

CHETTINAD ACADEMY OF RESEARCH AND EDUCATION

(Deemed to be University under section 3 of the U.G.C. Act 1956)



REGULATIONS & SYLLABUS

D.M. Medical Gastroenterology

2013-14 onwards

**CHETTINAD ACADEMY OF RESEARCH AND EDUCATION
REGULATIONS FOR D.M. PROGRAMS**

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CHETTINAD ACADEMY OF RESEARCH & EDUCATION

Regulations for DM (Doctor Medicine) Post Graduate Super speciality Courses

In exercise of the powers conferred by Rule 12(IV) of Memorandum of Association and Chapter III of Bye-laws of Chettinad Academic of Research and Education, the Academic Council of the University hereby makes the following Regulations;

1. SHORT TITLE AND COMMENCEMENT

- a. These Regulations may be called DM Doctor of Medicine Postgraduate super speciality course Regulations 2013
- b. They shall come into force from the Academic Year 2013-14
- c. These Regulations are subject to modification as may be approved by the Academic Council from time to time.

2. GOALS AND GENERAL OBJECTIVES OF DM POSTGRADUATE SUPER SPECIALITY PROGRAMME TO BE OBSERVED BY POSTGRADUATE TEACHING INSTITUTION

The goal of postgraduate medical education shall be to produce competent specialists and/or Medical teachers.

- a. who shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the national health policy
- b. who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system;
- c. who shall be aware of the contemporary advance and developments in the discipline concerned;
- d. who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology;
- e. who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

3. GENERAL OBJECTIVES OF POST-GRADUATE TRAINING EXPECTED FROM STUDENTS AT THE END OF POST-GRADUATE TRAINING.

At the end of the postgraduate super speciality training in the discipline concerned the student shall be able to;

- a. Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health section.
- b. Practice the speciality concerned ethically and in step with the principles of primary health care.
- c. Demonstrate sufficient understanding of the basic sciences relevant to the concerned speciality. Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.

- d. Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
- e. Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.
- f. Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
- g. Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
- h. Play the assigned role in the implementation of national health programme, effectively and responsibly.**
- i. Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- j. Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.
- k. Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.
- l. Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- m. Function as an effective leader of a health team engaged in health care, research or training.

4. COMPONENTS OF THE POSTGRADUATE CURRICULUM

The major components of the Postgraduate curriculum shall be:

- a. Theoretical knowledge
- b. Practical and clinical skills
- c. Writing Thesis / Research articles
- d. Attitudes including communication skills.
- e. Training in research methodology, Medical Ethics and Medico legal aspects.

5. NOMENCLATURE OF PG COURSE IN DM SUPER SPECIALITY COURSES

The nomenclature of PG degree super speciality course should be as laid down in the PG Medical regulations prescribed by the Medical Council of India.

6. ELIGIBILITY FOR ADMISSION

- i) DM (Doctor of Medicine) for which Candidates must possess recognized degree of MD (or its equivalent recognized degree) in the subject shown against them.
- ii) A person possessing DNB in the concerned broad-specialty, is eligible for admission in the Super-Speciality / Higher course (D.M.)

Sl.No.	Area of Specialisation	Prior Requirement
1	Cardiology	MD (General Medicine) MD (Paediatrics) MD (Respiratory Medicine)
2	Neonatology	MD (Paediatrics)
3	Nephrology	MD (General Medicine) MD (Paediatrics)
4.	Neurology	MD (General Medicine) MD (Paediatrics)
5.	Reproductive Medicine	MD (General Medicine) MD (Obstetrics & Gynaecology)
6.	Clinical Haematology	MD (General Medicine) MD (Pathology) MD (Paediatrics) MD (Biochemistry)
7.	Clinical Pharmacology	MD (Pharmacology)
8.	Endocrinology	MD (General Medicine) MD (Paediatrics)
9.	Immunology	MD (General Medicine) MD (Pathology) MD (Microbiology) MD (Paediatrics) MD (Biochemistry) MD (Physiology)
10.	Medical Gastroenterology	MD (General Medicine)
11.	Medical Genetics	MD/MS in any subject
12.	Medical Oncology	MD (General Medicine) MS (Radiotherapy) MD (Paediatrics)
13.	Neuro-radiology	MD (Radio-Diagnosis)
14.	Rhematology	MD (General Medicine) MD (Paediatrics)

