

**MEENAKSHI ACADEMY OF HIGHER EDUCATION AND RESEARCH (MEENAKSHI  
UNIVERSITY), CHENNAI**

**(Declared as Deemed to be University Under sec 3 of the UGC Act 1956)**



**REGULATIONS 2011  
FOR  
POSTGRADUATE SUPERSPECIALITY  
DEGREE COURSES  
D.M. CARDIOLOGY**



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**MEENAKSHI ACADEMY OF HIGHER EDUCATION AND RESEARCH**

**MASTER OF DISEASE (DM)– CARDIOLOGY**

**REGULATIONS -2011**

**I.VISION AND MISSION OF MAHER**

**VISION**

To be a world-class institution, transforming society through value-based diverse programs and healthcare advancements, leading to the all-around development of human resources, knowledge, innovation, entrepreneurship, and research.

**MISSION**

To become an institute of eminence by developing world-class professionals in the field of healthcare, science, liberal arts, technology and research with a focus on the societal good.

To create an enabling state-of-the-art infrastructure, intellectual capital and provide best-in class learning experience with a freedom to innovate and invent.

To foster values and ethics so as to develop students and learners into responsible citizens of the Nation and the world.

**MEENAKSHI ACADEMY OF HIGHER EDUCATION AND RESEARCH**

**MASTER OF DISEASE (DM)– CARDIOLOGY**

**REGULATIONS -2011**

**II.VISION AND MISSION OF MMCHRI**

**VISION**

To provide global leadership in human development, excellence in education and quality health care.

**MISSION**

To train competent, compassionate and caring physicians through excellence in teaching, patient care and medical research



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**III. VISION AND MISSION – DEPARTMENT OF CARDIOLOGY**

**VISION**

To provide state of the art health care to this part of India, where many people are below poverty line. To educate public on common cardiac disorders.

**MISSION**

To impart excellent education in the field of Cardiology.

To promote research in cardiovascular diseases and various treatment modalities.

**MEENAKSHI ACADEMY OF HIGHER EDUCATION AND RESEARCH**  
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**IV. PROGRAM EDUCATIONAL OBJECTIVES (PEO's)**

**PEO 1 Acquisition of knowledge:** The student will be able to explain clearly concepts and principles of Cardiology. The student will also be able to explain the disease involvement and management protocols at each stage. She/he will be able to observe and assist in clinical OPD procedures.



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**PEO 2 Teaching and training:** The student will be able to effectively teach postgraduate students in medicine so that they become competent healthcare professionals and able to contribute to training of postgraduate trainees.

**PEO 3 Research:** The student will be able to carry out a research project (both basic and clinical) from planning to publication and be able to pursue academic interests and continue life-long learning to become more experienced in all the above areas and eventually be able to guide postgraduates in their thesis work.

**PEO 4 Critical thinking skill:** The student will be able to evaluate and manage the difficult situational cases and become competent in early management of such cases. They will be able to co-ordinate with super-speciality consultants and follow protocols based on the cases

## V. PROGRAM OUTCOMES (PO's)

**PO 1:** A Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion

**PO 2:** A Leader and member of the health care team and system

**PO 3:** A Communicator with patients, families, colleagues and community

**PO 4:** A Lifelong learner committed to continuous improvement of skills and knowledge

**PO 5:** A Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession

## VI. Program Specific Outcomes

**PSO 1 Technical skill:** The student will be able to assist and perform day-care, minor, major and emergency (Diagnostic & therapeutic) individually under the supervision of senior faculty.

**PSO 2 Professional skill:** Recognize conditions that may be outside the area of his specialty/competence and refer them to the proper specialist



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**MEENAKSHI ACADEMY OF HIGHER EDUCATION & RESEARCH**

**(Deemed to be University), Chennai**

**REGULATIONS OF POSTGRADUATE SUPER SPECIALITY DEGREE COURSE**

**DM CARDIOLOGY - 2011**

**DEPARTMENT OF CARDIOLOGY**

In the exercise of power conferred by Board of Management, (Meenakshi Academy of Higher Education and Research (Meenakshi University), Chennai form the regulations for the P.G. Super Specialty courses as follows.

