

**THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY,
No.69, Anna Salai, Guindy, Chennai – 600 032.**

**D.M/ M.Ch
SUPER SPECIALTY DEGREE COURSE**



SYLLABUS AND CURRICULUM

2017-2018

D.M. - MEDICAL GASTROENTEROLOGY

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI
Syllabus – D.M- MEDICAL GASTROENTEROLOGY

1. AIM:

At the end of the course the student should have acquired:

1. Broad understanding of the principles of Basic Medical Sciences related to his/her specialty.
2. Ability and skill to perform and interpret investigative procedures related to the specialty.
3. Skills in clinical diagnosis, planning of investigation and manage common conditions in the specialty by relevant current therapeutic methods.
4. Capabilities to take independent decisions in emergency situations, perform required procedures in that particular speciality and manage complications.
5. Competence in intensive care with practical knowledge of work with resuscitative and monitoring equipments.
6. Ability to critically appraise published literature, interpret data and to broaden his/her knowledge by keeping abreast with modern developments in the specialty.
7. Ability to teach Post-graduates, undergraduates and Nursing students in the basic management of the diseases in his/her specialty.
8. Ability to get acquainted with allied and general clinical disciplines to ensure appropriate and timely referral.
9. Ability to conduct research
10. Ability to become a consultant and capability of organizing specialty Departments.

2.OBJECTIVES:

- i) Broad knowledge base – ability to generate a relevant differential diagnosis based on an accurate history and physical examination as well as understanding of indications and contraindications for diagnostic and therapeutic procedures.
- ii) Practical Training including advanced diagnostic, therapeutic and Laboratory Techniques relevant to the specialty.
- iii) Ability to think critically.

- iv) Skill at performing procedures
- v) Ability to communicate effectively with patients and referring physicians
- vi) Appreciation of humanistic (compassionate, cost conscious, service oriented) and ethical aspects (accountability integrity) of medicine.
- vii) Ability to work as part of a team as gastrointestinal disease involves multidisciplinary management.

3.THEORY SYLLABUS:

I ACID PEPTIC DISEASE

1. Anatomy, physiology of esophagus, stomach, duodenum.
2. Gastric secretion and measurement of acid secretion.
3. Gastritis and gastropathie.
4. Pathophysiology, epidemiology, diagnosis, complications and therapy of peptic ulcer.
5. Role of H.pylori and NSAIDs in acid peptic diseases.
6. Gastro-esophageal reflux disease – Epidemiology, Pathogenesis, Clinical features, diagnosis, complications and treatment.

Training Methodology

1. Out patient management of patients with peptic ulcer, GERD, gastritis (supervised)
2. Training in upper GI endoscopy - Elective and emergency. Treatment of upper GI bleed.
3. Interpretation of radiological studies.
4. Interpretation of mucosal biopsies of esophagus, stomach and duodenum.
5. Study of textbooks, journals, seminars: Endoscopy videolibrary and articles.

II Motility, Diverticular disease and Functional illness

1. Esophageal, gastric, small intestinal and colonic sensory and motor physiology
2. Pathogenesis, clinical assessment and treatment of motor disorders of esophagus, stomach, small intestine and colon.
3. Recognise manometric features of major motor disorders of esophagus and anal sphincter
4. Able to assess significance of results of pH test.
5. Pathophysiology, diagnosis and management of Functional bowel disease -

- a) Physiology of brain-gut axis, visceral sensation
- b) Role of neurotransmitters in sensory and motor functions
- c) Use of psychopharmaceuticals in treatment of Functional bowel disorders
- 6. Etiopathogenesis, clinical features, diagnosis and management of diverticular disease.
- 7. Acute and chronic pseudo-obstruction
- 8. Able to interpret motility studies of esophagus and ano-rectum.

Training methodology

- 1. See and manage patients with motility disorders – interpreting tests results, decision making after appropriate tests, and planning treatment (under supervision).
- 2. Study of textbooks, journal articles, seminars and motility tracings.

