

Faculty of Medicine



**JSS Academy of Higher Education & Research**

(Deemed to be University)

Accredited "A" Grade by NAAC

Sri Shivarathreshwara Nagar, Mysuru – 570 015

# Regulation & Syllabus

DM MEDICAL GASTROENTEROLOGY

2016

**DM Gastro**

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**REGULATION AND SYLLABUS FOR  
SUPER SPECIALITY DEGREE PROGRAMS 2016**

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**DM MEDICAL GASTROENTEROLOGY**

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## CHAPTER I

### Regulations for Super Speciality Degree in Medical Sciences

#### 1. Branch of Study

Super Speciality Degree courses may be pursued in the following subjects:

##### a. DM (Doctor of Medicine)

- i. Neurology
- ii. Medical Gastroenterology
- iii. Nephrology

##### b. MCh (Master of Chirurgie)

- i. Urology

#### 2. Eligibility for Admission

**Super Specialty Degree courses:** A candidate should have passed recognized degree of M.D. or M.S. (or its equivalent recognized degree) in the subject shown against them in a medical college recognized by the Medical Council of India, or from a recognized medical college affiliated to any other Deemed to be University recognized as equivalent thereto and has obtained permanent registration of any State Medical Council shall be eligible for admission.

Sl. No.	Name of the Degree	Eligibility for admission
1	DM Neurology	MD (Medicine) or MD Paediatrics)
2	DM Medical Gastroenterology	MD (Medicine) or MD Paediatrics)
3	DM Nephrology	MD (Medicine) or MD Paediatrics)
4	MCh Urology	MS (Surgery)

#### 3. Obtaining Eligibility Certificate by the Deemed to be University before making admission

No candidate shall be admitted for any Super Speciality courses unless the candidate has obtained and produced the eligibility certificate issued by the Deemed to be University. The candidate has to make an application to the Deemed to be University with the following documents along with the prescribed fee:

- a. UG and PG pass/degree certificate issued by the Deemed to be University.
- b. Mark cards of all the Deemed to be University examinations passed before PG course.
- c. Attempt certificate issued by the Principal.
- d. Certificate regarding the recognition of the medical college by the Medical Council of India
- e. Completion of internship certificate.

- f. In case internship was done in a non- teaching hospital, a certificate from the Medical Council of India that the hospital has been recognized for internship.
- g. Registration by any state Medical Council.
- h. Proof of ST/SC or Category I, as the case may be.

Candidates should obtain the eligibility certificate before the last date for admission as notified by the Deemed to be University.

A candidate who has been admitted to super speciality course should register his / her name in the Deemed to be University within a month of admission after paying the registration fee.

#### **4. Intake of students**

The intake of students to each course shall be in accordance with the MCI and GOI permissions in this regard.

#### **5. Course of study**

The course of study shall be for a period of 3 years consisting of 6 terms.

#### **6. Method of training**

The training of super specialty degree shall be residency pattern, with graded responsibilities in the management and treatment of patients entrusted to his/her care. The participation of the students in all facets of educational process is essential. Every candidate should take part in seminars, group discussions, grand rounds, case demonstration, clinics, journal review meetings, CPC and clinical meetings. Every candidate should be required to participate in the teaching and training programme of undergraduate students. Training should include involvement in laboratory and experimental work, and research studies. Basic medical sciences students should be posted to allied and relevant clinical departments or institutions. Similarly, clinical subjects' students should be posted to basic medical sciences and allied specialty departments or institutions.

#### **7. Attendance, Progress and Conduct**

- A candidate pursuing super specialty degree course, should work in the concerned department of the institution for the full period as full-time student. No candidate is permitted to run a clinic/laboratory/nursing home while studying postgraduate course, nor can he/she work in a nursing home or other hospitals/clinic/laboratory while studying super specialty course.
- Each year shall be taken as a unit for the purpose of calculating attendance.
- Every student shall attend symposia, seminars, conferences, journal review meetings, grand rounds, CPC, case presentation, clinics and lectures during each year as prescribed by the department and not absent himself / herself from work without valid reasons.
- Every candidate is required to attend a minimum of 80% of the training during each academic year of the post graduate course. Provided, further, leave of any kind shall not be counted as part of academic term without prejudice to minimum 80% attendance of training period every year.
- Any student who fails to complete the course in the manner stated above shall not be permitted to appear for the Deemed to be University Examinations.

