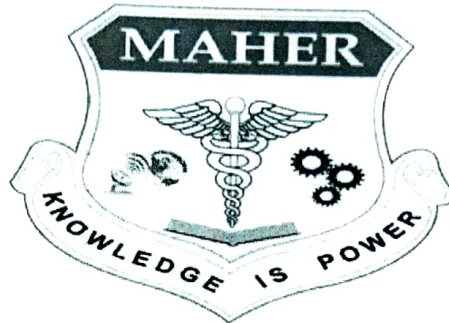


MEENAKSHI ACADEMY OF HIGHER EDUCATION AND RESEARCH
(Deemed To Be University U/S 3 OF UGC ACT, 1956)

12, Vembuliamman Koil Street, West K.K. Nagar, Chennai – 600 078

MEENAKSHI MEDICAL COLLEGE HOSPITAL AND RESEARCH INSTITUTE,
ENATHUR, KANCHIPURAM



DOCTOR OF MEDICINE (MD GENERAL MEDICINE)
FACULTY OF MEDICINE
REGULATIONS AND SYLLABUS (REGULATIONS – 2019)
Effective from the Academic Year 2020-2021

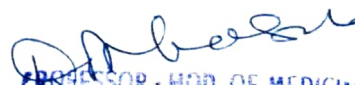


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SL. NO	TABLE OF CONTENTS	PG. NO
I	Vision and Mission of Meenakshi Academy of Higher Education and Research	4
II	Vision and Mission of Meenakshi Medical College and Hospital and Research Institute	5
III	Vision and Mission of Department of General Medicine	5
IV	Program educational objectives (PEO's)	6
V	Program and Course Outcomes	7
VI	Program Specific Outcomes	8
VII	Regulation of the 2019	9-19
	1. Short Title	9
	2. Commencement	9
	3. Title of the Program	9
	4. Syllabus	9 - 14
	5. Eligibility for Admission	14
	6. Criteria for Selection	14
	7. Admission procedure	15
	8. Eligibility Certificate	15
	9. Registration	15
	10. Duration of the Program	15
	11. Fees	15
	12. Commencement of the Program	15
	13. Academic terms	16
	14. Cut off Dates For Admission to Examination	16
	15. Working Days in an Academic Year	16
	16. Attendance Required for Admission to Examinations	16
	17. Submission of Log book/ Project Work	16
	18. Condonation of attendance	17
	19. Commencement of the Examinations	17
	20. Evaluation	17
	21. Revaluation of the Answer scripts	17
	22. No of appearances in examination of failed candidates	17
	23. Re-admission after Break of Study	17
	24. Migration/Transfer of candidates	18
	25. Pattern of Examination and Subjects of Study	18
	26. Minimum passing standards	19
	27. Classification of Successful Candidates	19




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 RESEARCH INSTITUTE
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	28. Award of Degree	19
VIII	Program level CO/ PO and PSO matrix	20
IX	Program and Course Details	21 - 27
	Program specific competencies	21
	General Medicine	-
	Course 1-Applied basic Sciences	27 - 28
	Course 2- Medicine including Psychiatry	28 - 33
	Course 3- Tropical Medicine	33 - 34
	Course 4- Medicine including recent advances & Paediatrics	34
X	Training Programme	35
XI	Exam pattern	36
XII	Recommended list of books and journals	37-38
XIII	References	38

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MEENAKSHI ACADEMY OF HIGHER EDUCATION AND RESEARCH

MD GENERAL MEDICINE

REGULATIONS -2019

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.



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II. VISION AND MISSION OF MEENAKSHI MEDICAL COLLEGE HOSPITAL & RESEARCH INSTITUTE

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


III. VISION MISSION OF GENERAL MEDICINE MMCHRI

VISION:

To create front runner medical postgraduates in the field of medicine, with innovative ideas in health care and research.

MISSION:

To train our medical postgraduate as a competent, humanitarian and caring member of health provider society through Excellent, Modern teaching, Patient care and Research.



