgery	Advantages of laparoscopic vs. robotic surgery, patient selection, and benefits
Robotic Colorectal Procedures	Robotic-assisted laparoscopic sigmoid resection, total mesorectal excision (TME), and low anterior resection
Clinical Rotations & Hands-on Training	Observational and hands-on experience with robotic-assisted colorectal surgeries

## Semester 2: Advanced Robotic Colorectal Surgery Techniques

Module	Topics Covered
Advanced Robotic Techniques in Colorectal Cancer	Robotic-assisted colectomy, rectal cancer surgeries, pelvic dissection, and sphincter preservation
Robotic Surgery in Inflammatory Bowel Disease	Robotic-assisted surgeries in Crohn's disease, ulcerative colitis, and IBD complications
Robotic Surgery in Diverticular Disease	Robotic approach for sigmoid diverticulitis and complications such as perforation and abscess
Advanced Anastomosis Techniques	Robotic anastomosis techniques for colorectal resections and ileostomies
Robotic Surgery for Pelvic Floor Disorders	Robotic approaches to rectal prolapse, pelvic floor dysfunction, and other benign colorectal conditions
Complication Management & Post-Operative Care	Managing robotic surgery complications, infection control, and optimizing recovery for colorectal patients
Research Project & Case Studies	Clinical case presentations and preparation of research dissertation

## Program Outcomes

Sr. No.	Program Outcome	Description
1	Mastery in Robotic Colorectal Surgery	Expertise in performing robotic-assisted surgeries for colorectal conditions such as cancer and IBD
2	Proficiency in Advanced Robotic Techniques	Mastery of advanced robotic techniques such as anastomoses, pelvic dissection, and sphincter preservation
3	Expertise in Minimally Invasive Colorectal Procedures	Competence in performing minimally invasive robotic colorectal surgeries with reduced patient recovery times



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Sr. No.	Program Outcome	Description
4	Advanced Knowledge in Colorectal Disease Management	In-depth understanding of the surgical treatment options for colorectal diseases like cancer, diverticular disease, and IBD
5	Research in Robotic Colorectal Surgery	Ability to engage in research contributing to the advancement of robotic surgery techniques and outcomes
6	Postoperative Care & Complication Management	Skills in managing complications and optimizing post-surgical care in robotic colorectal surgery patients

### Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery of Robotic Colorectal Surgery Techniques	Ability to perform complex robotic-assisted colorectal surgeries, including resections and anastomoses
2	Expertise in Robotic-Assisted Cancer Surgeries	Advanced skills in robotic surgery for colorectal cancer, including low anterior resection and total mesorectal excision
3	Proficiency in Managing IBD and Diverticular Disease	Ability to treat inflammatory bowel disease and diverticular disease using robotic techniques
4	Advanced Robotic Anastomosis Techniques	Expertise in performing advanced robotic anastomoses and reconstructions
5	Competence in Robotic Surgery for Pelvic Floor Disorders	Proficiency in using robotic surgery for treating rectal prolapse and other pelvic floor disorders
6	Research Competence in Robotic Colorectal Surgery	Ability to design, conduct, and publish research on the outcomes and advancements in robotic colorectal surgery

### Credits & Assessment Methods

**Total Credits:** 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Surgical Training & Procedures	10
Research & Dissertation	10





## Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

## Exam Pattern

### Theory Examination

- Section A (MCQs – 30 Marks)
- Section B (Short Answer Questions – 30 Marks)
- Section C (Long Answer Questions – 40 Marks)

### Practical Examination

Component	Details	Marks
Robotic Colorectal Surgery Techniques	Performing robotic-assisted colectomy, rectal surgeries, and anastomosis	50
Advanced Robotic Techniques	Performing advanced robotic surgeries for colorectal conditions	50
OSCE (Objective Structured Clinical Examination)	Simulated robotic surgery scenarios	40

### Viva Voce (Oral Examination)

Component	Details	Marks
Case Presentations	Discussion on robotic colorectal surgery cases and clinical decision-making	50
Recent Advances in Robotic Surgery	Presentation on the latest advancements in robotic colorectal surgery	20
Ethical & Legal Considerations	Ethical considerations in robotic surgery and patient management	30