## **8. Monitoring Progress of Studies:**

- Work diary / Log Book: Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any, conducted by the candidate. The work diary shall be scrutinised and certified by the Head of the Department and Head of the Institution, and presented in the Deemed to be University practical/clinical examination.
- Periodic tests: In case of degree courses of three years duration (MD/MS, DM, M Ch.), the concerned departments may conduct three tests, two of them be annual tests, one at the end of first year and the other at the end of the second year. The third test may be held three months before the final examination. The tests may include written papers, practical / clinical and viva voce. Records and marks obtained in such tests will be maintained by the Head of the Department and sent to the Deemed to be University, when called for.
- Records: Records and marks obtained in tests will be maintained by the Head of the Department and will be made available to the Deemed to be University or MCI.

## **9. Dissertation**

- Every candidate pursuing super specialty degree course is required to carry out work on a selected research project under the guidance of a recognised post graduate teacher. The results of such a work shall be submitted in the form of a dissertation.
- The dissertation should be written under the following headings
  - a. Introduction
  - b. Aims or Objectives of study
  - c. Review of Literature
  - d. Material and Methods
  - e. Results
  - f. Discussion
  - g. Conclusion
  - h. Summary
  - i. References
  - j. Tables
  - k. Annexure
- The written text of dissertation shall be not less than 50 pages and shall not exceed 150 pages excluding references, tables, questionnaires and other annexure. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") and bound properly. Spiral binding should be avoided. The dissertation shall be certified by the guide, head of the department and head of the Institution.
- Four copies of dissertation thus prepared shall be submitted to the Controller of Examinations, six months before final examination, on or before the dates notified by the Deemed to be University.
- The dissertation shall be valued by examiners appointed by the Deemed to be University. Approval of dissertation work is an essential precondition for

a candidate to appear in the Deemed to be University examination.

- Before submitting the dissertation to the Deemed to be University the candidate should have presented at least one scientific paper based on the dissertation at a national/international conference or Published or submitted for publication with acceptance, at least one scientific paper based on the dissertation in a national/international indexed journal. The candidate should be the first author.
- **Guide:** The academic qualification and teaching experience required for recognition by this Deemed to be University as a guide for dissertation work is as per Medical Council of India, Minimum Qualifications for Teachers in Medical Institutions Regulations, 1998. Teachers in a medical college/institution having a total of eight years teaching experience out of which at least five years teaching experience as Lecturer or Assistant Professor gained after obtaining higher specialty degree shall be recognised as post graduate teachers.
- **Co Guide:** A Co-guide may be included provided the work requires substantial contribution from a sister department or from another medical institution recognised for teaching/training by JSS Deemed to be University / Medical Council of India. The co-guide shall be a recognised post graduate teacher of JSS Deemed to be University.
- **Change of guide:** In the event of a registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the Deemed to be University.

## 10. Schedule of Examination

The examination for DM and MCh courses shall be held at the end of three years.

## 11. Scheme of Examination

### DM/MCh

The examination shall consist of theory, clinical/practical and viva voce examination.

- Theory (Written Examination): The theory examination shall consist of four question papers, each of three hours duration. Each paper shall carry 100 marks. Out of the four papers, the first paper will be on basic medical sciences. Recent advances may be asked in IV Paper.
- Practical / Clinical Examination: In case of practical examination it should be aimed at assessing competence, skills of techniques and procedures as well as testing student's ability to make relevant and valid observations, interpretations and experimental work relevant to his / her subject.
- In case of clinical examination it should aim at examining clinical skills and competence of candidates for undertaking independent work as a specialist. Each candidate should examine at least one long case and two short cases.
- The maximum marks for Practical / Clinical shall be 200.
- Viva-Voce: Viva Voce examination shall aim at assessing thoroughly, depth of knowledge, logical reasoning, confidence and oral communication skills. The maximum marks shall be 100. This also includes spotters like instruments, anaesthesia machines, drugs, ECG, X – ray.
- Examiners: There shall be at least four examiners in each subject. Out of them, two shall be external examiners and two shall be internal examiners. The qualification and teaching experience for appointment as an

examiner shall be as laid down by the Medical Council of India.