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IV. PROGRAM EDUCATIONAL OBJECTIVES (PEO's)

- PEO 1** To able to diagnose, perform tests, interpret and correlate routine medical conditions in OPD and emergencies.
- PEO 2** Should be able to teach General Medicine to undergraduates, postgraduates, nurses and paramedical staff including laboratory personnel.
- PEO 3** Carry out research, systematically write a paper and publish in a journal. Able to present a paper in a conference through an oral presentation and poster presentation.
- PEO 4** Should be able to function as a part of a team, provide leadership and inspire members of the team
- PEO 5** Always adopt ethical principles and develop communication skills & follow evidence based medicine



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V. PROGRAM AND COURSE OUTCOMES:

PROGRAM OUTCOMES

- PO1:** Ability to apply critical thinking in identification of diseases
- PO2:** Effective communication and developing rapport with the patients.
- PO3:** Social interaction and developing acceptance among the patients
- PO4:** The ability to formulate cost-effective and patient-friendly treatment plans
- PO5:** Ethics of medical practice towards patient and colleagues is learnt
- PO6:** Competency to order judicious investigations for the patients
- PO7:** Attitude to sustain self-directed & lifelong learning
- PO8:** Ability to identify social, economic, environmental, biological determinants of an adult and institute diagnostic, therapeutic, rehabilitative, preventive and primitive measures to provide holistic care.

COURSE OUTCOMES

The students during the training program will be able to acquire the following competences

CO 1: They acquire the art of practicing internal medicine specialty backed by scientific knowledge including basic sciences and skills.

CO 2: Students acquire the art of exercising empathy, and caring attitude in maintaining Professional Integrity, honesty, and high ethical standards.

CO 3: They acquire the knowledge and the understanding of principles of good clinical practice.

CO 4: Acquire the talent of managing emergencies efficiently by providing basic life support like Advanced Life Support.

CO 5: Students tend to diagnose and manage majority of conditions with the help of relevant investigations.

CO 6: They plan and advice measures for prevention and rehabilitation of patients.

CO 7: Be well versed with medico legal cases.


CO 8: Clinical assessment skills, Eliciting a detailed clinical history, perform a thorough physical examination of all the systems is acquired by them.

Also developed Procedural skills like test dosing, ECG recording, Lumbar puncture, Pleural tapping, Pericardiocentesis, intubation, liver biopsy, bone marrow aspiration & biopsy etc., is acquired by them.

CO 9: They are also trained to interpret clinical data, formulating Differential diagnosis in order of priority, planning investigations work keeping in mind the cost effective approach like. Blood, urine, CSF and Fluid Investigations-Biochemical investigations, Chest X ray, ECG, Tread mill test, ABG analysis, etc..

CO 10: Students are trained in such an order to get themselves updated with latest information available via Journal presentation, which is held periodically.




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VI. PROGRAM SPECIFIC OUTCOME:

PSO1: **Competency** to collect detailed history, perform full physical examination and make proper clinical diagnosis, perform relevant investigative and therapeutic procedures for the care of the patients interpret important imaging and laboratory results.

PSO2: **Competency** to diagnose illness based on the analysis of history, physical examination and confirm on further investigative work up. Plan and deliver comprehensive treatment using the principles of rational drug therapy.

PSO3: **Competency** to manage emergencies efficiently by providing BLS and ALS in emergency situations.



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VII. REGULATION OF THE 2019

In exercise of the powers conferred by the Board of Management, Meenakshi academy of higher education and research, deemed to be University, Kanchipuram hereby makes the following regulations:

1. SHORT TITLE

These Regulations shall be called “THE REGULATIONS FOR THE MASTER OF MEDICINE (M.D General Medicine) DEGREE COURSE OF MEENAKSHI ACADEMY OF HIGHER EDUCATION AND RESEARCH” deemed to be University.

2. COMMENCEMENT

They shall come into force from the academic year 2019-20 onwards.

The Regulations and the Syllabus are subject to modification by the Academic council and board of studies from time to time.

3. TITLE OF THE PROGRAM

It shall be called Master of Medicine (M.D. General Medicine)

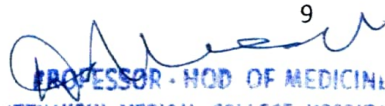
4. SYLLABUS

COURSE CONTENTS: BASIC SCIENCES

1. Basics of human anatomy as relevant to clinical practice
 - surface anatomy of various viscera
 - neuro-anatomy
 - important structures/organs location in different anatomical locations in the body
 - common congenital anomalies
2. Basic functioning of various organ-system, control of vital functions, patho-physiological alteration in diseased states, interpretation of symptoms and signs in relation to patho-physiology.
3. Common pathological changes in various organs associated with diseases and their correlation with clinical signs; understanding various pathogenic processes and possible therapeutic interventions possible at various levels to reverse or arrest the progress of diseases.
4. Knowledge about various microorganisms, their special characteristics important for their pathogenetic potential or of diagnostic help; important organisms associated with tropical diseases, their growth pattern/life-cycles, levels of therapeutic interventions possible in preventing and/or eradicating the organisms.
5. Knowledge about pharmacokinetics and pharmaco-dynamics of the drugs used for the management of common problems in a normal person and in patients with diseases



9


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kidneys/liver etc. which may need alteration in metabolism/excretion of the drugs; rational use of available drugs.