- a) He/ She having qualified for the Post-graduate degree of this University or any other Universities recognised as equivalent thereto by the authority of this University and the Indian Medical Council and obtained permanent registration from any of the State Medical Council(s) or shall obtain the same within a period of one month from the date of his / her admission, failing which his/her admission shall stand cancelled
- b) Provided that in the case of a foreign national, the Medical Council of India may, on payment of the prescribed fee for registration, grant temporary registration, for the duration of the post graduate course limited to the medical college/institution to which the candidate is admitted for the time being exclusively for pursuing post graduate studies.
- c) Provided further the temporary registration to such foreign national shall be subject to the condition that such person is duly registered with appropriate registering authority in his own country wherefrom he has obtained his basic medical qualification, and his duly recognized by the corresponding Medical Council or concerned authority.

7. RECOGNITION FEE AND ELIGIBILITY CERTIFICATE:

Candidates who have passed the M.D. Degree Examination other than that conducted by Chettinad University shall obtain Eligibility Certificate from this University at the time of admission and also remit recognition fee as prescribed.

8. REGISTRATION:

A candidate admitted to the Post Graduate Super Speciality Course shall register with the University by submitting the prescribed application form for registration, duly filled in along with the prescribed fee, through the Head of the Institution.

9. DURATION OF THE COURSE

The period of training for obtaining the degree shall be three completed years including the examination period) after obtaining MD / Degree or equivalent/recognised qualifications in the required subject.

10.ADMISSION AND COMMENCEMENT OF COURSES

On the basis of academic merit as determined based on the competitive All India Common Entrance Examination conducted by the Chettinad Academy of Research and Education.

Time schedule for the completion of admission process for super speciality courses is as per statutory norms prevalent at that point of time.

11.SYLLABUS

The Syllabus for the course shall be as specified in the annexure to these

regulations.

12.MEDIUM OF INSTRUCTION:

English shall be the medium of instruction for D.M. Super Speciality Courses.

13.WORKING DAYS / ATTENDANCE

All candidates joining the Super Speciality Course shall work as full time residents during the period of training, attending not less than 80% (Eighty percent) of the training during each academic year, and given full time responsibility, assignments assessed full time responsibilities and participation in all facets of the educational process.

It is desirable that the candidates should have 100 per cent attendance to enable their objective to be achieved. However, a minimum of atleast 80 per cent attendance and achievement of satisfactory standards in both theoretical and clinical would be required for every academic year before they are allowed to appear for the University Examination.

The Attendance details may be submitted to the Controller of Examinations at the end of every academic year. The student should also be intimated quarterly regarding the lack of attendance.

13. (a)STIPEND AND GRANT OF LEAVE

The Post Graduate students undergoing Post Graduate Degree / Diploma/Super-Specialty course shall be paid stipend on par with the stipend being paid to the Post Graduate students of State Government Medical Institutions / Central Government Medical Institutions, in the State / Union Territory where the institution is located. Similarly, the matter of grant of leave to Post Graduate students shall be regulated as per the respective State Government rules.

14.CONDONATION FOR LACK OF ATTENDANCE

There shall be no condonation for lack of attendance.

15.MIGRATION

Under no circumstances, Migration/ Transfer of student in super speciality course shall be permitted by the University.

16.TRAINING PROGRAMME

The training given with due care to the Post Graduate students in the recognised institutions for the award of various Post Graduate medical degrees / super speciality degrees shall determine the expertise of the specialist and / or medical teachers produced as a result of the educational programme during the period of stay in the institution.

- (a) Every institution undertaking Post Graduate training programme shall set up an Academic cell or a curriculum committee, under the chairmanship of a senior faculty member, which shall work out the details of the training programme in each

speciality in consultation with other department faculty staff and also coordinate and monitor the implementation of these training Programmes.

The training programmes shall be updated as and when required. The structured training programme shall be written up and strictly followed, to enable the examiners to determine the training undergone by the candidates and the Medical Council of India inspectors to assess the same at the time of inspection.

