

**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

2021-2022

D.M. - HEPATOLOGY

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

1.AIMS & OBJECTIVES:

To train competent specialists in the specialty of Hepatology, to improve care of patients with liver diseases.

2.THEORY SYLLABUS:

To train postgraduates in clinical, molecular, intensive care and transplant Hepatology so that they will be able to understand the subject better to diagnose, investigate, treat and prevent the diseases independently in all types of hepatobiliary disorders, thus improving patient care.

Syllabus

- Investigations of hepatobiliary diseases
- Basic immunology
- Molecular biology
- Epidemiology
- Cirrhosis
- Non cirrhotic portal hypertension
- Portal hypertension and GI bleeding
- Ascites and renal dysfunction in liver disease
- Hepatic encephalopathy
- Non parasitic cystic diseases
- Viral infection of liver (Acute and chronic viral hepatitis)
- Other infections of liver
- Immune disorders of liver
- Alcoholic liver disease
- Liver transplantation
- Non alcoholic fatty liver
- Drug induced liver injury
- Acute liver failure
- Inherited metabolic disorder
- Vascular disorders of liver
- Tumors of liver and bile duct
- Biliary tract disease
- Liver in diseases of other systems
- Effect of liver disease on other systems
- Pediatric liver disease
- Liver disease in elderly
- Liver disease in pregnancy
- Use of antiviral and immunosuppressive agents in treatment of liver disease
- Nutrition in liver disease
- Liver pathology
- Liver imaging
- Principles of experimental design, clinical biostatistics and epidemiology
- This syllabus would be regularly covered by didactic lectures, literature review and

- research
- Seminars.

Practical

- Liver biopsy
- Percutaneous Transjugular
- Ascitic tap
- Upper GI endoscopy
- Variceal band ligation Variceal glue injection Sclerotherapy of varices
- ERCP
- Diagnostic Nasobiliary drainage Biliary stenting Stone retrieval
- Lower GI endoscopy
- Diagnostic, full length Banding
- Sclerotherapy of rectal varices
- Ultrasound
- Imaging of liver and biliary tree
- Doppler assessment of portovenous system Guided abscess drainage
- Percutaneous transhepatic biliary drainage

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. 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.

3. CLINICAL TRAINING:

The Students will be clinically trained in parent department during the 3 years course. The candidates would also be trained for the following:

- Understand ethical issues in human and animal research
- Perform independently a research project and publish a scientific paper in an indexed journal
- Collect and analyze data on liver diseases
- Set up independent units of Hepatology in the country

Duration of Course: Three years

Time Schedule of postings

Joint Programmes with other departments

Sl. No	Meetings	Suggested frequency	minimum
1.	Morbidity & mortality review	Once in a month	Once in a
2.	Multi-disciplinary team (Radiology, Pathology, Surgeon)	Once in a week	
3.	Clinico-pathological correlation (CPC)	Once in a month	

Departmental

Teaching rounds	2 per week
Journal Club	1 per week
Seminar meet	1 per week
Bedside clinic	1 per week

Proposed time to be spent by DM students in various sections

Sl. No	Area/ Field	Suggested duration	minimum
Mandatory posting (26 months)			
1.	Hepatology (includes Pediatric Hepatology, Endoscopy etc.)	20 months	
2.	Liver-ICU	6 months	
Elective/ Peripheral posting (10 months)*			
1.	Gastroenterology	3 months	
2.	Liver transplant unit	6 months (2 months per year of training)	
3.	Experimental/ Molecular Hepatology	1 week	
4.	Virology	1 week	
5.	Histopathology	1 week	
6.	Radiology	1 week	

*If needed, part of the peripheral posting can be in other Institutions.

Patient service programme:

1. Indoor bed strength 20
2. Clinics: minimum of 2 days / week

Proposed training:

Inpatient services: The DM Candidate will work as part of the total liver service. He/She will look after the workup of admitted patients and take part in ward rounds by the assistant professor and professor. The candidate will supervise the activities of Junior Residents and undertake teaching of liver and biliary diseases to them. The candidate will perform all diagnostic procedures as enumerated below and attend to consultation calls and hepatic emergencies of other units.

Outpatient Clinics: The DM candidate will work in minimum of 2 days/week of out patient

clinics.

Liver lab: Candidate would spend a minimum of 1 month each in liver lab, and 2 months in experimental medicine. The candidate would be given training in laboratory techniques including ELISA, PCR, RFLP and LFTs. Molecular Hepatology is the new thrust area in Hepatology. Candidates would associate themselves with the research work going on in the department.

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.

4. SKILL TRAINING :

1st year

	Should have observed (minimum numbers)	Should have assisted (minimum numbers)	Should have performed (minimum numbers)
Gastroscopy- Diagnostic	-	Yes	Yes (50)
Gastroscopy- Therapeutic (including sclerotherapy, glue injection and variceal band ligation)	Yes (10)	Yes (5)	-
Colonoscopy - Diagnostic	Yes	Yes (20)	-
Liver biopsy (Percutaneous/ Transjugular)	Yes	Yes (10)	-
Side viewing Endoscopy / ERCP (including biliary stenting or NBD drainage, Stone extraction)	-	-	-
Ultrasound of liver and biliary tract(including hemodynamic studies with duplex Doppler)	Yes (10)	-	-
Invasive hemodynamics (including hepatic venous pressure gradient)	-	-	-
Intensive care management of liver patients (including subclavian and transjugular catheterization and ventilator use)	Yes	Yes	Yes (10)
Pre and post Liver transplantation (including follow up)	Yes	-	-