III GASTROINTESTINAL INFLAMMATION, ENTERIC AND INFECTIOUS DISEASES

- 1. Mucosal immunology and mechanisms of gastrointestinal inflammation.
- 2. Composition and function of normal enteric flora
- 3. Prevalence, clinical presentation and virulence factors of gastrointestinal pathogens (viral, bacterial, fungal, protozoal)
- 4. Pathophysiology of diarrhoeal disorders - Intestinal water and electrolyte transport
- 5. Infectious enteritis, proctocolitis and bacterial food poisoning.
- 6. Antibiotic associated diarrhea, pseudomembranous entero-colitis and *Cl.difficile* associated diarrhea and colitis.
- 7. Intestinal protozoa
- 8. Intestinal worms - Nematodes, cestodes, trematodes.
- 9. Etiopathogenesis, pathology, clinical features, diagnosis, complication and therapy of gastrointestinal tuberculosis.
- 10. Epidemiology, etiopathogenesis, pathology, clinical features, diagnosis, complications and treatment (medical / surgical) of ulcerative colitis and Crohns disease, cancer surveillance. New biological therapies.
- 11. IBD and pregnancy - therapy and genetic counseling. Psycho-social influences of IBD on individual and family.

12. Infections in immunocompromised hosts (HIV, transplant patients).
13. Hepatic inflammation (e.g. liver abscess, cholangitis).
14. Prevention of infection - Vaccines, hygiene practices etc.
15. Gastrointestinal, hepato-biliary and pancreatic disorders in patients with AIDS.
16. Collagenous colitis, Microscopic colitis.
17. Management of patients on ambulatory care (OP) and hospitalized patients (IP) -
 - Follow up patients with long term disease (e.g IBD)
 - Counseling of families
 (make a DD, interpret diagnostic studies, implement a therapeutic plan and manage on long term follow up)
18. Training in upper / lower GI endoscopy
19. Interpret radiological studies and mucosal biopsies.

To learn

1. Interpret stool exams - ova, parasites
2. Know how to perform stool culture, fluid culture
3. Antigen detection in stool and fluid (Enzyme immuno assay fluorescent antibody)
4. Rapid diagnostic tests (DNA probe / PCR)
5. Single and double balloon enteroscopy

IV MALDIGESTION & MALABSORPTION

1. Digestion and absorption of nutrients and vitamins
2. Maldigestion and malabsorption
 - Etiopathogenesis, approach to evaluation and approach to management
3. Tropical malabsorption
 - Tropical enteropathy; Tropical sprue
 - Parasites
4. Epidemiology, pathology, pathogenesis, diagnosis, complications and management of celiac sprue, Refractory sprue
5. Whipples disease
6. Short bowel syndrome - Etiology, pathophysiology, complications & management

(medical / surgical)

7. Protein losing enteropathy
8. Management under supervision of OP / IP patients including follow up of these patients.
9. Interpret radiological studies and mucosal biopsy

V. GASTROINTESTINAL MALIGNANCY

1. Cellular growth and neoplasia (Tumour biology)
2. Gastrointestinal lymphomas
3. GI stromal tumours
4. GI carcinoid tumours and carcinoid syndrome
5. Endocrine tumours of pancreas and GI tract
6. Epidemiology, biology, genetics, clinical features, diagnosis, pathology, staging, screening and surveillance and therapy (surgery / RT / chemo / targeted therapies – neoadjuvant / adjuvant / palliative / endoscopic) and prognosis for esophageal, gastric, small bowel, colonic, hepatic, gall bladder, bile duct and pancreatic tumours.
7. Colonic polyps and polyposis syndrome
8. Prevention of malignant tumours
 - a) Surveillance & screening
 - b) Endoscopic resection of premalignant lesions - polyps, Barretts esophagus (ablation).
 - c) Chemoprevention
 - d) Diet / genetic counseling
9. Radiation injury to gastrointestinal tract
10. Genetic studies in diagnosis, therapy and prognostication
11. Endoscopic management of Barretts esophagus (Photodynamic therapy)
12. Endoscopic treatment techniques for early gastric cancer (e.g) EMR
13. Endotherapy for palliation of esophageal, gastric, pancreatic, biliary tumours
14. EUS - Diagnosis (FNAC), staging, therapy (celiac block in carcinoma pancreas)
15. Principles of chemotherapy and radiation for early and advanced tumours.