**1. Short Title & Commencement**

**THE REGULATIONS SHALL BE CALLED AS THE “REGULATIONS FOR D.M/M.CH” POST GRADUATE SUPER SPECIALITY DEGREE COURSES OF MEENAKSHI ACADEMY OF HIGHER EDUCATION & RESEARCH also known by abbreviation MAHER**

The regulations will come into force from the academic year (2011-2012). The regulations and syllabi are formed under the above Regulations and are subject to modification by the Academic Council of the University from time to time

**2. AIMS & OBJECTIVES**

At the end of the course the student should have acquired

1. Broad understanding of Principles of Basic Medical Sciences related to his/her specialty.
2. Ability and skill to perform and interpret, investigative procedures related to their specialty.
3. Skills in clinical diagnosis, planning of investigations and manage common conditions in their specialties by relevant current therapeutic measures.
4. To be competent to make independent decisions in emergencies and to perform procedures to manage the emergencies.
5. Competence in the management of intensive care of their specialty including the working knowledge of all the gadgets; instruments and equipment handled in the critical care wing of their specialty.
6. Ability to critically review published literatures, interpret data and update latest developments.



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7. Ability to make the best use of latest information technology in academic endeavors.
8. Competence to train undergraduate and postgraduate medical students as well the nursing and paramedical students with regard to their specialty.
9. Ability in decision making for medical interference\_& inter departmental references.
10. Ability to conduct research.
11. Ability to organize and start the specialty in the future.

### **3. Branch of Study**

**D.M.**

Branch III - Cardiology

### **4. ELIGIBILITY FOR ADMISSION**

M.C.I. recognized post graduate degree in Medicine; Paediatrics and Geriatrics from M.C.I. recognized Medical Colleges and D.N.B. (Medicine/Paediatrics)\*

\*With regard to the eligibility of D.N.B. candidates; the M.C.I. guidelines as and when issued only will be followed.

**The candidates who seek admission to the Super Speciality Courses in MAHER; if they are graduated in P.G. from any colleges other than constituent college of MAHER (at present Meenakshi Medical College and Research Institute, Enathur) they should obtain ELIGIBILITY CERTIFICATE from MAHER before seeking admission. Every candidate admitted to the course should register with the University within six months of admission.**

The upper age limit for admission is 50 years. Last day of September is taken as cutoff date for calculating the upper age limit since that happens to be last cutoff date for the wait listed candidates as per the MCI norms.


### **5. (a) DURATION OF THE COURSE**

The admission shall commence on the 1<sup>st</sup> Day of August. Last date for admission for the wait listed candidates is 30<sup>th</sup> September.

The duration of the course is 3(Three) completed years including the examinations at the end of third year in the month of August.

The academic year shall commence on the 1<sup>st</sup> day of August. Each academic year is divided into two academic terms of six months each August 1<sup>st</sup> to January 31<sup>st</sup> one term, February 1<sup>st</sup> to July 31<sup>st</sup> the other term, the entire period of training is spread over six academic terms each term

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consisting of six months. Each candidate shall complete 3 academic years spread over six academic terms. No waiver shall be given for the duration of the courses for any sort of previous experience or any other Diploma or Degree or any Fellowship or any Honors.

#### **5. (b) POSTINGS AND TRAINING MODALITIES**

The candidates shall be trained in their specialty as per the syllabus prescribed under each specialty. The H.O.D. shall divide the programme suiting the norms and practical application. The students at the discretion of the H.O.D. of the Department; may be sent to the other centers of excellence connected with their specialty by drafting the academic schedule with the permission of the Dean. Training in Medical audit, Health Economics, Health Information System, Basics of Statistics, Exposure to Human Behavior Studies, Pharmaco-economics and introduction to Linear Mathematics should be imparted to the students preferably in the first academic term with the Hospital Administration (experts). (vide M.C.I. regulation amended up to December 2010-Rule 13-7)

Every Specialty postgraduate student should be motivated to present short papers in national conferences; at least one paper a year. They should also publish at least one article in reputed journals during their 3 years period of training. These activities should be documented in their logbooks. H.O.D. should pay due weightage while assessing their logbooks for award of marks at the time of Internal assessment.

#### **6.(a) COMMENCEMENT OF EXAMINATION**

The Examination shall be conducted at the end of third academic year. There will be four papers for every speciality out of which Paper-I will be on Basic Medical Sciences and Paper-4 will be on Recent Advances. (Both the papers related to their speciality. Reset of the two Papers will be with regard to their Subjects)(need clarity).