During the training for Super Speciality Courses to be awarded in clinical disciplines, there shall be proper training in basic medical sciences related to the disciplines concerned; during the training for the degree to be awarded in basic medical sciences, there shall be training in applied aspects of the subject; and there shall be training in allied subjects related to the disciplines concerned. In all Post Graduate training programmes, both clinical and basic medical sciences, emphasis is to be laid on preventive and social aspects and emergency care facilities for autopsies, biopsies, cytopsies, endoscopic and imaging etc. also be made available for training purposes.

The Post Graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.

Training in Medical Audit, Management, Health Economics, Health Information System, basics of statistics, exposure to human behaviour studies, knowledge of pharmaco – economics and introduction to non- linear mathematics shall be imparted to the Post Graduate students.

Implementation of the training programs for the award of various Post Graduate Super Speciality Degree shall include the following:-

Basic Medical Sciences

- (i) Lectures, Seminars, Journal Clubs, Group Discussions, Participation in laboratory and experimental work, and involvement in research studies in the concerned speciality and exposure to the applied aspects of the subject relevant to clinical specialities.

Clinical disciplines

- (ii) In service training, with the students being given graded responsibility in the management and treatment of patients entrusted to their care; participation in Seminars, Journal clubs, Group Discussions, Clinical Meetings, Grand rounds, and Clinico - Pathological Conferences; practical training in Diagnosis and medical and Surgical treatment; training in the Basic Medical Sciences, as well as in allied clinical specialities.

The training programme shall be on the same pattern as for M.D. / M.S. in clinical disciplines; practical training including advanced Diagnostic, Therapeutic and Laboratory techniques, relevant to the subject of specialisation.

17.MAINTENANCE OF LOG BOOK

- a) Every Post Graduate student shall maintain a record (Log) book containing skills, the candidate has acquired during the training period certified by the various heads of department where the candidate has undergone training including outside the institution.
- b) The students shall maintain a Record Book (Log Book) of the work carried out by them & training program undergone during the period of training including details of procedures carried out independently or assisted by the candidate. The log book will be checked by the faculty members imparting the training.
- c) At the end of the course, the candidate should summarise the contents and get the record (Log) book certified by the Head of the Department.
- d) The record (Log) book should be submitted at the time of practical examination for the scrutiny of the Board of Examiners.
- e) It would be the constant endeavour of the faculty to develop desirable attitudes in the PG trainees during the course by personal examples, interaction and group discussion. Constant watch will be maintained during their work in the wards to ensure that this objective is being met. Although there will be no formal evaluation of attitude, some aspects of this domain would be covered during the formative evaluation as noted below for continued internal assessment. Formative evaluation will be carried out over following activities of the P.G. resident.
 - i. Ward work
 - ii. Case presentation
 - iii. P.G.Lecture
 - iv. Journal club
 - v. General assessment of affective function attitude by medical & paramedical staff;
 - vi. Internal Assessment

Candidates can appear for theory examination only after being certified on the basis of Internal assessment.

18.THESIS / DISSERTATION AND EVALUATION

- a) All Candidates admitted to undergo D.M. super speciality courses shall be assigned a topic for dissertation / thesis by the Head of the concerned unit and the title of the topic assigned to the candidates be intimated to the Controller of Examination of the University by the Head of the Department through the Head of the Institution before end of the First year.