VI BILIARY TRACT AND PANCREATIC DISEASES

A. Biliary tract disease:

1. Anatomy and developmental anomalies
2. Bile secretion, factors regulating secretion and enterohepatic circulation.
3. Biliary tract - Motor function and dysfunction (sphincter of Oddi Dysfunction).
4. Epidemiology, pathophysiology, etiology, clinical features, diagnosis, predictors of severity, complications and therapy of acute pancreatitis.
5. Epidemiology, etiology, pathophysiology, clinical factors, diagnosis, complication and therapy of chronic pancreatitis; Tropical calcific pancreatitis
6. Pancreatic cancer, cystic tumours of pancreas and Neuro endocrine / Non endocrine pancreatic tumours
7. Hereditary, familial and genetic disorder and pancreatic disorder of childhood
 8. Therapeutic ERCP - for biliary and pancreatic diseases
9. EUS - performance and interpretation
10. Evaluate bile for microlithiasis

VII HEPATOLOGY

1. Anatomy, Embryology and developmental abnormalities of liver
2. Biology and pathobiology - Genetic markers, immunology, virology
3. Liver chemistry and function tests
4. Diagnosis and management of patients with
 - a) Acute hepatitis - viral, drug, toxic
 - b) Fulminant hepatic failure - cerebral edema, coagulopathy and other complications
 - c) Chronic hepatitis and cirrhosis
 - d) Complications of liver disease – ascites, encephalopathy, SBP, hepatorenal syndrome, bleeding varices and gastropathy
 - e) Hepatocellular carcinoma
 - f) Non viral causes of liver disease - Alcohol, NAFLD, Wilsons disease, PBC, Autoimmune hepatitis, hemochromatosis, α -1 antitrypsin deficiency
 - g) Bacterial, parasitic and fungal infections including liver abscess

- h) Vascular diseases - Budd chiari syndrome, veno-occlusion disease
- i) Drug induced liver disease
- 5. Use of anti-viral and immunosuppressive agents in treatment of liver disease
- 6. Selection and care of patients awaiting and following liver transplantation - understanding of immunosuppressive agents, diagnosis and management of rejection, management of infections and biliary tract and vascular complications.
- 7. Management of nutritional problems in patients with liver disease
- 8. Interpretation of liver imaging modalities and limitations of each modality
- 9. Interpretation of liver histopathology
- 10. Basic knowledge of pediatric and congenital hepatobiliary disorders
- 11. Skills in performing liver biopsy, therapeutic paracentesis (minimum number 20 each), understanding indication, contraindications, limitations, complications, interpretation of results.

VIII GASTROINTESTINAL ENDOSCOPY

Skills:

- 1. Esophago-gastro-duodenoscopy - biopsy
- 2. Therapy of variceal and non variceal upper GI bleed
- 3. Colonoscopy and polypectomy
- 4. Esophageal dilatation – wire guided / non wire guided Savary Gillard / CRE / pneumatic dilatation for Achalasia cardia.
- 5. Diagnostic ERCP

Cognitive

- 1. Understanding of indications, contraindications and complications.
- 2. Ability to interpret results of endoscopy
- 3. Ability to recommend an endoscopic procedure based on clinical, lab and imaging data.
- 4. Ability to integrate endoscopy findings and therapy into patient management plan
- 5. Ability to recognize personal limits while performing procedures and know when to request help.
- 6. Knowledge of side effects of sedation and how to treat them.