2nd year

	Should have observed	Should have assisted	Should have performed
Gastroscopy- Diagnostic	-	-	Yes (100)
Gastroscopy- Therapeutic (including sclerotherapy, glue injection and variceal band ligation)	Yes	Yes	Yes (50)
Colonoscopy - Diagnostic	Yes	Yes	Yes (20)
Liver biopsy (Percutaneous/ Transjugular)	Yes	Yes (10)	-
Side viewing Endoscopy / ERCP (including biliary stenting or NBD drainage, Stone extraction)	Yes (5)	-	-
Ultrasound of liver and biliary tract(including hemodynamic studies with duplex Doppler)	Yes	Yes (10)	-
Invasive hemodynamics (including hepatic venous pressure gradient)	-	-	-
Intensive care management of liver patients (including subclavian and transjugular catheterization and ventilator use)	Yes	Yes	Yes (10)
Pre and post Liver transplantation (including follow up)	Yes	Yes	-

3rd year

	Should have observed	Should have assisted	Should have performed
Gastroscopy- Diagnostic	-	Yes	Yes (100)
Gastroscopy- Therapeutic (including sclerotherapy, glue injection and variceal band ligation)	Yes	Yes	Yes (50)
Colonoscopy - Diagnostic	Yes	Yes	Yes (50)
Liver biopsy (Percutaneous/ Transjugular)	Yes	Yes (10)	-
Side viewing Endoscopy / ERCP (including biliary stenting or NBD drainage, Stone extraction)	-	Yes (20)	Yes (10)

Ultrasound of liver and biliary tract(including hemodynamic studies with duplex Doppler)	Yes	-Yes (10)	-
Invasive hemodynamics (including hepatic venous pressure gradient)	-	Yes (10)	-
Intensive care management of liver patients (including subclavian and transjugular catheterization and ventilator use)	Yes	Yes	Yes (10)
Pre and post Liver transplantation (including follow up)	Yes	Yes	Yes

5. **TEACHING METHODOLOGY**

Ward / OPD patient management.

Peri operative Management
Assisting / performing operative procedures.

Long and short topic presentations.

Ward rounds, case presentations and discussions. Combined ward rounds with Medical Gastroenterologist.

Clinicoradiological and clinicopathological conferences.

Inter-departmental Periodical meeting on relevant topics with Department of Anatomy, Physiology, Bio-chemistry and Microbiology.
Journal club.

Research review.

Problem solving sessions.

Weekly Tumour Board discussions with Radiation and Medical Oncologist.

Guest and in-house lectures. Conferences, seminars and CME's.

Participation in workshops, etc.

Teaching undergraduates / postgraduates / paramedical staff.

Weekly Surgical audit (patient care review meeting).

Biomedical equipments use and maintenance.

Bio-ethics

6. RESEARCH WORK:

The candidate will be trained in the ability to

- Frame a research question.
- Plan a study to answer the question.
- Collect the relevant information and
- Evaluate appropriately the collected data to draw a conclusion.

The candidate should become conversant with the reporting of these results as a research paper, in journals and as a presentation in conferences.

The activities would consist of:

Planning and organizing relevant animal / clinical studies to be submitted as a dissertation at the end of the course.

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

7. 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.

8. 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 conferences	– 10 Marks
5) No. Of Medals / Certificates won in the conference/Quiz competitions and other academic meetings with details	- 10 Marks

	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)

9. THEORY EXAMINATION:

Theory paper

Paper I :Applied Basic Science of Liver and Biliary System.

Paper II: Paediatric Hepatology

Paper III: Practice of Hepatology including Transplant Hepatology

Paper IV: Recent advances in Hepatology.

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

10. CLINICAL EXAMINATION:

Particulars	Time for candidate to examine the cases	Time for examiners to question the	Maximum Marks

		candidates	
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(50+50)
Log Book			50
			500

As per Medical Council of India Post Graduate Medical Education Regulations 2000 (amended upto 10th August 2016) clause **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.

11. OSCE: 5 Stations

1. Clinical photograph / scenario
2. Radiology
3. Endoscopic Photograph
4. Pathology / histology
5. Specialised liver tests

12. RECOMMENDED READING

Journals of Hepatology

1. Seminars in Liver Diseases
2. Liver Clinics of North America
3. Journal of viral hepatitis
4. Journal of Gastroenterology and Hepatology
5. Gastroenterology
6. Gut
7. Digestive Disease Sciences
8. GI Endoscopy
9. Endoscopy
10. Indian Journal of Gastroenterology
11. Journal of Clinical and Experimental Hepatology
12. Tropical Gastroenterology
13. GE Clinics of North America
14. Lancet
15. NEJM
16. Journal of Clinical Nutrition
17. Journal of Critical Care
18. European Journal of Gastroenterology and Hepatology
19. GHEP Journal.

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

13. TEXTBOOKS IN HEPATOLOGY

1. Zakim' s Textbook of Hepatology
2. Sheila Sherlock Textbook of Hepatology
3. Schiffs' Textbook of Hepatology
4. Oxford Textbook of Hepatology
5. Yamada's Textbook of Hepatology
6. Sleseingers Textbook of Gastroenterology
7. Bockus Textbook of Gastroenterology
8. Busuttil's Transplantation of the Liver