- b) The dissertation / thesis shall be a bound volume of minimum 50 pages and not exceeding 75 pages of typed matter (double line spacing and on one side only) excluding certification, acknowledgements, annexure and bibliography.
- c) Four copies of dissertation shall be submitted six months prior to the commencement of the examination on the prescribed date to the controller of examination of the University.
- d) Two copies are to be submitted as an electronic version of the entire dissertation in a standard C.D. format mentioning the details and technicalities used in the C.D. format.
- e) The concerned Professors / Readers are to supervise and to see that the dissertation is done properly utilising the clinical materials of their own department / institution. The students must learn the design and interpretation of research studies, responsible use of informed consent and research methodology and interpretation of data and statistical analysis. They should seek the help of qualified staff members in the conduct of research. They must learn to use library and the computer-based research. This training will help them to develop skills in planning, designing and conduct of research studies.
- f) All candidates on admission will be allotted one of the department faculties who have fulfilled the requirement to be guides for purposes of guiding Dissertation/thesis. The topic for dissertation shall be finalized and discussed in the departmental faculty meeting and allotted to the individual candidates before the completion of 3 months after admission. The purpose of dissertation is to develop in the candidate the ability to perform an independent study keeping the principles and research methodology in mind. The candidate will therefore work on the prospective problem either within the department or in collaboration with other departments. There will be continuous monitoring of the dissertation work by the guides and co-guide and by the other department staff throughout the course. The candidate will present the progress of the dissertation to the faculty on the completion of 1 ½ years for monitoring and feedback. The completed dissertation should be submitted not later than 6 months before final examination.
- g) The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated before the start of the Clinical/Practical and Oral examination.
- h) The thesis shall be examined by a minimum of three examiners; one internal and two external examiners, who shall not be the examiners for Theory and Clinical. A candidate shall be allowed to appear for Theory and Practical/Clinical examination only after the acceptance of thesis by the examiners. The thesis shall be evaluated under the following heading:
 - 1) Approved
 - 2) Not approved

In all cases the approval shall be given before 3 months of the date of appearing for the examination and this will be essential before the candidate is allowed to appear for the written examination.

19.SCHEDULE OF EXAMINATIONS:

The examination for D.M courses shall be held at the end of 3rd academic year. An academic term shall mean six months` s training period.

20.SCHEME OF EXAMINATIONS

Post Graduate Examinations shall consist of Dissertation/Thesis, Written Paper (Theory), Clinical and Viva Voce.

The examinations shall be organised on the basis of "Grading" or "Marking system" to evaluate and certify candidate's level of knowledge, skill and competence at the end of the training.

- a) **Dissertation/Thesis:** Every candidate shall carry out and submit a Dissertation/Thesis as explained and approval of Dissertation/Thesis shall be precondition for a candidate to appear for the final year examination.
- b) Students admitted to this course 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 Super Speciality Degree Examination as prescribed in the Postgraduate Medical Education Regulations.
- c) **Theory:** A Written Examination shall consist of four theory papers each of three hours duration. Each paper carries 100 marks (Total 400 marks). Out of these one shall be of Basic Medical Sciences and one shall be of Recent advances.
- d) **Clinical Examination:** Clinical examination for the subjects in Clinical Sciences shall be conducted to test the knowledge and competence of the candidates for undertaking independent work as a specialist/Teacher, for which candidates shall examine a minimum one long case and two short cases.
- e) **Oral Examination:** The Oral examination shall be thorough and shall aim at assessing the candidate knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality, which form a part of the examination.

THEORY	
No. of Theory Papers	4
Marks for each Theory Paper	*100
Total marks for Theory Paper	400
Passing Minimum for Theory	200/400
Total marks for Clinical	300
Passing Minimum for Clinical	150/300
Viva voce	100
Passing minimum for Clinical including Viva voce	200/400

ii) If any candidate fails even under one head, he/she has to re-appear for whole examination.

ii) Theory paper consists of 2 essay questions of 25 marks each (2 X 25 = 50) & 5 short notes of 10 marks each (5 X 10 = 50). Total = 100 marks each.

Sl.No.20(ii) Amended vide XVIII meeting of Academic Council dated 15.04.2014. Resolved to approve 2 Essay Questions (2 x 20 marks) and 10 short notes (10 x 6 marks) for each theory paper in D.M. /M. Ch courses which will take effect from 2013-14 batch.

Resolved to approve 2 essays (2 x 20 marks) and 6 short notes (6 x 10 marks) for theory paper in all D.M. Courses by the Academic Council in its XX meeting held on 25.03.2015

****Resolved to approve that an examinee should obtain minimum 40% marks in each theory paper and not less than 50% marks cumulatively in all the four papers in P.G.***

degree examination to be cleared as passed which will be implemented prospectively. (Academic Council in its XX meeting held on 25.03.2015).

21. EXAMINERS

(a) All the Post Graduate Examiners for super speciality courses shall be recognised super speciality Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned.

(b) For all Post Graduate super speciality Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners, who shall be invited from other recognised universities from outside the State/outside University. The remaining two will be internal examiners. The qualifications and

teaching experience for appointment of examiners shall be as laid down by the guidelines of Medical Council of India in force from time to time.