7. Knowledge of antibiotic prophylaxis for endoscopy

8. Knowledge of infections and bleeding complications and how to manage them.

Endoscopy Training:

1) Threshold number of procedures to be performed before competence is assessed
(**minimum number of procedures**)

1. Esophago-gastroduodenoscopy	150
2. a) Therapy of non variceal haemorrhage (active bleed 10)	25
b) Variceal haemorrhage (active bleed 5)	20
3. Esophageal dilatation	20
4. Flexible sigmoidoscopy	30
5. Colonoscopy	150
6. Snare polypectomy / homeostasis	20
7. Assisting in ERCP Procedure	25

2) Maintain a log book of all procedures performed

3) Chronological Exposure:

- Skills to be achieved under supervised training

I year - Upper GI endoscopy / biopsy

- 1 - Flexible sigmoidoscopy
- 2 - Cognitive understanding as described above
- 3 - Know how about the cleaning/Disinfection and drying of the scopes.
- 4 - Liver biopsy, large volume paracentesis

II year - Therapy of variceal and non variceal upper GI bleed

- 1 - Colonoscopy, polypectomy
- 2 - Dilatation of esophageal strictures, pneumatic dilatation for achalasia cardia

III year - Knowledge on and observation of the following procedures:

1. ERCP
2. Manometry

3. pH
4. Capsule Endoscopy
5. EUS - Endoscopic Ultrasound

IX NUTRITION

1. Basic nutritional concepts
2. Assessment of nutritional status including specific nutritional deficiencies and excesses.
3. Metabolic response to starvation and patho-physiological effects of under nutrition.
4. Re-feeding syndrome
5. Metabolic response to illness and injury and nutritional requirements during stress.
6. Implementation and management of nutritional therapy including modified diets, external tube feeding and parenteral nutrition.
7. Patho-physiology and clinical management of obesity
8. Ethical and legal issues involved in providing and withdrawing nutritional support for terminally ill patients.
9. Placement of naso-jejunal tubes and PEG/PEJ.
 10. Nutrition management of non-gastrointestinal disease
 11. Managing patients with home parenteral nutrition

X GASTROINTESTINAL AND HEPATIC PATHOLOGY

1. Appreciate and recognize spectrum of normal histology
2. Recognize histo-pathological changes in gastrointestinal and hepatic disorders.
3. Overview of special techniques and special status
 - (eg) a. Immuno histochemistry - viral infections, pre malignant and malignant lesions
 - b. Flow cytometry
 - c. tests based on molecular biology - PCR, insitu hybridisation

XI GASTROINTESTINAL RADIOLOGY

1. a. Knowledge of appropriate choice of imaging techniques for specific problem in GI and Hepatic disease after evaluating

- cost-effectiveness and
- risk-benefit

b. Understand logical sequence of using these techniques

2. Recognise normal anatomy of alimentary tract and related organs.
3. Ability to evaluate and interpret plain film, radiographs, barium studies of GI tract, CT, ultrasound, MRI, scintigraphy, PET, vascular studies.
4. Ability to perform ultrasound abdomen
5. Familiar with radiation safety practices.

XII GI SURGERY

1 a. Whether surgery is necessary; if indicated what kind of operation; when it should be performed, common complications and long term consequences of the following surgical procedures:

- Antireflux procedures, peptic ulcer surgery, caustic injury to upper GI tract, hernias and gastric volvulus, abscess and fistulas, hepatobiliary operations, portosystemic shunts, hepatic resections and liver transplantation, surgery for IBD, surgery for pancreatic and biliary diseases, surgery for malignant disease of GI tract

2. a) Surgery vs Endoscopy vs Interventional radiology - which procedure, where?
- b) Laparoscopy vs open surgery

XIII PAEDIATRIC GASTROENTEROLOGY

- 1) Congenital disorders of gastrointestinal system, liver, biliary tract and pancreas
- 2) Age related physiological and psychological variables of children
- 3) Unique aspects of disease in paediatric age group as compared to adult

XIV GERIATRIC GASTROENTEROLOGY

(As part of General Training)

General Issues:

1. a) Impact of age on presentation, diagnosis and treatment of important gastrointestinal conditions.