#### **(b) GENERAL GUIDELINES FOR THE CONDUCT OF THE EXAMINATION**

##### **Theory Examination**

Basic Examination pattern shall consist of four written papers in Theory as per the above guidelines. Maximum mark for each paper will be 100. It is suggested to have two sections Section A and B in each paper. Each section may contain the questions as follows.

##### **Section A**

Essay                      1 x 20 =20  
Short Notes                3 x 10 = 30

##### **Section B**

Essay                      1 x 20 =20  
Short Notes                3 x 10 = 30  
Total                        100 x 4 Papers = 400marks

(Separate minimum of 200/400 should be secured in all papers put together for a pass).

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## 6 (c) Attendance Requirements and other related subjects to the Examination.

- ❖ The candidate should produce 90% attendance in total for the entire period of training. No condonation of attendance shall be entertained.
- ❖ Total number of appearances are 5(Five)  
If the candidate does not pass the Examination in 3 (Three) attempts; he shall do refresher course for a period of six months in the same institution under the unit chief. The Dean of the Institution in consultation with the HOD shall give the posting in the beginning of academic term either in August or in February. At the end of the refresher course the candidate should obtain a certificate of satisfactory completion of the training from the concerned HOD and submit the same through the Dean to the Controller of Examinations to become eligible for subsequent two attempts of the Examinations.
- ❖ Question Papers including Basic Medical Sciences shall be set by External Examiners belonging to the same Specialty.
- ❖ The answer papers shall be corrected by two sets of examiners and the average shall be calculated for each paper. The Controller of Examination with guidance of the Vice Chancellor shall decide the intricacies of setting of question papers and valuation of answer papers especially when the mark is more than 10 for the same paper between the two examiners correcting the same paper.
- ❖ There won't be revaluation of papers after declaration of results but re-totalling may be permitted at the request of the aggrieved candidate.

## 7. Break of study

Any candidate who is absent for a continuous period of 30days or less may be readmitted to the course by the Dean if he is satisfied that the period of absence is due to justifiable reasons.

If the period of absence is more than 30 days but less than 3 years the candidate shall apply to the Registrar, MAHER through the Dean with recommendation from the Unit Chief and HOD. His absence may be condoned after levying a fee for condonation provided the request is justifiable. Vice Chancellor's decision is final with regard to condonation.

## D.M. CARDIOLOGY

### 1.Goals

The goal of DM course is to produce a competent cardiologist who: Recognizes the health needs of patients and carries out professional obligations in keeping the principles of National Health policy and professional ethics Has acquired the competencies pertaining to neurology that are required to be practiced in the community and at all levels of health care system Has acquired



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skills in effectively communicating with the patients, family and the community Is aware of the contemporary advances and developments in medical sciences Acquires a spirit of scientific enquiry and is oriented to principles of research methodology Has acquired skills in educating medical and paramedical professionals

## 2. Objectives

At the end of the DM course in Cardiology, the student should be able to:

Recognize the key importance of medical problems in the context in the health priority of the country;

Practice the specialty of cardiology in keeping with the principles of professional ethics.

Identify social, economic, environmental, biological and emotional determinants of adult cardiovascular diseases and know the therapeutic, rehabilitative, preventive and promotion measures to provide holistic care to all patients.

Take detailed history, perform full physical examination and make a clinical diagnosis.

Perform and interpret relevant investigations (Imaging and Laboratory).

Perform and interpret important diagnostic procedures.

Diagnose cardiovascular illnesses based on the analysis of history, physical examination and investigative work up;

Plan and deliver comprehensive treatment for illness using principles of rational drug therapy.  
Plan and advice measures for the prevention of cardiovascular diseases.

Plan rehabilitation of adults suffering from chronic illness, and those with special needs;

Manage cardiological emergencies efficiently;


Demonstrate skills in documentation of case details, and of morbidity and mortality data relevant to the assigned situation;

Demonstrate empathy and humane approach towards patients and their families and respect their sensibilities;

Demonstrate communication skills of a high order in explaining management and prognosis, providing counseling and giving health education messages to patients, families and communities.

Develop skills as a self- directed learner, recognize continuing educational needs;

Use appropriate learning resources, and critically analyze published literature in order to practice evidence-based medicine;

  
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Demonstrate competence in basic concepts of research methodology and epidemiology; Facilitate learning on MD residents, medical/nursing students, practicing physicians, paramedical health workers and other providers as a teacher- trainer;

Play an assigned role in the implementation of national health programs, effectively and responsibly;

Organize and supervise the desired managerial and leadership skills;

Function as a productive member of a team engaged in health care, research and education.