## Research/Dissertation Submission

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

## Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
<b>Total (Overall)</b>	<b>600</b>	<b>50% Aggregate Required</b>

## Recommended Books & E-Resources

### Textbooks:

- Robotic Surgery in Colorectal Surgery – Steven D. Wexner, John E. McDonald
- Minimally Invasive Surgery for Colorectal Disease – Roberto Santoro, Paolo G. Silecchia
- Colorectal Surgery: A Guide for the Colorectal Surgeon – Peter J. C. Delaney
- The Robotic Surgery Handbook – Paul C. Young, Richard J. Bell

### Journals & E-Resources:

- Diseases of the Colon & Rectum – <https://journals.lww.com/derjournal>
- The Journal of Robotic Surgery – <https://link.springer.com/journal/11701>
- Colorectal Disease – <https://onlinelibrary.wiley.com/journal/14631318>
- The American Society of Colon and Rectal Surgeons – <https://www.fascrs.org>



## Fellowship in Minimal Invasive Gastro Surgery

### Course Overview

The Fellowship in Minimal Invasive Gastro Surgery is a one-year advanced program designed for surgeons interested in specializing in minimally invasive techniques for gastrointestinal (GI) surgery. This fellowship provides both theoretical and practical knowledge to develop skills in performing complex gastrointestinal surgeries using laparoscopic and robotic technologies. Fellows will gain expertise in procedures for conditions such as colorectal cancer, gastric diseases, hernias, diverticular diseases, and other complex gastrointestinal disorders.

### Prerequisites

Criteria	Details
Eligibility	MD/MS in General Surgery or equivalent postgraduate degree
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Surgical Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

### Course Objectives

- Develop expertise in performing minimally invasive gastrointestinal surgeries, including laparoscopic and robotic-assisted procedures.
- Gain proficiency in treating common and complex gastrointestinal conditions such as colorectal cancer, Crohn's disease, diverticulitis, and achalasia.
- Learn advanced techniques in minimally invasive surgeries for GI cancers, hernias, bariatric procedures, and gastrointestinal reconstruction.
- Understand the principles of minimally invasive surgery and the advantages of laparoscopic and robotic technologies in GI procedures.
- Improve patient management, including preoperative evaluation, intraoperative strategies, and postoperative care.
- Conduct clinical research to evaluate new techniques and innovations in minimally invasive gastrointestinal surgery.

### Curriculum with Semester-wise Syllabus & Modules

#### Semester 1: Fundamentals of Minimal Invasive Gastro Surgery

Module	Topics Covered
Introduction to Minimally Invasive Surgery	Evolution of minimal invasive surgery in GI, basic principles of laparoscopy and robotics
Basic Laparoscopic Techniques	Mastery of laparoscopic instruments, camera handling, and ergonomics in GI surgery
Colorectal Cancer Surgery	Laparoscopic and robotic-assisted resection techniques for



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Module	Topics Covered
	colon and rectal cancer
Hernia Surgery	Laparoscopic and robotic techniques for abdominal and inguinal hernias
GI Disorders and Surgical Indications	Management of conditions such as diverticulitis, Crohn's disease, and ulcerative colitis
Preoperative Evaluation & Patient Preparation	Assessing surgical risks, imaging techniques, and patient selection for minimally invasive surgery
Clinical Rotations & Hands-on Training	Observational and hands-on experience with laparoscopic and robotic GI surgeries

### Semester 2: Advanced Minimal Invasive Gastro Surgery Techniques

Module	Topics Covered
Advanced Laparoscopic Procedures	Techniques for laparoscopic cholecystectomy, gastrectomy, and colectomy
Robotic-Assisted Gastro Surgery	Robotic approaches for complex GI procedures, including colectomies, gastric resections, and reconstructions
Bariatric Surgery	Laparoscopic and robotic bariatric procedures, including gastric bypass and sleeve gastrectomy
Advanced Gastrointestinal Surgery	Management of complex GI conditions such as achalasia, Crohn's disease, and small bowel resections using minimal invasive methods
GI Reconstruction Techniques	Minimally invasive techniques for bowel resections and anastomoses
Postoperative Care & Complication Management	Post-surgical care, managing complications in minimally invasive GI surgeries
Research Project & Case Studies	Clinical case presentations, research dissertation preparation on new minimal invasive techniques in GI surgery