- b) Impact of depression and dementia on presentation and treatment.
- c) Pathophysiology of aging
- d) Social and ethical issues

Geriatric gastroenterology

1. Changes of G.I. function with aging, (e.g.) slowing of colonic motility and rectal dysfunction
2. Changes in drug metabolism
3. Effect of aging on nutrition
4. GI problems in institutionalized and bedridden patients (e.g) fecal impaction as risk factor for urine incontinence.

XV WOMENS HEALTH ISSUES IN DIGESTIVE DISEASES

(As part of General Training)

1. General women health issues
 - a) Doctor-patient relationships
 - b) Cultural and religious issues
 - c) Psycho-social issues
 - d) Lab values and diagnostic tests
 - Gender differences as well as changes during pregnancy in normal lab values
2. Specific women health issues
 - a) Health and disease states – gender difference in demographics, epidemiology, pathophysiology, clinical presentation.
 - b) Effect of menstrual cycle and menopause on digestive disease
 - c) Pharmacokinetics of medications - differences in absorption, metabolism and therapeutic response.
3. Pregnancy and child bearing
 - a) GI and liver changes / disorders in normal pregnancy
 - b) Effect of pre-existing GI and liver disorders on pregnancy and fertility.
 - c) Impact of pregnancy on gastrointestinal & liver disease
 - d) GI and liver disorders unique to pregnancy
 - e) Maternal-fetal transmission of infections and appropriate management of mother and infant

f) Pharmacokinetics and interactions of medications during pregnancy and breast feeding
-potential harm to foetus.

g) Nutritional requirements

Post-partum issues

Rectal prolapse, haemorrhoids, urinary / fecal incontinence

XVI CELLULAR AND MOLECULAR PHYSIOLOGY

Knowledge of fundamental concepts in

1. Cell biology
2. Molecular biology
3. Genetics
4. Immunology including basic transplant biology
5. Pharmacology and cellular signalling
6. Host-environment interactions
7. Understanding basics of techniques - PCR, Genetic screening, Recombinant technology /Micro-array, flowcytometry.
8. Gastrointestinal hormones and neurotransmitters

Bioethics

1. Respect human life and the dignity of every individual.
- 2 Refrain from supporting or committing crimes against humanity and condemn all such acts.
- 3 Treat the sick and injured with competence and compassion and without prejudice and apply the knowledge and skills when needed.
- 4 Protect the privacy and confidentiality of those for whom we care and breach that confidence only when keeping it would seriously threaten their health and safety or that of others.
- 5 Work freely with colleagues to discover,develop, and promote advances in medicine and public health that ameliorate suffering and contribute to human well being.

- 6 Assessment of both theory and practicals at the end of every unit posting. Educate the public about present and future threats to the health of humanity.
- 7 Advocate for social, economic, educational and political changes that ameliorate suffering and contribute to human well being.
- 8 Teach and mentor those who follow us, for they are the future of our caring profession.

4. CLINICAL TRAINING

The Students will be clinically trained in parent department during the 3 years course.

First Year:

Gastroenterology : 7 months and three weeks

Paediatric Gastroenterology: 1 month

Gastro Radiology : 10 days

Gastro Pathology : 7 days

Intensive Medical Care : 7 days

Surgical Gastroenterology : 15 days

Endoscopy : 2month

Note : MD Paediatric Candidates should attend General medical wards for one month.

Second Year:

Gastroenterology : 8months

Endoscopy : 3 months

Liver Transplant Centre : One month

During II year, students are encouraged to undergo special postings for learning new advanced techniques / Procedure / Skills in institutions of higher repute where the requisite facilities are available without affecting the duties of the parent department.

Third Year:

Gastroenterology : 6 months

Endoscopy : 5 months

Posting in Centre doing more advanced GE work: 1 month

5. SKILL TRAINING:

I ACID PEPTIC DISEASE

1. Out patient management of patients with peptic ulcer, GERD, gastritis (supervised)
2. Training in upper GI endoscopy - Elective and emergency. Treatment of upper GI bleed.
3. Interpretation of radiological studies.
4. Interpretation of mucosal biopsies of esophagus, stomach and duodenum.