- Criteria for declaring as pass in Deemed to be University Examination\*: A candidate shall secure not less than 50% marks in each head of passing which shall include (1) Theory (2) Practical including clinical and viva voce examination.
- A candidate securing less than 50% of marks as described above shall be declared to have failed in the examination. Failed candidate may appear in any subsequent examination upon payment of fresh fee to the Registrar (Evaluation).
- Declaration of distinction. A successful candidate passing the Deemed to be University examination in first attempt will be declared to have passed the examination with distinction, if the grand total aggregate marks is 75 percent and above. Distinction will not be awarded for candidates passing the examination in more than one attempt.

## **12. Number of Candidates per day**

The maximum number of candidates for practical / clinical and vi-va-voce examination shall be as under:

**DM /MCh Course:** Maximum of 6 per day.



## **CHAPTER II**

### **GOALS AND GENERAL OBJECTIVES OF SUPER SPECIALTY MEDICAL EDUCATION PROGRAM**

#### **GOAL**

The goal of super specialty medical education shall be to produce competent specialists and/or medical teachers:

1. 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.
2. 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.
3. Who shall be aware of the contemporary advance and developments in the discipline concerned.
4. Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology and
5. Who shall have acquired the basic skills in teaching of the medical and para-medical professionals.

#### **GENERAL OBJECTIVES**

At the end of the super specialty training in the discipline concerned the student shall be able to:

1. 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.
2. Practice the speciality concerned ethically and in step with the principles of primary health care.
3. Demonstrate sufficient understanding of the basic sciences relevant to the concerned speciality.
4. 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.
5. Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
6. Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.
7. Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
8. Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
9. Play the assigned role in the implementation of national health programme, effectively and responsibly.
10. Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
11. Develop skills as a self-directed learner, recognize continuing education

- needs; select and use appropriate learning resources.
12. Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.
  13. Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
  14. Function as an effective leader of a health team engaged in health care, research or training.

**STATEMENT OF THE COMPETENCIES:** Keeping in view the general objectives of postgraduate training, each discipline shall aim at development of specific competencies which shall be defined and spelt out in clear terms. Each department shall produce a statement and bring it to the notice of the trainees in the beginning of the programme so that he or she can direct the efforts towards the attainment of these competencies.

**COMPONENTS OF THE SUPER SPECIALTY CURRICULUM:**

The major components of the super specialty curriculum shall be:

- Theoretical knowledge
- Practical and clinical skills
- Thesis skills.
- Attitudes including communication skills.
- Training in research methodology.

## Chapter III

### Syllabus DM Medical Gastroenterology

#### I. GOALS:

- The aims of the programme are to train a physician in Gastroenterology so that he/she can be a consultant in the subject, can teach the subject and be a research scientist.
- The candidate should acquaint himself/herself with the past and current literature on aspects of basic investigative and clinical gastroenterology, acquire skills for diagnostic and therapeutic procedures and interventions.
- To acquaint himself/herself with relevant education delivery systems and with the preventive aspect of Gastrointestinal diseases.
- To establish the required training methods, evaluation methodology, and qualifying norms for the successful completion of the DM course in Gastroenterology.
- To train in the scientific aspects of the specialty of Gastroenterology.

#### II. OBJECTIVES:

The following objectives are laid out to achieve the goals of the course. These objectives are to be achieved by the time the candidate completes the course. The objectives may be considered under the subheadings

1. Knowledge
2. Skills
3. Human values, ethical practice and communication abilities.

##### 1. Knowledge:

- The candidate shall be proficient in all the fields of Gastroenterology including basic sciences, pathology, clinical gastroenterology, pediatric, geriatric gastroenterology, diagnostic, therapeutic endoscopies and recent advances in Gastroenterology
- To provide the candidate with the current, scientific and evidence based knowledge pertaining to the abovementioned areas in Gastroenterology.
- To inculcate in the candidate an attitude of responsibility, accountability and caring, to empower the candidate with a good and sound foundation of ethical values in the practice of Gastroenterology and to develop in the candidate the ability to effectively communicate with patients, peers, superiors, and the community in the discharge of his / her clinical and research role.

##### 2. Skills:

The candidate admitted to the DM Gastroenterology course shall master the following skills

- Clinical evaluation and management of diverse gastroenterological disorders.

- Be proficient in the management of common gastroenterological emergencies.
- Able to perform procedures like diagnostic and therapeutic endoscopies, liver biopsy, gastrointestinal motility tests, hepato-biliary USG, percutaneous drainage of liver abscess.
- Able to interpret diagnostic investigations of microbiological, radiological, immunological, pathological modalities.