6. Knowledge about various poisons with specific reference to different geographical and clinical settings, diagnosis and management.
7. Research Methodology and Studies, epidemiology and basic Biostatistics.
8. National Health Programmes
9. Biochemical basis of various diseases including fluid and electrolyte disorders; Acid base disorders etc.
10. Recent advances in relevant basic science subjects.

Systemic Medicine

11. Preventive and environmental issues, including principles of preventive health care, immunization and occupational, environmental medicine and bio-terrorism.
12. Aging and Geriatric Medicine:
 - Biology
 - epidemiology
 - neuro-psychiatric aspects of aging
13. Clinical Pharmacology:
 - principles of drug therapy
 - biology of addiction
 - complementary and alternative medicine
14. Genetics:
 - overview of the paradigm contribution to health and disease
 - principles of Human Genetics
 - single gene and chromosomal disorders
 - gene therapy
15. Immunology:
 - innate and adaptive immune systems
 - mechanisms of immune mediated cell injury
 - transplantation immunology
16. Cardio-vascular diseases:
 - Approach to the patient with possible cardio-vascular diseases



- Heartfailure
- Arrhythmias
- Hypertension
- Coronary arterydisease
- Valvular heartdisease
- Infectiveendocarditis
- diseases of the myocardium andpericardium
- diseases of the aorta and peripheral vascularsystem

17. Respiratorysystem:

- approach to the patient with respiratorydisease
- disorders ofventilation
- asthma
- Congenital Obstructive Pulmonary Disease(COPD)
- Pneumonia
- Pulmonaryembolism
- Cysticfibrosis
- obstructive sleep apnoea syndrome and diseases of the chest wall, pleura and mediastinum

18. Nephrology:

- approach to the patient with renaldiseases
- acid-basedisorders
- acute kidneyinjury
- chronic kidneydisease
- tubulo -interstitialdiseases
- nephrolithiasis
- Diabetes and thekidney
- obstructive uropathy and treatment of irreversible renalfailure

19. Gastro-intestinaldiseases:

- approach to the patient with gastrointestinaldiseases
- gastrointestinalendoscopy



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11

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- motility disorders
 - diseases of the esophagus
 - acid peptic disease
 - functional gastrointestinal disorders
 - diarrhea
 - irritable bowel syndrome
 - pancreatitis and diseases of the rectum and anus
20. Diseases of the liver and gallbladder:
- approach to the patient with liver disease
 - acute viral hepatitis
 - chronic hepatitis
 - alcoholic and non-alcoholic steatohepatitis
 - cirrhosis and its sequelae
 - hepatic failure and liver transplantation
 - diseases of the gall bladder and bile ducts
21. Haematologic diseases:
- Haematopoiesis
 - Anaemias
 - leucopenia and leucocytosis
 - myelo-proliferative disorders
 - disorders of haemostasis and haemopoietic stem cell transplantation
22. Oncology:
- Epidemiology
 - biology and genetics of cancer
 - paraneoplastic syndromes and endocrine manifestations of tumours
 - leukemias and lymphomas
 - cancers of various organ systems and cancer chemotherapy
23. Metabolic diseases - inborn errors of metabolism and disorders of metabolism.
24. Nutritional diseases - nutritional assessment, enteral and parenteral nutrition, obesity and eating disorders.
25. Endocrine - principles of endocrinology, diseases of various endocrine organs including



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diabetemellitus.

26. Rheumatic diseases:


- approach to the patient with rheumaticdiseases
- osteoarthritis
- rheumatoidarthritis
- spondyloarthropathies
- systemic lupus erythematosus(SLE)
- polymyalgia
- rheumatic fibromyalgia andamyloidosis

27. Infectiousdiseases:

- Basic consideration in InfectiousDiseases
- Clinical syndromes
- Community acquired clinical syndromes
- Nosocomialinfections
- Bacterial diseases - General consideration, diseases caused by gram - positive bacteria, diseases caused by gram – negativebacteria
 - miscellaneous bacterialinfections
 - Mycobacterialdiseases
 - Spirochetaldiseases
 - Rickettsia
 - Mycoplasma andChlamydia
 - Viraldiseases
 - DNAviruses
 - DNA and RNA respiratoryviruses
 - RNAviruses
- fungal infections, protozoal and helminthic infections .