II Motility, Diverticular disease and Functional illness

1. See and manage patients with motility disorders – interpreting tests results, decision making after appropriate tests, and planning treatment (under supervision).

III GASTROINTESTINAL INFLAMMATION, ENTERIC AND INFECTIOUS DISEASES

1. Management of patients on ambulatory care (OP) and hospitalized patients (IP) -
 - Follow up patients with long term disease (e.g IBD)
 - Counseling of families
 (make a DD, interpret diagnostic studies, implement a therapeutic plan and manage on long term follow up)
2. Training in upper / lower GI endoscopy
 - Interpret radiological studies and mucosal biopsies.
3. Interpret stool exams - ova, parasites
4. Know how to perform stool culture, fluid culture
5. Antigen detection in stool and fluid (Enzyme immuno assay fluorescent antibody)
6. Rapid diagnostic tests (DNA probe / PCR)
7. Single and double balloon enteroscopy

IV MALDIGESTION & MALABSORPTION

1. Celiac sprue
2. Refractory sprue
3. Whipples disease

4. Short bowel syndrome - Etiology, pathophysiology, complications & management (medical / surgical)
5. Protein losing enteropathy
6. Management under supervision of OP / IP patients including follow up of these patients.
7. Interpret radiological studies and mucosal biopsy

V. GASTROINTESTINAL MALIGNANCY

Training

1. Management under supervision of OP / IP including follow up these patients.
2. Training upper GI and lower GI endoscopy including polypectomy and palliative stenting of obstructed lesions.
3. Interpret radiological studies and mucosal biopsies
4. Study textbooks, journals, seminars, workshops, conferences
5. Lectures from oncology surgeon, medical oncologist, radiation oncologist, medical geneticist and interventional endoscopist.

VI BILIARY TRACT AND PANCREATIC DISEASES

Training methodology

1. Management under supervision of IP / OP patients including follow up of these patients.
2. Interpret radiological studies and mucosal biopsies and FNAC
3. Lectures by interventional endoscopist, interventional radiologist, surgeons.
4. Exposure to microbiology, molecular biology, infectious disease and nutrition

VII GASTROINTESTINAL ENDOSCOPY

1. Esophago-gastro-duodenoscopy - biopsy
2. Therapy of variceal and non variceal upper GI bleed
3. Colonoscopy and polypectomy
4. Esophageal dilatation - wire guided / non wire guided Savary Gillard / CRE / pneumatic dilatation for Achalasia cardia.
5. Diagnostic ERCP

Endoscopy Training:

1) Threshold number of procedures to be performed before competence is assessed
(**minimum number of procedures**)

1. Esophago-gastroduodenoscopy	150
2. a) Therapy of non variceal haemorrhage (active bleed 10)	25
b) Variceal haemorrhage (active bleed 5)	20
3. Esophageal dilatation	20
4. Flexible sigmoidoscopy	30
5. Colonoscopy	150
6. Snare polypectomy / homeostasis	20
7. Assisting in ERCP Procedure (Side view scopy in ERCP)	25

2) Chronological Exposure:

- Skills to be achieved under supervised training
- I year - Upper GI endoscopy / biopsy
- Flexible sigmoidoscopy
- Cognitive understanding as described above
- Know how about the cleaning/Disinfection and drying of the scopes.
- Liver biopsy, large volume paracentesis

- II year - Therapy of variceal and non variceal upper GI bleed
- Colonoscopy, polypectomy
- Dilatation of esophageal strictures, pneumatic dilatation for achalasia cardia
- Advanced Gastro endoscopy - 15 days

- III year - Knowledge on and observation of the following procedures:
 1. ERCP
 2. Manometry
 3. pH
 4. Capsule Endoscopy

5. EUS - Endoscopic Ultrasound

VIII GASTROINTESTINAL AND HEPATIC PATHOLOGY

Training:

1. 7 Days rotation in GI pathology
2. Regular weekly GE-pathology sessions

XI GASTROINTESTINAL RADIOLOGY

Training process:

1. Discussion during ward rounds
2. Exposure at weekly GE-Radiology conferences
3. 15 days rotation in radiology
4. Lectures/self instruction programs - videotapes, video discs.
5. Interventional Gastro Radiology - 15 days.