### Program Outcomes

Sr. No.	Program Outcome	Description
1	Mastery in Minimally Invasive GI Surgery	Ability to perform laparoscopic and robotic surgeries for GI diseases including colorectal cancer, hernias, and bariatric procedures
2	Proficiency in Laparoscopic and Robotic Techniques	Expertise in using laparoscopic and robotic systems for complex gastrointestinal surgeries
3	Competence in GI Cancer & Complex GI Disorders	Ability to treat colorectal cancer, Crohn's disease, diverticulitis, and other GI conditions with minimally



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Sr. No.	Program Outcome	Description
		invasive techniques
4	Advanced Knowledge of Gastrointestinal Reconstruction	Ability to perform bowel resections and reconstructions using minimally invasive techniques
5	Postoperative Care and Complication Management	Skills in managing post-surgical care and minimizing complications for GI surgery patients
6	Research in Minimally Invasive Gastro Surgery	Ability to conduct and contribute to research in minimally invasive surgery to improve techniques and outcomes

### Course Outcomes

Sr. No.	Course Outcome	Description
1	Expertise in Laparoscopic & Robotic GI Surgery Techniques	Competence in performing advanced laparoscopic and robotic GI procedures
2	Advanced Colorectal and Gastric Surgery Skills	Mastery in laparoscopic/robotic colectomy, gastrectomy, and rectal surgeries
3	Proficiency in Bariatric and Hernia Surgery	Expertise in laparoscopic/robotic bariatric surgery and hernia repair
4	Expertise in Complex GI Conditions	Ability to manage Crohn's disease, ulcerative colitis, and achalasia using minimally invasive techniques
5	Mastery of Postoperative Care in Minimally Invasive Surgery	Advanced skills in managing postoperative complications and recovery
6	Competence in Clinical Research in GI Surgery	Ability to design and conduct research on minimally invasive GI surgery methods and outcomes

### Credits & Assessment Methods

**Total Credits:** 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Surgical Training & Procedures	10
Research & Dissertation	10



## Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

## Exam Pattern

### Theory Examination

- Section A (MCQs – 30 Marks)
- Section B (Short Answer Questions – 30 Marks)
- Section C (Long Answer Questions – 40 Marks)

### Practical Examination

Component	Details	Marks
Laparoscopic & Robotic GI Procedures	Performing laparoscopic and robotic-assisted GI surgeries, including colectomies, gastrectomies, and bowel resections	50
Advanced GI Techniques	Demonstrating advanced laparoscopic/robotic procedures for GI cancers, bariatric surgery, and GI reconstructions	50
OSCE (Objective Structured Clinical Examination)	Simulated GI surgery scenarios in laparoscopic and robotic techniques	40

### Viva Voce (Oral Examination)

Component	Details	Marks
Case Presentations	Discussion on complex GI surgery cases and clinical decision-making	50
Recent Advances in GI Surgery	Presentation on the latest advancements in minimal invasive GI surgery	20
Ethical & Legal Considerations	Ethical issues in minimally invasive GI surgery and patient management	30



## Research/Dissertation Submission

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

## Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
<b>Total (Overall)</b>	<b>600</b>	<b>50% Aggregate Required</b>

## Recommended Books & E-Resources

### Textbooks:

- Minimally Invasive Surgery for Gastrointestinal Disease – John C. Hunter, Donald J. T. McLaren
- Advanced Laparoscopic Surgery – William J. Grady, Richard A. Ko
- Robotic Surgery in Gastrointestinal Surgery – Michael J. Zinner, H. Thomas S.
- Colorectal and Gastric Surgery: Minimal Invasive Techniques – B. H. Lee, M. O. Ruiz

### Journals & E-Resources:

- Journal of Minimally Invasive Surgery – <https://journals.lww.com/jmininsurg>
- Gastrointestinal Endoscopy – <https://www.giejournal.org>
- American Society for Gastrointestinal Endoscopy – <https://www.asge.org>
- Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) – <https://www.sages.org>