28. Neurology - approach to the patient with neurologic disease, headache, seizure disorders and epilepsy, coma, disorders of sleep, cerebrovascular diseases, Parkinson's disease and other movement disorders, motor neuron disease, meningitis and encephalitis, peripheral neuropathies, muscle diseases, diseases of neuromuscular transmission and autonomic disorders and theirmanagement.



13

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29. The mental condition characterized by complete self-absorption with reduced ability to communicate with the outside world (Autism), abnormal functioning in social interaction with or without repetitive behavior and/or poor communication etc.

30. Dermatology:

- Structure and functions of skin
- infections of skin
- papulo-squamous and inflammatory skin rashes
- photo-dermatology
- erythroderma
- cutaneous manifestations of systemic diseases
- bullous diseases
- drug induced rashes
- disorders of hair and nails
- principles of topical therapy

5. ELIGIBILITY FOR ADMISSION

Candidates for admission to the first year of the Post Graduate (M.D) degree clinical courses shall be required to possess the following qualifications:

- He / She having qualified M.B.B.S degree from our University or any other University recognized by the Indian Medical Council.
- The admitting authorities will strictly follow that every candidate admitted to the Post Graduate M.D Degree Clinical courses has obtained permanent registration certificate from any of the State Medical Councils.
- The reservation of seats and relaxation in the qualifying marks for SC/ST/OBC and other categories shall be as per the rules of the Central Government/State Government, whichever is applicable.

6. CRITERIA FOR SELECTION

Students for M.D General Medicine Degree shall be admitted based on performance through NEET (National eligibility and entrance test).



14

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7. ADMISSION PROCEDURE

Admission shall be made as per the Government and University norms.

8. ELIBILITYCERTIFICATE

No candidate shall be admitted to the M.D General Medicine unless the candidate has obtained and produced Eligibility Certificate issued by this University. The candidate has to make an application to the University with the Original and Xerox copies of the following documents along with the prescribed fee:

- 1) 10th and Higher Secondary or equivalent examination mark sheets.
- 2) Transfer Certificate
- 3) Under graduate MBBS degree certificate and marksheets.

Candidate should obtain Eligibility Certificate before the last date for admission as notified by the University.

9. REGISTRATION

A candidate admitted to the M.D General Medicine of this University shall register by remitting the prescribed fees along with the application form for registration duly filled-in and forwarded to this University through the Head of the Institution within the stipulated date.

10. DURATION OF COURSE

- The period of certified study and training for the Post Graduate (M.D) Degree clinical courses shall be three academic years for the award of the degree.
- No exemption shall be given from the period of study and training.


11. FEES

Candidates who have passed the M.B.B.S degree from any other university shall remit a recognition fee as prescribed along with the stipulated registration fees

12. COMMENCEMENT OF THE COURSE:

The academic year for Post Graduate (M.D) Degree clinical courses shall commence from May 1st of the academic year.




15
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13. ACADEMIC TERMS

First year : 1st May 2019 to 30th April 2020
Second year : 1st May 2020 to 30th April 2021
Third year : 1st May 2021 to 30th April 2022

14. CUT OFF DATES:

June 30th of the academic year

July 1st to December 31st of the academic year

January 1st to March 31st of the academic year

15. WORKING DAYS IN AN ACADEMIC YEAR:

Each academic year shall consist of not less than 200 working days.

16. ATTENDANCE REQUIREMENTS FOR ADMISSION TO EXAMINATIONS:

No candidate shall be permitted to appear for the examination unless he/she has put in 80% attendance during his/her period of study and training in the affiliated institution recognized by this university and produces the necessary certificate of study, attendance and progress from the Head of the Institution.

Students of Post Graduate degree courses should undergo training for 9(nine) continuous calendar months in an academic year. The candidate who do not appear for the examinations due to lack of attendance he/she be permitted to appear for the examinations in subsequent examinations if the candidate has satisfied to attendance requirements.

17. SUBMISSION OF LOGBOOK /PROJECTWORK

At the time of practical examination each candidate shall submit to the Examiners his / her log book duly certified by the Head of the Department as a bonafide record of the work done by the candidate.




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The practical record shall be evaluated by the concerned member of the faculty and the external examiner (Internal and external Evaluation) the practical record marks shall be submitted to the University 15 days prior to the commencement of the theory examinations.

In respect of failed candidates the marks awarded for records at previous examination will be carried over to the next examinations. If a candidate desires he / she may be permitted to improve his / her performance by submission of fresh records.