### **3. Human values, ethical practice and communication abilities:**

- Adopt ethical principles in all aspects of his/her practice; professional honesty and integrity are to be fostered. Care is to be delivered irrespective of the social status, caste, creed or religion of the patient.
- Develop communication skills, in particular the skill to explain various options available in management and to obtain a true informed consent from the patient.
- Provide leadership and get the best out of his / her team in a congenial working atmosphere.
- Apply high moral and ethical standard while carrying out human or animal research.
- Be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues when needed.
- Respect patient's rights and privileges including patient's right to information and right to seek a second opinion.

### **III. COURSE CONTENTS AND SYLLABUS:**

At DM level of training, insistence of a syllabus may not be appropriate. Trainees should acquire an overall knowledge in Gastroenterology by reading standard textbooks, monographs and peer reviewed journals dealing with Gastroenterology, Hepatology, Pancreatology and related Basic Sciences and Epidemiology. A core syllabus does not purport to be either comprehensive or restrictive. Furthermore, it is likely to change from time to time.

#### **1. Theoretical Gastroenterology:**

- a. Basic Sciences
  - i. Immune system of the gastrointestinal tract (GIT) and its importance in various GI disorders.
  - ii. Molecular biology in relation to GIT.
  - iii. Genetic disorders in relation GIT and Liver.
  - iv. Gene and Stem cell therapy.
  - v. GI tumors and tumor biology.
  - vi. GI hormones in relation to health and diseases.
  - vii. Embryology of gut, liver, pancreas and congenital anomalies.
  
- b. Esophagus
  - i. Basic anatomy, histology and physiology
  - ii. Motility of the esophagus and motor disorders
  - iii. Mechanism of deglutition and dysphagia

- iv. Approach to a patient with dysphagia
- v. Gastro-esophageal reflux disease
- vi. Tumors of esophagus
- vii. Esophageal web, membranes and diverticulum
- viii. Management of benign and malignant esophageal strictures
- ix. Esophagus and systemic diseases
- x. Infectious diseases of esophagus
- xi. Foreign bodies in esophagus and stomach
- xii. Esophageal perforation
- xiii. Drug induced esophagitis

**c. Stomach**

- i. Anatomy, histology and functions
- ii. Physiology of acid and bicarbonate secretion in health and diseases
- iii. Defence mechanisms against acid and pepsin
- iv. Gastro-duodenal motor function in health and diseases
- v. Gastritis (specific and Nonspecific)
- vi. Helicobacter Pylori infection
- vii. Peptic Ulcer
- viii. Dyspepsia
- ix. Stress and Stomach
- x. Gastric hyper secretory status including Zollinger Ellison syndrome
- xi. Ulcer complications and their management
- xii. Surgery for Peptic ulcer disease
- xiii. Post gastrectomy complications
- xiv. Bezoars
- xv. Tumors of stomach
- xvi. Diverticula and hernia of stomach

**d. Small Intestine**

- i. Anatomy, histology and blood supply
- ii. Motility of the small intestine
- iii. Congenital anomalies
- iv. Normal absorption of Nutrients
- v. Intestinal electrolyte absorption and secretion
- vi. Malabsorption syndromes
- vii. Celiac disease
- viii. Infection related disease
  - 1. Intestinal micro flora in health and diseases
  - 2. Tropical sprue
  - 3. Infectious diarrhea and food poisoning
  - 4. Parasitic diseases
  - 5. Whipple's disease
- ix. Small intestinal ulcers
- x. Short bowel syndromes and intestinal transplantation
- xi. Eosinophilic Gastroenteritis
- xii. Food allergies
- xiii. Intestinal obstruction and pseudo-obstruction
- xiv. Acute appendicitis
- xv. Malrotation of the gut
- xvi. Bezoars
- xvii. GI lymphomas
- xviii. Small intestinal tumors