## **8. Syllabus**

### **Theory**

The syllabus should include the cardinal manifestations, definition, epidemiology, etiopathogenesis, genetics, clinical presentation, complications, differential diagnosis, investigations, treatment and prevention and prognosis of all cardio-vascular diseases.

In addition the candidate should be well versed with all the common and important pediatric cardiological diseases. It should also cover the recent advances that have occurred in the field of cardiology.

#### **❖ Fundamentals of Cardiovascular Disease**

Global Burden of Cardiovascular Disease, Heart Disease in Varied Populations, Economics and Cardiovascular Disease, Clinical Decision-Making in Cardiology, Measurement and Improvement of Quality of Cardiovascular Care, The Principles of Drug Therapy.

#### **❖ Molecular Biology and Genetics**

Molecular Biology, Genomics and Proteomics in Cardiovascular Disease, Genetics and Cardiovascular Disease, Genetics of Cardiac Arrhythmias, Genetics of Myocardial Disease.

#### **❖ Evaluation of the Patient**

The History and Physical Examination: An Evidence-Based Approach, Electrocardiography, Exercise Stress Testing, Echocardiography, Genetics of Myocardial Disease, Genetics of Myocardial Disease, The Chest Radiograph in Cardiovascular Disease, Nuclear Cardiology, Cardiovascular Magnetic Resonance, Computed Tomography of the Heart, Cardiac Catheterization, Coronary Angiography and Intravascular Ultrasound Imaging.

#### **❖ Heart Failure**

Mechanisms of Cardiac Contraction and Relaxation, Pathophysiology of Heart Failure, Clinical assessment, Acute Heart Failure, Systolic Heart Failure, Heart Failure w/Preserved Systolic Fx, Surgical management of Heart Failure, Assisted Circulation in the treatment of Heart Failure, Emerging therapies for Heart Failure, Care of Patients with End-Stage Heart Disease.

#### **❖ Arrhythmias, Sudden Death, and Syncope**



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Genesis of Cardiac Arrhythmias: Electrophysiological Considerations, Diagnosis of Cardiac Arrhythmias, Therapy for Cardiac Arrhythmias, Cardiac Pacemakers and Cardioverter-Defibrillators, Specific Arrhythmias: Diagnosis and Treatment, Cardiac Arrest and Sudden Cardiac Death, Hypotension and Syncope.

❖ **Preventive Cardiology**

The Vascular Biology of Atherosclerosis, Risk Factors for Atherothrombotic Disease, Systemic Hypertension: Mechanisms and Diagnosis, Systemic Hypertension: Therapy, Lipoprotein Disorders and Cardiovascular Disease, The Metabolic Syndrome, Diabetes Mellitus, and Atherosclerotic Vascular Disease, Nutrition and Cardiovascular Disease, Primary and Secondary Prevention of Coronary Heart Disease, Comprehensive Rehabilitation of Patients with Cardiovascular Disease, Complementary and Alternative Approaches to Management.

❖ **Atherosclerotic Cardiovascular Disease**

Coronary Blood Flow and Myocardial Ischemia, Approach to the Patient with Chest Pain, ST-Elevation Myocardial Infarction: Pathology, Pathophysiology, and Clinical Features, ST-Elevation Myocardial Infarction: Management, Primary Percutaneous Coronary Intervention in the Management of Acute Myocardial Infarction, Unstable Angina and Non-ST Elevation Myocardial Infarction, Chronic Coronary Artery Disease, Percutaneous Coronary and Valvular Intervention, Diseases of the Aorta Peripheral Arterial Diseases, Prevention and Management of Stroke, Endovascular Treatment of Noncoronary Obstructive Vascular Disease, Diabetes and Heart Disease.

❖ **Diseases of the Heart, Pericardium, and Pulmonary Vasculature Bed**

Congenital Heart Disease, Valvular Heart Disease, Infective Endocarditis, The Dilated, Infiltrative and Restrictive Cardiomyopathies, Hypertrophic Cardiomyopathies, Myocarditis, Cardiovascular Abnormalities in HIV-Infected Individuals, Toxins and the Heart, Primary Tumors of the Heart, Pericardial Diseases, Traumatic Heart Disease, Pulmonary Embolism, Pulmonary Hypertension, Sleep Disorders and Cardiovascular Disease.