18. CONDONATION OF ATTENDANCE:

There shall be no condonation of attendance in Post Graduate courses.

19. COMMENCEMENT OF THE EXAMINATION:

There shall be two University examinations in an academic year - March 15th / September 15th. If the date of commencement of the examination falls on Saturdays, Sundays or declared public holidays, the examination shall begin on the next working day.

20. EVALUATION

Attendance shall be taken as a component of continuous assessment. The students should have a minimum 80% attendance in each year. In addition to the continuous evaluation component, the end of program examination, which will be a written type examination of at least 3 hours duration, would also form an integral component of the evaluation. The evaluation of practical work will be at end of the program.

21. REVALUATION OF ANSWER PAPERS:

There shall be no revaluation of answer papers in any Post Graduate examinations.


22. NO. OF APPEARANCES IN EXAMINATION OF FAILED CANDIDATES

- a. The failed candidates would be permitted to appear for maximum of 10 attempts within 6 years from the date of completion of the course and shall be discharged from the course if he/she fails to fulfil this provision.
- b. A postgraduate student be given 3 months refresher study after five attempts by posting in the specialty Departments before appearing for examination for the sixth time.

23. READMISSION AFTER BREAK OF STUDY:

Candidates having a break of study of 5 years and above from the date of discontinuance and more than two spells of break will not be considered for re-admission.




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The five years period of break of study shall be calculated from the date of first discontinuance of the candidate to the course for the subsequent spell of break of studies.

If any candidate who discontinued the course, due to various reasons on the break of study of the candidate is for more than 6 months, the candidate should get prior permission from the University for continuing the course if the vacancies remain unfilled.

A candidate having a break of study shall be re admitted after satisfactory fulfilment of the regulations of the University at the commencement of an academic year only and shall undergo the full duration of the course with no exemption in the period of study and will be permitted to appear for the examinations as prescribed in the regulations.

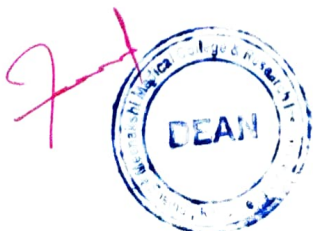
If the candidates name is not recognized in the university within 3 months from date of his/her admission, permission for re admission for such candidate will not be issued from the University.

24. MIGRATION/TRANSFER OF CANDIDATES:

- a. Migration/transfer of candidates from one recognized medical college from another university shall not be granted unless a NO OBJECTION CERTIFICATE is obtained from the Medical Council Of India
- b. The provision of combination of attendance shall be granted to a transferee for admission to the examinations of this university on satisfactory fulfilment of the regulations of this University.

25. PATTERN OF EXAMINATION & SUBJECTS OF STUDY

	Total marks
Theory	400
Paper -1	100
Paper-2	100
Paper-3	100
Paper-4	100
Practicals	200
Viva voice	100
Grand total	700



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18

26. MINIMUM PASSING STANDARD

50% of marks in the University Theory Examination : 150/300

50% of marks in the University Clinical Examination : 100/200

50% of marks in the aggregate of the Theory/clinical/
Oral Examinations : 300/600

Maximum number of candidates to be examined per day: 8


27. CLASSIFICATION OF SUCCESSFUL CANDIDATES

- a) A successful candidate who secures 90% and above of the marks in his / her first appearance in all the subjects within the prescribed period will be declared to have passed in honours.
- b) A successful candidate who secures 75% and above of the marks in his / her first appearance in a subject within the prescribed period will be declared to have passed in first class with Distinction in that particular subject.
- c) A successful candidate who secures 60% and above of the marks in his / her first appearance in all the subjects within the prescribed period will be declared to have passed in the First Class.
- d) All other successful candidates who secures above 50% shall be declared to have passed in Second class.

28. AWARD OF DEGREE

The degree shall be awarded by the university only after the completion of thesis approval and of all four final year theory exams papers and practical examination




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VIII. Program level CO/PO and PSO matrix:

Course outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	1	3	2	3	2	2	3	3	3
CO2	3	2	2	2	3	3	3	3	3	3	1
CO3	2	2	3	3	3	3	1	2	3	2	3
CO4	1	2	3	2	2	2	2	3	3	2	2
CO5	3	3	2	3	2	3	2	2	3	3	2
CO6	2	3	1	3	3	3	1	2	2	2	3
CO7	2	3	2	3	2	2	3	3	2	3	2
CO8	3	3	2	3	2	3	3	3	2	2	3
CO9	3	3	3	3	3	3	3	1	1	3	3
CO10	3	3	3	1	3	3	2	2	3	3	3
Average	2.5	2.7	2.2	2.6	2.5	2.8	2.2	2.3	2.5	2.6	2.5