(c) 'No person shall be appointed as an internal examiner in any subject unless he/she has three years' experience as recognized PG teacher in the concerned subject. For external examiners, he/she should have minimum six years of experience as recognized PG teacher in the concerned subject'. "An examiner shall ordinarily be appointed for not more than two consecutive terms"

(d) Under exceptional circumstances, examinations may be held with 3 (three) examiners provided two of them are external and Medical Council of India is intimated the justification of such action prior to publication of result for approval. Under no circumstances, result shall be published in such cases without the approval of Medical Council of India.

22. NUMBER OF CANDIDATES

The maximum number of candidates to be examined in Clinical / practical and Oral on any day shall not exceed three for D.M. examinations.

23. *NUMBER OF EXAMINATIONS

The University shall conduct not more than two examinations in a year, for any subject, with an interval of not less than 4 and not more than 6 months between the two examinations. The examination shall be conducted in September and March.

*** SI. No.23 Amended in XXI meeting of Academic Council dated 22.07.2015 Resolved to approve the commencement of D.M. University examination in August (for Regular Batch) and February (for Supplementary Batch).**

24. REVALUATION.

There is no revaluation of answer papers. However, re-totaling is allowed in the failed subjects with payment of required fees fixed by the University (from time to time) within 15 days from the date of receipt of statement of marks.

SYLLABUS FOR DM MEDICAL GASTROENTEROLOGY

Program Objective

The training program should produce consultants with the following attributes:

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

CURRICULUM

I. ACID PEPTIC DISEASE

Must know

1. Anatomy, physiology of esophagus, stomach, duodenum.
2. Gastric secretion and measurement of acid secretion
3. Gastritis and gastropathies
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 video library and articles.

Assessment:

As part of overall evaluation of trainees in medical gastroenterology

II. Motility, Diverticular disease and Functional illness

Must Know

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 perform and 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 psycho pharmaceuticals in treatment of Functional bowel disorders
6. Etiopathogenesis, clinical features, diagnosis and management of diverticular disease.
7. Acute and chronic pseudo-obstruction

Desirable to know

1. Able to conduct and 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. Hands on experience on 24 hr pH studies and motility studies – spend 3 months in a motility lab.
3. Study of textbooks, journal articles, seminars and motility tracings.

Assessment Strategy (as part of general evaluation)

III. GASTROINTESTINAL INFLAMMATION, ENTERIC AND INFECTIOUS DISEASES

Must know

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 Crohn's 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.

Training Methodology

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
 - (made a DD, interpret diagnostic studies, implement a therapeutic plan and
 - manage on long term follow up)
2. Training in upper / lower GI endoscopy

3. Interpret radiological studies and mucosal biopsies.
4. Study textbooks, journals, seminars, workshops and conferences, Endoscopy videos and atlases.

May know:

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

Assessment: As part of overall evaluation of trainees in medical gastroenterology

IV. MALDIGESTION & MALABSORPTION

Must know

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

Training:

1. Management under supervision of OP / IP patients including follow up of these patients.
2. Interpret radiological studies and mucosal biopsy

3. Study textbooks, journals, seminars, workshops and conferences

Assessment:

As part of overall evaluation of trainees in medical gastroenterology

V. GASTROINTESTINAL MALIGNANCY

Must know

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, Barrett’s esophagus (ablation).
 - c) Chemoprevention
 - d) Diet / genetic counseling
9. Radiation injury to gastrointestinal tract

May know:

1. Genetic studies in diagnosis, therapy and prognostication
2. Endoscopic management of Barrett’s esophagus (Photodynamic therapy)
3. Endoscopic treatment techniques for early gastric cancer (e.g) EMR
4. Endotherapy for palliation of esophageal, gastric, pancreatic, biliary tumours
5. EUS – Diagnosis (FNAC), staging, therapy (celiac block in carcinoma pancreas)
6. Principles of chemotherapy and radiation for early and advanced tumours.

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.

Assessment

Part of overall evaluation of trainees

VI. BILIARY TRACT AND PANCREATIC DISEASES

Must know

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.