#### **e. Colon**

- i. Basic anatomy, blood supply, histology and functions
- ii. Motility of the colon and disorders of motility
- iii. Congenital anomalies
- iv. Megacolon
- v. Constipation
- vi. Colonic pseudo-obstruction
- vii. Fecal incontinence
- viii. Antibiotic associated diarrhea
- ix. Inflammatory bowel disease
  1. Ulcerative colitis
  2. Crohn's disease
  3. Indeterminate colitis
  4. Ileostomies and its management
- x. Diverticular diseases of the colon
- xi. Radiation entero-colitis
- xii. Colonic polyps and polyposis syndrome
- xiii. Malignant diseases of the colon
- xiv. Other diseases of the colon including
  1. Solitary rectal ulcer syndrome
  2. Diversion colitis
  3. Collagenous and microscopic colitis
  4. Nonspecific ulcerations of the colon
  5. Melakoplakia
  6. Pneumatoses cystoids intestinalis
- xv. Hemorrhoids
- xvi. Diseases of ano-rectum

#### **f. Pancreas**

- i. Anatomy, physiology, blood supply and developmental anomalies
- ii. Physiology of the pancreatic secretion
- iii. Pancreatic function tests
- iv. Acute Pancreatitis
- v. Recurrent acute pancreatitis
- vi. Chronic pancreatitis
- vii. Malignancies of the pancreas (Exocrine and endocrine)
- viii. Cystic fibrosis and other childhood disorders of the pancreas
- ix. Hereditary pancreatitis
- x. Pancreatic transplantation

#### **g. Biliary tree**

- i. Anatomy and Physiology
- ii. Physiology of bile formation and excretion
- iii. Entero-hepatic circulation
- iv. Bilirubin metabolism
- v. Approach to a patient with jaundice
- vi. Gallstones, its complications and management
- vii. Acute acalculous cholecystitis
- viii. Miscellaneous disorders of gall bladder
- ix. Acute Cholangitis
- x. Benign biliary stricture
- xi. Benign and malignant neoplasm of the biliary system

- xii. Endoscopic management of biliary obstruction
- xiii. Motility and dysmotility of the biliary system and sphincter of Oddi dysfunction
- xiv. Congenital diseases of the biliary system

#### **h. Liver**

- i. Anatomy, Physiology and blood supply
- i. Functions of the Liver
- ii. Microcirculation of liver
- iii. Liver function tests
- iv. Portal hypertension
  - 1. Extra hepatic portal vein obstruction
  - 2. Non cirrhotic portal fibrosis
  - 3. Cirrhosis
- v. Acute Viral hepatitis
- vi. Chronic hepatitis
- vii. Fulminant hepatic failure
- viii. Sub-acute hepatic failure
- ix. Cirrhosis of liver
- x. Ascites
- xi. Hepato-renal syndrome
- xii. Autoimmune liver diseases
- xiii. Metabolic liver disease
- xiv. Sclerosing Cholangitis- Primary and Secondary
- xv. Primary biliary cirrhosis
- xvi. Hepatic venous outflow tract obstruction
- xvii. Fibrocystic diseases of the liver
  - xviii. Wilson's disease
  - xix. Hemochromatosis
- xx. Liver in Porphyria
- xxi. Hepatic tumors
- xxii. Infections of the liver
- xxiii. Liver in pregnancy
- xxiv. Liver in congestive heart failure
- xxv. Liver biopsy
- xxvi. Liver transplantation and artificial liver support

#### **i. Peritoneum and Retroperitoneum**

- i. Ascites including malignant ascites
- ii. Diseases of the retroperitoneum

#### **j. Nutrition**

- i. Normal nutritional requirements
- ii. Assessment of nutritional status
- iii. Protein energy malnutrition
- iv. Manifestations and management of nutritional deficiency and excess including bariatric surgery
- v. Nutritional support in various in various GI disorders (malabsorption, acute and chronic pancreatitis, inflammatory bowel disease)

#### **k. Vascular diseases of the GI Tract**

- i. Mesenteric vein thrombosis
- ii. Mesenteric artery thrombosis

- iii. Vascular ectasia of GIT, Dieulafoy's lesion
- iv. Superior Mesenteric Artery syndrome, abdominal aortic aneurysm