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IX. PROGRAM AND COURSE DETAILS

PROGRAM SPECIFIC **COMPETENCIES:**

By the end of the course, the student should have acquired knowledge (cognitive domain), professionalism (affective domain) and skills (psychomotor domain) as given below:

1. Cognitive domain

At the end of training of 3 years of MD (General Medicine) programme, the student should have acquired following theoretical knowledge:

Basic Sciences

1. Basics of human anatomy as relevant to clinical practice e.g. surface anatomy of various viscera, neuro-anatomy, important structures/organs location in different anatomical locations in the body; common congenital anomalies.
2. Basic functioning of various organ-system, control of vital functions, patho-physiological alteration in diseased states, interpretation of symptoms and signs in relation to patho-physiology.
3. Common pathological changes in various organs associated with diseases and their correlation with clinical signs; understanding various pathogenic processes and possible therapeutic interventions possible at various levels to reverse or arrest the progress of diseases.
4. Knowledge about various microorganisms, their special characteristics important for their patho-genetic potential or of diagnostic help; important organisms associated with tropical diseases, their growth pattern/life-cycles, levels of therapeutic interventions possible in preventing and/or eradicating the organisms.
5. Knowledge about pharmacokinetics and pharmacy o-dynamics of the drugs used for the management of common problems in a normal person and in patients with diseases kidneys/liver etc. which may need alteration in metabolism/excretion of the drugs; rational use of available drugs.
6. Knowledge about various poisons with specific reference to different geographical and clinical settings, diagnosis and management.
7. Research Methodology and Studies, epidemiology and basic Biostatistics.
8. National Health Programmes.
9. Biochemical basis of various diseases including fluid and electrolyte disorders; Acid base disorders etc.
10. Recent advances in relevant basic science subjects.

Systemic Medicine

1. Preventive and environmental issues, including principles of preventive health care, immunization and occupational, environmental medicine and bio- terrorism.

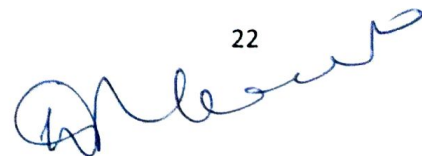


21

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2. Aging and Geriatric Medicine including Biology, epidemiology and neuro- psychiatric aspects of aging.
3. Clinical Pharmacology - principles of drug therapy, biology of addiction and complementary and alternative medicine.
4. Genetics - overview of the paradigm of genetic contribution to health and disease, principles of Human Genetics, single gene and chromosomal disorders and gene therapy.
5. Immunology - The innate and adaptive immune systems, mechanisms of immune mediated cell injury and transplantation immunology.
6. Cardio-vascular diseases - Approach to the patient with possible cardio- vascular diseases, heart failure, arrhythmias, hypertension, coronary artery disease, valvular heart disease, infective endocarditis, diseases of the myocardium and pericardium and diseases of the aorta and peripheral vascular system.
7. Respiratory system - approach to the patient with respiratory disease, disorders of ventilation, asthma, Congenital Obstructive Pulmonary Disease (COPD), Pneumonia, pulmonary embolism, cystic fibrosis, obstructive sleep apnoea syndrome and diseases of the chest wall, pleura and mediastinum.
8. Nephrology - approach to the patient with renal diseases, acid-base disorders, acute kidney injury, chronic kidney disease, tubulo-interstitial diseases, nephrolithiasis, Diabetes and the kidney, obstructive uropathy and treatment of irreversible renal failure.
9. Gastro-intestinal diseases - approach to the patient with gastrointestinal diseases, gastrointestinal endoscopy, motility disorders, diseases of the oesophagus, acid peptic disease, functional gastrointestinal disorders, diarrhea, irritable bowel syndrome, pancreatitis and diseases of the rectum and anus.
10. Diseases of the liver and gall bladder - approach to the patient with liver disease, acute viral hepatitis, chronic hepatitis, alcoholic and non-alcoholic steato-hepatitis, cirrhosis and its sequelae, hepatic failure and liver transplantation and diseases of the gall bladder and bile ducts.
11. Haematologic diseases - haematopoiesis, anaemias, leucopenia and leucocytosis, myelo-proliferative disorders, disorders of haemostasis and haemopoietic stem cell transplantation.
12. Oncology - epidemiology, biology and genetics of cancer, para neoplastic syndromes and endocrine manifestations of tumours, leukemias and lymphomas, cancers of various organ systems and cancer chemotherapy.
13. Metabolic diseases - inborn errors of metabolism and disorders of metabolism.
14. Nutritional diseases - nutritional assessment, enteral and parenteral nutrition, obesity and eating disorders.
15. Endocrine - principles of endocrinology, diseases of various endocrine organs including diabetes mellitus.
16. Rheumatic diseases - approach to the patient with rheumatic diseases, osteoarthritis, rheumatoid arthritis, spondylo arthropathies, systemic lupus erythematosus (SLE),