XII GI SURGERY

Training:

1. Medical - surgical conferences
2. Lecture series
3. 15 days Rotation in GI Surgery

XIII PAEDIATRIC GASTROENTEROLOGY

Training process:

1. Discuss pediatric cases with faculty (paediatric gastroenterologist)
2. Lectures, seminars, journal club

XV WOMENS HEALTH ISSUES IN DIGESTIVE DISEASES

(As part of General Training)

Training:

- (i) Discussion with appropriate faculty (e.g) gynaecologist when treating women with specific problems related to their gender
- (ii) Lectures, seminars

Miscellaneous Training :

1. Candidates are expected to attend regularly the following meetings, Annual conference and mid term conferences of ISG, INASL, SGEI. Annual , Mid term and monthly meetings of ISG Tamil nadu chapter. Guest Lecture Meetings by national and international visiting faculties. CME's , CPC's and other lecture programmes organized by other institutions where facilities are available and make clinical presentations at City Gastro Meet/ Physicians conference etc.
2. Take clinical classes for MD internal Medicine Post Graduates and theory classes for MBBS students, Nursing students and BSc Nutrition students.

6.TEACHING METHODOLOGY:

1. Ward Rounds
2. Patient Care - Wards
3. Bed Side Clinics
4. Case Presentation
5. Topic Discussion (a) Long seminar s (b) short seminars
6. Journal clubs
7. Weekly Tests - Theory - syllabus based model theory exam
8. Attending clinical Meetings - Inter Departmental Meeting
- ISG, INASL, SGE, City Gastro Meet
9. Supervised Basic Endoscopy
10. Supervised Advanced Endoscopy

7. RESEARCH WORK:

1. Basic knowledge of clinical research methods, biostatistics, epidemiology and ethics.
2. Basic knowledge of cell biology, molecular biology, molecular genetics and immunology
3. Critical analysis of current literature, ability to formulate research questions, make a study design, calculate sample size, data management, ways to avoid bias etc.
4. Preparation of proposals for funding and evaluation by institutional review boards
5. Presentation of work in written/oral form at Conferences

6. Help mentors in peer review of articles submitted for publication.

Students should compulsorily attend Research Methodology workshop conducted by the University within first six months of D.M.Course.

8. LOG BOOK:

The Postgraduate student of a Postgraduate Degree Course in Super specialties shall maintain Log Book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently.

The Log Book shall be checked and assessed by the faculty members imparting the training.

Periodical evaluation of Log Book to be done by the Head of the Department as per 52nd SAB.

The Evaluation of the candidates in both theory and practical aspects will help the candidate in the improvement of his/her knowledge skills & attitude.

9. COMPETENCY ASSESSMENT:

Overall:

1. Communication / Commitment / Contribution / Compassion towards patients and Innovation	-	10 Marks
2. Implementation of Newly learnt techniques	-	10 Marks
3. Documentation of case sheets / discharge Summary / Review	-	10 Marks
4. Number of cases presented in Clinical Meetings/ Journal Clubs / Seminars / Papers presented in Conference.	-	10 Marks
5. No. Of Medals/ Certificates won in the conference / Quiz competitions and other academic meetings with details.	-	10 Marks

	Total	50 Marks

Assessment	I	- February	-	First Year
	II	- August	-	First Year
	III	- February	-	Second Year

IV	- August	-	Second Year
V	- February	-	Third Year
VI	- May	-	Third Year

VIVA INCLUDING COMPETENCY ASSESSMENT - 100 Marks (50+50)

10. THEORY EXAMINATION :

Paper I - Basic Sciences applied to the Speciality

Paper II - General Gastroenterology including Paediatric and Preventive Gastroenterology