May know

1. Therapeutic ERCP – for biliary and pancreatic diseases
2. EUS – performance and interpretation
3. Evaluate bile for microlithiasis

Training methodology

1. Management under supervision of IP / OP patients including follow up of these patients.
2. Training in ERCP / EUS – diagnostic and therapeutic under supervision
3. Interpret radiological studies and mucosal biopsies and FNAC
4. Study textbooks, journals, presentations and attendance at seminars, workshops, conferences
5. Lectures by interventional endoscopist, interventional radiologist, surgeons.
6. Exposure to microbiology, molecular biology, infectious disease and nutrition

Assessment:

Part of overall evaluation of trainees

VII. HEPATOLOGY

Must know

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.

Training process:

1. At least one faculty should possess advanced expertise in liver diseases
2. 30% of time of training should be in Hepatology (OP/IP)
3. 2 months posting in liver transplant set up.
4. Textbooks, lectures, journals, seminars, conferences
5. Weekly conferences with radiology, pathology and hepato-biliary surgeons.

Desirable to know:

1. Management of post-liver transplant patients
2. Trans jugular liver biopsy

Assessment: Part of overall evaluation of trainees in medical gastroenterology

VIII. GASTROINTESTINAL ENDOSCOPY

Must know

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 – placement of stent / NBD

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 | : | 130 |
| 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 | : | 140 |
| 6. Snare polypectomy / homeostasis | : | 20 |
| 7. ERCP | : | 20 |

2) Maintain a log book of all procedures performed

3) Chronological Exposure:

- Skills to be achieved under supervised training

- I st 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

- IIInd year**
- Therapy of variceal and nonvariceal upper GI bleed
 - Colonoscopy, polypectomy
 - Dilatation of esophageal strictures, pneumatic dilatation for achalasia cardia

- IIIrd year**
- ERCP
 - Esophageal and anorectal motility
 - 24-hour pH
 - Interpretation of capsule endoscopy study

IX. NUTRITION

Must know:

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.

Desirable to know:

1. Nutrition management of non-gastrointestinal disease
2. Managing patients with home parenteral nutrition

Assessment: As part of overall evaluation.

X. GASTROINTESTINAL AND HEPATIC PATHOLOGY

Must know:

1. Appreciate and recognize spectrum of normal histology
2. Recognize histo-pathological changes in gastrointestinal and hepatic disorders.

May know (Desirable to know)

1. Over view 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

Training:

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

Assessment:

1. Feedback after rotation in pathology
2. Part of overall evaluation

XI. GASTROINTESTINAL RADIOLOGY

Must know:

1. a. Knowledge of appropriate choice of imaging techniques for specific problem in GI and Hepatic disease after evaluating
GI and Hepatic disease after evaluating
 - cost-effectiveness and
 - risk-benefitb. 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.

Training process:

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

Assessment:

- Part of overall evaluation
- Film quiz

XII. SURGERY

Must know:

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) Laproscopy vs open surgery

Training:

1. Medical – surgical conferences
2. Lecture series
3. Rotation in GI Surgery

Assessment: Part of overall evaluation

XIII. PAEDIATRIC MEDICAL GASTROENTEROLOGY

Must know:

- 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

Training process:

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

Assessment of competence:

Part of overall evaluation of trainees in medical gastroenterology

XIV. GERIATRIC MEDICAL GASTROENTEROLOGY

Must know:

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 medical 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.

Training:

1. Discussions with a faculty of geriatric medicine when treating geriatric patients with gastrointestinal and Hepatology disorders / bedside teaching.
2. Lectures, seminars

Assessment: Part of overall evaluation of trainees in medical gastroenterology

XV. WOMENS HEALTH ISSUES IN DIGESTIVE DISEASES

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 fetus.
- g) Nutritional requirements
 - Post-partum issues
 - Rectal prolapse, haemorrhoids, urinary / fecal incontinence

Training:

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

Assessment: Part of overall assessment

XVI. RESEARCH

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.