- polymyalgia, rheumatic fibromyalgia and amyloidosis.
17. Infectious diseases - Basic consideration in Infectious Diseases, clinical syndromes, community acquired clinical syndromes. Nosocomial infections, Bacterial diseases - General consideration, diseases caused by gram - positive bacteria, diseases caused by gram - negative bacteria, miscellaneous bacterial infections, Mycobacterial diseases, Spirochetal diseases, Rickettsia, Mycoplasma and Chlamydia, viral diseases, DNA viruses, DNA and RNA respiratory viruses, RNA viruses, fungal infections, protozoal and helminthic infections
 18. Neurology - approach to the patient with neurologic disease, headache, seizure disorders and epilepsy, coma, disorders of sleep, cerebro vascular diseases, Parkinson's disease and other movement disorders, motor neuron disease, meningitis and encephalitis, peripheral neuropathies, muscle diseases, diseases of neuromuscular transmission and autonomic disorders and their management.
 19. The mental condition characterized by complete self absorption with reduced ability to communicate with the outside world (Autism), abnormal functioning in social interaction with or without repetitive behaviour and/or poor communication etc.
 20. Dermatology - Structure and functions of skin, infections of skin, papulo- squamous and inflammatory skin rashes, photo-dermatology, erythroderma, cutaneous manifestations of systematic diseases, bullous diseases, drug induced rashes, disorders of hair and nails, principles of topical therapy.

2. Affective Domain:

At the end of training of 3 years of MD (General Medicine) programme, the student should have acquired the following attitudinal **competencies:**

1. Should be able function as a part of a team, develop and attitude of cooperation with colleagues, and interact with the patient and the clinician or other colleagues to provide the best possible diagnosis or opinion.
2. Always adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.
3. Develop communication skills to word reports and professional opinion as well as to interact with patients, relatives, peers and paramedical staff, and for effective teaching.

3. Psychomotor domain

A student at the end of training of 3 years of MD (General Medicine) programme must acquire the following practical **skills:**

Clinical Assessment Skills

- Elicit a detailed clinical history
- Perform a thorough physical examination of all the systems

Procedural skills

- Test dose administration
- Mantoux test
- Sampling of fluid for culture



23

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- IV-Infusions
- Intravenous injections
- Intravenous cannulation
- ECG recording
- Pleural tap
- Lumbar puncture
- Cardiac
 - TMT
 - Holter
 - Monitoring
 - Echocardiogram
 - Doppler studies
- Cardio Pulmonary Resuscitation (CPR)
- Central venous line insertion, CVP monitoring
- Blood and blood components matching and transfusions
- Arterial puncture for ABG
- Fine needle aspiration cytology (FNAC) from palpable lumps
- Bone marrow aspiration and biopsy
- Abdominal paracentesis -diagnostic
- Aspiration of liver abscess
- Pericardiocentesis
- Joint fluid aspiration
- Liver biopsy
- Nerve/ muscle/ skin/ kidney/ pleural biopsy
- Ultrasound abdomen, echocardiography
- Upper GI endoscopy, procto-sigmoidoscopy

Respiratory management

- Nebulization
- Inhaler therapy
- Oxygen delivery

Critically ill person

- Monitoring a sick person
- Endotracheal intubation
- CPR
- Using a defibrillator
- Pulse oximetry
- Feeding tube/Ryle's tube, stomach wash and Naso-gastric
- Intubation



- Urinary catheterization – male and female
- Prognostication
- Haemodialysis

Neurology- interpret

- **Nerve Conduction studies**
- **EEG**
- Evoked Potential interpretation
- Certification of Brain death
 - Intercostal tube placement with underwater seal Thoracocentesis
 - Sedation
 - Analgesia

Laboratory-Diagnostic Abilities

- Urine protein, sugar, microscopy
- Peripheral blood smear
- Malaria smear
- Ziehl Nielson smear-sputum, gastric aspirate
- Gram's stain smear-CSF, pus
- Stool pH, occult blood, microscopy
- KOH smear
- Cell count - CSF, pleural, peritoneal, any serous fluid

Observes the procedure

- Subdural, ventricular tap
- Joint Aspiration – Injection
- **Endoscopic Retrograde Cholangio- Pancreatography (ERCP)**
- Peritoneal dialysis

Interpretation Skills

Clinical data (history and examination findings), formulating a differential diagnosis in order of priority, using principles of clinical decision making, plan investigative work-up, keeping in mind the cost-effective approach i.e. problem solving and clinical decision- making.