Paper III - Hepatobiliary, Pancreatic Diseases

Paper IV - Recent Advances in the Speciality

Each paper will contain:

- | | | | | |
|------------------------|---|--------|---|----------|
| 1. Essay questions (2) | - | 2 X 15 | = | 30 Marks |
| 2. Short Notes (10) | - | 10 X 7 | = | 70 Marks |

Total				100 Marks
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11. PRACTICAL SCHEME:

Particulars	Time for candidate to examine the cases	Time for examiners to question the candidates	Maximum Marks
Long Case	1 Case x 60 Minutes	60 Minutes	100
Short Case	2 Cases x 15 Minutes	30 Minutes	100
Ward Rounds	3 Patients x 10 Minutes	30 Minutes	100
OSCE	5 Stations x 3 Minutes	15 Minutes	50
Viva Voce		15 Minutes	100 -
Log Book			50
Total			500

As per Medical Council of India Postgraduate Medical Education Regulations, 2000 (Amended upto 10th August 2016), the candidates must submit the following so as to make them eligible to appear for the Examination.

“13.9 A Postgraduate student of a Postgraduate degree Course in broad specialties/ Super Specialties would be required to present one poster presentation to read one paper at a National/State conference and to present one Research paper which should be published/accepted for publication/sent for publication during the period of his Postgraduate studies so as to make him eligible to appear at the Postgraduate Degree Examination”.

Apart from Poster/Oral paper presentation in National/State conferences, the Research paper published by the candidate in the University Journal of Medical Sciences will be considered as equivalent to the Research Paper as mentioned in 13.9. clause. Case Reports can also be published in University Journal of Medical Sciences but case reports will not be considered as Research Paper.

The candidate can also present Research Paper as per Clause 13.9 of Post Graduate Education Regulation 2000, and if the article sent for publication by the candidate as primary author or corresponding author which has not yet been published/accepted for publication, the candidate should submit a letter from the HOD, stating that the article sent for publication is of publishable merit and the proof of the Research Article submitted to the Journal for publication should be sent to the university forwarded through the HOD [as per 53rd SAB]

The student can submit articles for the University journal anytime from the time of registration till 6 months prior to theory examination.

12. OSCE: 5 Stations

1. Path slide
2. Clinical situation - interpretation
3. Instrument
4. Imaging
5. Drug - Usage/indications

13. SUGGESTED READINGS:

Books

1. Sleisenger Z. Gastrointestinal & Liver Disease (2 Vol) - Saunders
2. Sleisenger Z. Gastrointestinal & Liver Disease (2 Vol) - Saunders
3. Yamada. Textbook of Gastroenterology (2 Vol)
4. Walker. Paediatric Gastrointestinal Disease (2 Vol) - B.C. Docker
5. A.K. Rustgi - Gastrointestinal Cancer. - Elsevier, Saunders
6. Kelsen. Principles and practice of gastrointestinal oncology - LWW
7. Castell D.O. The esophagus - LWW
8. Schiff. Disease of Liver (2 Vol) - LWW
9. Jaron Rodes. Textbook of Hepatology - Blackwell
10. Sherlock S. Diseases of Liver & Biliary system - Blackwell
11. Suchy. Liver diseases in children - LWW
12. Blumgart. Surgery of liver & biliary tract - Saunders
13. Busutil R.W. Transplantation of Liver (2 Vol) - Elseiver Saunders
14. Gore text book of Gastrointestinal Radiology.
15. Text Book on Endoscopic Ultrasound by Frank Gress & Thomas Savides

****Note:** The editions are as applicable and the latest editions shall be the part of the syllabi.

14. JOURNALS :

GUT

Gastroenterology

Digestive Diseases & Sciences

J Gastroenterology & Hepatology

Hepatology

NEJM

Int. J Gastroenterology

Am. J. Gastroenterology

J. Paed. Gastro & Nutrition

Pancreas

Tropical Gastroenterology

Seminars in Liver Disease

Indian journal of Gastroenterology

Digestive endoscopy

North American clinics in Gastroenterology , Liver and Endoscopy.