## **2. Applied And Procedural Gastroenterology:**

- a. **GI Radiology** - Reading and interpreting the common X-ray films including
  - i. X-ray films of the abdomen
  - ii. Barium studies, ultrasound examination
  - iii. CT, MRI scans, Angiography and ERCP films
- b. **GI Pathology** - Reading and interpreting histological slides of common gastrointestinal and liver diseases.
- c. **Endoscopic training** - Endoscopic training is an integral part of training in super specialty of gastroenterology. A trainee is supposed to have knowledge of instruments and its application.
  - i. Endoscopes and accessories
  - ii. Sterilization of endoscopes and accessories
  - iii. Electrosurgical instruments
  - iv. Routine diagnostic and therapeutic endoscopies
  - v. ERCP
  - vi. Capsule endoscopy
  - vii. EUS
- d. **Percutaneous liver biopsy/Transjugular liver biopsy**
- e. **Interventional GI radiology procedures**
- f. **Gastrointestinal Motility Studies**
- g. **Hydrogen Breath Tests**
- h. **Gastrointestinal Isotope Imaging/Functional technique**

## **IV. TEACHING AND LEARNING ACTIVITIES:**

### **a. Theoretical Teaching:**

- **Lectures:** Lectures are to be kept to a minimum. Certain selected topics can be taken as lectures. Lectures may be didactic or integrated.
- **Journal Club:** Recommended to be held once in two weeks.
- **Subject Seminar:** Recommended to be held once in two weeks.
- **Case Discussion:** Recommended to be held once a week.
- **Gastro-GI Surgery Discussion:** once in a week
- All the PG students are expected to attend and actively participate in discussion and enter in the Log Book the relevant details. The presentations would be evaluated using check lists and would carry weightage for internal assessment. A timetable with names of the students and the moderator should be announced in advance.
- **Ward Rounds:**
  - Ward rounds may be service or teaching rounds.
    - i. **Service Rounds:** Postgraduate students should do service rounds every day for the care of the patients. Newly admitted patients should be worked up by the post graduate student and presented to the faculty members the following day.



- ii. Teaching Rounds: Every unit should have 'grand rounds' for teaching purpose at the bed side. A diary should be maintained for day-to-day activities by the post-graduate students.

**Clinicopathological Conference:**

- Recommended once in 2 months for all post graduate students. Presentation to be done by rotation. Presentations will be assessed using checklist. If cases are not available due to lack of clinical postmortems, it could be supplemented by published CPCs.

**Inter-Departmental Meetings:**

- Recommended particularly with departments of Pathology, Surgical gastroenterology, and Radio-Diagnosis at least once a month. These meetings should be attended by post-graduate students and relevant entries must be made in the Log Book.

**Mortality Meeting:**

- The mortality meeting should be conducted in the department every month. The post graduate student should prepare the details regarding the cause of death after going through the case records in detail, and should present during the mortality meeting. The death records will be discussed in detail during this meeting.

**Teaching Skills:**

- Post-graduate students must teach under graduate students (e.g. Medical, Nursing) by taking demonstrations, bedside clinics, tutorials, lectures etc. Assessment is made using a checklist by medical faculty as well as by the students. Record of their participation is to be kept in Log Book. Training of postgraduate students in Educational Science and Technology is recommended.

**Continuing Medical Education Programs (CME):**

- Recommended that at least one national level CME programs should be attended by each student during the course.

**Conferences:**

- Attending conference is compulsory. Post-graduate student should attend at least one national and one state level conference during the course.

**Research Activities:**

- The Post-graduate students to be encouraged to carry out research activities in the department.
  - i. The candidate shall publish at least one research paper in a national or international indexed journal during the course period.
  - ii. In addition, the candidate shall present at least one paper in the national or international conference.

**b. Clinical / Practical Training:**

**• Rotational Postings in other Departments:**

- i. GI Radiology
  - ii. GI Pathology
  - iii. GI Surgery
- During the course the student shall undergo the training on par the

standards of the MCI. They are expected to attend routine ward duties (writing case sheets, daily progress notes and discharge summaries) and learn the practical procedures.

- In addition the students are expected to attend emergency call duties to enhance their skills in practical management of acute gastroenterological conditions.
- Following completion of their posting in clinical gastroenterology the students are encouraged to perform the procedures on a ongoing basis, minimum as mentioned below.

<b>Procedures</b>	<b>No.</b>
Upper GI Endoscopy	250
Side view Endoscopy	10
Endoscopic Variceal Ligation	25
Endoscopic sclerotherapy	5
Sigmoidoscopy	50
Full length Colonoscopy	50
Endoscopic stricture dilatation	5
Endoscopic Polypectomy	5
Endoscopic Retrograde Cholangio- Pancreatography (may only assist)	25

- Any short coming in the student's progress shall be subject to the rules of the Deemed to be University as may be decided by the relevant authorities.