❖ **Cardiovascular Disease in Special Populations**

Cardiovascular Disease in the Elderly, Cardiovascular Disease in Women, Pregnancy and Cardiovascular Disease, Sports Cardiology, Medical Management of the Patient Undergoing Cardiac Surgery, Anesthesia and Noncardiac Surgery in Patients with Heart Disease.

❖ **Cardiovascular Disease and Disorders of Other Organs**

Endocrine Disorders and Cardiovascular Disease, Hemostasis, Thrombosis, Fibrinolysis, and Cardiovascular Disease, Rheumatic Fever, Rheumatic Diseases and the Cardiovascular System, The Patient with Cardiovascular Disease and Cancer, Psychiatric Behavioral Aspects of Cardiovascular Disease, Neurological Disorders and Cardiovascular Disease, Interface Between Renal Disease and Cardiovascular Illness, Cardiovascular Manifestations of Autonomic Disorders.

**Practical:**



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**History, examination and writing of records:**

- History taking should include the background information, presenting complaints and the history of present illness, history of previous illness, family history, social and occupational history and treatment history.
- Detailed physical examination should include general physical and CVS examination
- Skills in writing up notes, maintaining problem-oriented medical records (POMR), progress notes, and presentation of cases during ward rounds, planning investigation and making a treatment plan should be taught.
- The resident should fortify the skills of hemodynamic monitoring in emergency situations and should learn procedures like arterial line insertion, temporary venous pacing, central line insertion, pericardiocentesis, intra aortic balloon pump insertion, swan ganz catheter insertion etc.
- The resident should assist and perform procedures like coronary angiography, percutaneous coronary angioplasty, balloon valvuloplasty, cardiac catheterization of congenital heart disease patients, temporary pacemaker, permanent pacemaker, Electrophysiological diagnosis and management of arrhythmias, AICD, Bi-ventricular pacemaker, IABP insertion etc.
- Ability to perform echo-cardiograms of adults, adolescents and infants under direct supervision. He should observe transesophageal echo's and should also master the skills of performing and interpreting stress tests and holter monitoring.

**Clinical Teaching**

General physical and CVS examination should be mastered. The resident should be able to analyse the history and correlate it with clinical findings with the assistance of basic investigations like ECG, X-Ray etc. Besides, during the bed side rounds he/she should learn to improvise on management skills, haemodynamic monitoring, fluid balance and identification of cardiac emergencies like tamponade, arrhythmias etc.

**BRANCH – D.M. CARDIOLOGY**  
**PATTERN OF EXAMINATION**

Theory – 4 paper, 100 marks each Duration: Three hours each

Paper I (1431): Basic Science applied to the Speciality 100

Paper II (1432): Clinical Cardiology 100

Paper III (1433): Hemodynamics Therapeutics and Intervention 100

Paper IV (1434) :Recent Advances in the specialty 100

**DISTRIBUTION OF MARKS: \*\*\***

Two Essay 20 Marks each (20 x 2) 40 Marks

Six Short 10 Marks each (10 x 6) 60 Marks

Total 100 Marks



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### Practical & Viva-Voce Examinations

Sr. No.	Description	Marks
1.	Long case (1)	100
2.	Short cases (Including one case of congenital heart disease) (2)75 marks each	150
3.	Procedures (The candidate will be expected to perform echocardiography during the examination)	50
4.	Viva-Voce	100
	<b>Total</b>	<b>400</b>

### MARKS QUALIFYING FOR A PASS:

	Maximum Marks	Marks Qualifying for a Pass (50%)
Theory	400	200
Practical/Clinical/Oral	400	200
	-----	-----
Aggregate	800	400
	-----	-----

The Viva and Clinical Examination may be conducted on the same day.