Training: A prospective study towards thesis

XVII. 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 signaling
6. Host-environment interactions
7. Understanding basics of techniques - PCR, Genetic screening, Recombinant technology /Micro-array, flowcytometry.
8. Gastrointestinal hormones and neurotransmitters

Training Process:

1. Lectures by external/internal faculty
2. Seminars
3. Conferences
4. Textbook/monograph- self reading

XVIII.MISCELLANEOUS

- 1) Gastrointestinal and hepatic complication of solid organ and hemopoietic cell transplantation.
- 2) Gastrointestinal and hepatic manifestation of systemic disease.
- 3) Vascular lesions of gastrointestinal tract

Miscellaneous Training:

Candidates are expected to attend regularly the following meetings:

- Annual conference and midterm conferences of ISG, INASL, SGEI.
- Annual, Midterm and monthly meetings of ISG Tamilnadu chapter.
- Guest Lecture Meetings by national and international visiting faculties.
- CME's, CPC's and other lecture programs organized by Gastro Enterology Department in other institutions and make clinical presentations at City Gastro Meet.

POSTINGS FOR 3 YEAR COURSE:

First Year:

Medical gastroenterology: 7 months

Paediatric Medical gastroenterology: 1 month

Gastro Radiology: 15 days

Gastro Pathology: 15 days

Intensive Medical Care: 15 days

Surgical Medical gastroenterology: 15 days

Endoscopy: 2month

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

Second Year:

Medical gastroenterology: 7months

Paediatric Medical gastroenterology: 1 month

Endoscopy: 3months

Research Labs: 15 days

Post Liver Transplant Care: 15 days

Third Year:

Medical gastroenterology: 6 months

Endoscopy: 5 months

Posting in Centre doing more advanced GE work: 1 month

ASSESSMENT STRATEGY

1. Elements to be evaluated:

- a) Knowledge of gastrointestinal and hepatic physiology, pathophysiology and clinical pharmacology in each area of specialty
- b) Clinical competence – ability to make a differential diagnosis from a good history and physical examination; formulate an investigation and management plan taking into consideration cost effectiveness and risk benefit.
 - ability to present results of a consultations (oral / written)
- c) Procedural skills
- d) Research work

2. Methods of evaluation:

- a) Observation during rounds, procedures, presentation at journal club, seminars and bedside clinics.
- b) Formal evaluation by all faculty members who supervise trainees with feedback to trainees.
- c) Formal periodic Inservice examination (Internal Assessment) – to test knowledge base, clinical competence and procedural skills as well as interpretation of endoscopic, radiological and pathological findings. A written theory paper of three hours duration can be conducted once in a fortnight or a month.
- d) Theory examination at completion of course – to test knowledge of Basic Sciences, Clinical Medical gastroenterology and recent advances.
- e) Clinical examination at completion of course to test competency at parent and other centres.
- f) Evaluation of thesis and log book.

SUGGESTED READING:

Books

- 1. Sleisenger Z. Gastrointestinal & Liver Disease (2 Vol) – Saunders
- 2. Sleisenger Z. Gastrointestinal & Liver Disease (2 Vol) – Saunders

3. Yamada. Textbook of Medical 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.

Journals

- GUT
- Medical gastroenterology
- Digestive Diseases & Sciences
- J Medical gastroenterology & Hepatology Hepatology
- NEJM
- Int. J Medical gastroenterology
- Am. J. Medical gastroenterology
- J. Paed. Gastro & Nutrition
- Pancreas
- Tropical Medical gastroenterology
- Seminars in Liver Disease
- Indian journal of Medical gastroenterology
- Digestive endoscopy
- North American clinics in Medical gastroenterology, Liver and Endoscopy.

THEORY - TITLE OF FOUR QUESTION PAPERS

- | | | |
|------------------|---|---|
| Paper I | – | Basic Sciences as applied to Gastro Enterology |
| Paper II | – | General Medical gastroenterology including Paediatric and Preventive Gastro Enterology. |
| Paper III | – | Hepato Biliary, Pancreatic Diseases. |

Paper IV – Recent advances in the Gastro Enterology.

PRACTICAL SCHEME FOR D.M. MEDICAL GASTROENTEROLOGY

SL.NO.	PARTICULARS	MARKS
01	Long Case - 1 (1 x 100)	100
02	Short Case - 2 (2 x 50)	100
03	Ward Rounds	100
04	Viva Voce	100
	Total	400

Distribution of marks for Clinical examination is approved by the Academic Council in its XXIII Meeting held on 10.05.2016