#### **V. Other Criteria to Fulfill for the Degree Course:**

##### **a. Internal evaluation:**

- During the course of three years, the department will conduct three tests. Two of them will be annual, one at the end of first year and other at the end of second year. The third test will be a preliminary examination which may be held three months before the final examination. The test may include the written papers, practical's / clinical examination and viva-voce.
- Records and marks obtained in such tests will be maintained by the head of the department and will be sent to the Deemed to be University when called for.
- Results of all evaluations should be entered into PG's diary and departmental file for documentation purposes. Main purpose of periodic examination and accountability is to ensure clinical expertise of students with practical and communication skills and balance broader concept of diagnostic and therapeutic challenges.

##### **b. Maintenance of Log Book:**

- Every candidate shall maintain a Log book/work diary and record his/her participation in the training programs conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any, conducted by the candidate.

- All the procedures performed by the post graduate students should be entered in the Log book. All the daily activities including the ward rounds and the routine procedures performed on day to day basis should be entered in the Log book and it should be verified and signed by the faculty member.
- The Log book shall be scrutinized and certified by the Head of the Department and Head of the Institution, and presented in the Deemed to be University practical/clinical examination.

## VI. SCHEME OF EXAMINATION:

Candidates will be allowed to appear for examination only if attendance (minimum 80%) and internal assessment are satisfactory and research / publication work is satisfactory.

### a. Theory : 400 Marks

The theory examination shall consist of four question papers, each of three hours duration. Each paper shall carry maximum of 100 marks and the total maximum marks would be 400. The format for the theory paper shall be as follows:

Type of Questions	No. of Questions	Marks for each question	Total Marks
Long essay	02	20	40
Short essay	06	10	60
Grand Total			100

- Paper Division:
  - Paper 1 - Basic sciences as applicable to Gastroenterology
  - Paper 2 - Clinical Gastroenterology including Pathology, Pathophysiology, Pharmacotherapeutics
  - Paper 3 - Clinical Gastroenterology
  - Paper 4 - Recent advances in Gastroenterology

**Note:** The distribution of topics shown against the papers is suggestive only and may overlap or change.

### Clinical Examination: 200 Marks

Types of Cases	No. of Cases	Marks	Duration
Long Case	1	80	1 Hour
Short Case	2	80 (40x2)	30 mins each
Ward Rounds	1	40	30 mins
<b>TOTAL</b>	<b>4</b>	<b>200</b>	

- Viva- Voce Examination including specimen, radiology and GI endoscopy data : 100 Marks**

- **Aims:** To elicit candidate's knowledge and investigative/ therapeutic skills.

**c. Maximum Marks:**

<b>Theory</b>	<b>Clinical Examination</b>	<b>Viva including spotters</b>	<b>Grand Total</b>
<b>400</b>	<b>200</b>	<b>100</b>	<b>700</b>

**d. Passing criterion:**

- To pass the examination the candidate must secure at least 50% of marks in each head of theory and practicals separately.

**RECOMMENDED BOOKS:**

**e. Essential Books:**

- Sleisenger and Fordtran's Gastrointestinal and Liver Diseases
- Schiff's Diseases of the Liver
- Textbooks of Gastroenterology, by Yamada
- Hepatology: A text book of Liver diseases by Zakim and Boyer
- Practical Gastrointestinal Endoscopy: The Fundamentals by Peter Cotton
- Pediatric Gastrointestinal Diseases, by Walker, B.C.Docker
- Principles and Practice of Gastrointestinal Oncology by Kelsen
- Surgery of liver and biliary tract by Blumgart
- Liver diseases in children by Suchy
- Gastrointestinal Cancer by A.K.Rustgi

**f. Journals:**

- Gastroenterology
- Hepatology
- American Journal of Gastroenterology
- Endoscopy
- GI Endoscopy
- Journal of Hepatology
- Indian Journal of Gastroenterology
- Journal of Gastroenterology and Hepatology
- GUT
- New England Journal of Medicine
- Lancet
- North American clinics in Gastroenterology, Liver and Endoscopy
- BMJ



## **JSS Academy of Higher Education & Research**

(Deemed to be University)

Accredited "A" Grade by NAAC

Sri Shivarathreshwara Nagar, Mysuru – 570 015