### Suggested Books & Journals

#### Books

- ✓ Braunwald's Heart Disease
- ✓ Hurst's The Heart
- ✓ Grossman's Cardiac Catheterization, Angiography, and Intervention
- ✓ Stress Testing: Principles and Practice by Myrvin H. Ellestad
- ✓ Drugs for the Heart by Lionel H. Opie
- ✓ The Cardiac Catheterization Handbook by Morton L. Kern
- ✓ Hemodynamic Rounds by Morton J. Ker
- ✓ Moss and Adams' Heart Disease in Infants, Children, and Adolescents
- ✓ Pediatric Cardiology for Practitioners (4th Edition) by Myung K. Park
- ✓ Feigenbaum's Echocardiography
- ✓ Shamroth's An Introduction to Electrocardiography
- ✓ Valvular Heart Disease by Alpert & Dalen
- ✓ Sutton Atlas of transesophageal echocardiography
- ✓ Perloff Congenital Heart Disease
- ✓ Schamroth Introduction of Electrocardiography
- ✓ Marriott Practical Electrocardiography



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- ✓ Perloff Physical Examination of Heart & Circulation
- ✓ Topol Textbook of Interventional Cardiology
- ✓ Kern Cardiac Catheterization Handbook
- ✓ Hampton Electrocardiography
- ✓ Foster Washington Manual of Medical Therapeutics
- ✓ Otto Valvular Heart Disease

### Journals

- Indian Heart Journal
- New England Journal of Medicine
- The Lancet
- Journal of American College of Cardiology
- Circulation
- Heart
- American Heart Journal
- American Journal of Hypertension
- American Journal of Cardiology
- Journal of Interventional Cardiology
- American Journal of Cardiovascular Drugs
- Annals of Noninvasive Electrocardiology
- Annals of Pediatric Cardiology
- Archive of Cardiovascular Diseases
- BMC Cardiovascular Disorders
- Canadian Journal of Cardiology
- European Heart Journal
- European Heart Journal Cardiovascular Pharmacotherapy
- European Heart Journal Cardiovascular Imaging
- European Journal of Heart Failure
- International Journal of Cardiology
- Journal of American College of Cardiology
  - JACC Cardiovascular Intervention
  - JACC Basic to Translational Science
  - JACC Cardiovascular Imaging
  - JACC Clinical Electrophysiology
  - JACC Heart Failure
- Journal of American Society of Hypertension
- Journal of Clinical Hypertension
- Journal of Heart Valve Disease



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## COURSE OUTCOMES

CO.1	Practice efficiently internal medicine specialty, backed by scientific knowledge including basic sciences and skills
CO.2	Diagnose and manage majority of conditions in his specialty (clinically and with the help of relevant investigations)
CO.3	Exercise empathy and a caring attitude and maintain professional integrity, honesty and high ethical standards
CO.4	Plan and deliver comprehensive treatment using the principles of rational drug therapy
CO.5	Plan and advise measures for the prevention and rehabilitation of patients belonging to his specialty;
CO.6	Manage emergencies efficiently by providing Basic Life Support (BLS) and Advanced Life Support (ALS) in emergency situations
CO.7	Recognize conditions that may be outside the area of the specialty/competence and refer them to an appropriate specialist
CO.8	Demonstrate skills in documentation of case details including epidemiological data
CO.9	Play the assigned role in the implementation of National Health Programs
CO.10	Demonstrate competence in basic concepts of research methodology and clinical epidemiology; and preventive aspects of various disease states




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CO.11	Be a motivated 'teacher' - defined as one keen to share knowledge and skills with a colleague or a junior or any learner
CO.12	Continue to evince keen interest in continuing education irrespective of whether he/she is in a teaching institution or is practicing and use appropriate learning resources
CO.13	Be well versed with his medico-legal responsibilities
CO.14	Undertake audit, use information technology tools and carry out research - both basic and clinical, with the aim of publishing the work and presenting the work at scientific forums.

#### COURSE OUTCOME – PROGRAMME OUTCOME MAPPING

CO/PO	PO.1	PO.2	PO.3	PO.4	PO.5	PSO 1	PSO 2
CO.1	3	3	3	3	2	2	3
CO.2	3	3	3	1	2	1	3
CO.3	2	2	3	2	3	3	1
CO.4	3	2	3	2	3	3	3
CO.5	2	3	2	3	3	3	2
CO.6	3	2	3	3	3	3	2
CO.7	3	3	2	2	2	2	2
CO.8	3	2	2	3	3	3	3
CO.9	3	2	1	3	2	2	3

  
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CO.10	3	3	3	1	2	2	3
CO.11	2	3	2	3	3	1	2
CO.12	2	3	1	2	2	3	2
CO.13	3	2	3	3	3	3	3
CO.14	2	3	3	3	2	3	3
<b>Average</b>	<b>2.6</b>	<b>2.6</b>	<b>2.4</b>	<b>2.4</b>	<b>2.5</b>	<b>2.42</b>	<b>2.5</b>



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