- Blood, urine, CSF and fluid investigations - hematology, biochemistry
- X-ray chest, abdomen, bone and joints
- ECG
- Treadmill testing
- ABG analysis
- Ultrasonography
- CT scan chest and abdomen
- CT scan head and spine
- MRI



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- Barium studies
- IVP, VUR studies
- Pulmonary function tests
- Immunological investigations
- Echocardiographic studies

Interpretation under supervision

Hemodynamic monitoring

- Nuclear isotopes scanning
- MRI spectroscopy/SPECT
- Ultrasound guided aspiration and biopsies

Communication skills

- While eliciting clinical history and performing physical examination
- Communicating health, and disease
- Communicating about a seriously ill or mentally abnormal
- Communicating death
- Informed consent
- Empathy with patient and family members
- Referral letters, and replies
- Discharge summaries
- Death certificates
- Pre-test counseling for HIV
- Post-test counseling for HIV
- Pedagogy - teaching students, other health functionaries - lectures, bedside clinics, discussions
- Health education - prevention of common medical problems, promoting healthy life-style, immunization, periodic health screening, counseling skills in risk factors for common malignancies, cardiovascular disease, AIDS
- Dietary counseling in health and disease
- Case presentation skills including recording case history/examination, preparing follow-up notes, preparing referral notes, oral presentation of new cases/follow-up cases
- Co-coordinating care - team work (with house staff, nurses, faculty etc.)
- Linking patients with community resources
- Providing referral
- Genetic counseling

Others

- Demonstrating
 - professionalism

7/1



26

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- ethical behavior (humane and professional care to patients)
- Utilization of information technology
 - Medline search, Internet access, computer usage
- Research methodology
 - designing a study
 - interpretation and presentation of scientific data
- Self-directed learning
 - identifying key information sources
 - literature searches
 - information management
- Therapeutic decision-making
 - managing multiple problems simultaneously
 - assessing risks, benefits and costs of treatment options
 - involving patients in decision-making
 - selecting specific drugs within classes
 - Rational use of drugs

COURSE 1 (1201)- APPLIED BASIC SCIENCES

COURSE OUTCOMES:

CO1: Ability to learn various applied basic sciences

CO2 : Application of basic science knowledge in the practice of general medicine.

Course contents :

1. Genetics: Basic principles of genetics, molecular basis of cancer, genetics and genetic engineering, human genome mapping, chromosomal disorders, genetic basis of cancer, genetic and gene therapy.

2. Immunology- basics in immunology, Autoimmune disorders, immune deficiency diseases, hypersensitivity reactions - anaphylaxis, angio -edema, adverse drug reactions, Complement, HLA system. Transplantation immunology.

3. Fluid and electrolyte balance/Acid - base metabolism - The body fluid compartments, metabolism of water and electrolytes, factors maintaining homeostasis, diagnosis and management of acidosis and alkalosis & Electrolyte imbalance

4. Blood transfusion: - Blood grouping, cross matching, component therapy, complication of blood transfusion, blood substitutes,

5. Shock and multi-organ failure: - Types of shock, diagnosis, resuscitation pharmacological support, ARDS, ventilator support and its prevention.



27

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6. Nutrition: -RDA of nutritional substances, nutritional assessment, nutritional recall, metabolic response to stress, malnutrition, PCM, nutritional deficiency states, nutritional response in stress, enteral and parental nutrition, dietary advice in obesity, DM renal, hepatic failure, hyperlipidaemia, IHD.

7. Other applied basic sciences related to Anatomy, Physiology, Bio-chemistry, Pathology, Pharmacology, Microbiology & community medicine.

COURSE 2 (1202)- MEDICINE INCLUDING PSYCHIATRY

COURSE OUTCOMES:

CO1: Ability to diagnose and manage various systemic, endocrine illness & poisons.

CO2: Ability to diagnose and manage various systemic emergencies.

CO3: Management of lifestyle diseases and diseases affecting organ systems.

CO4: Ability to diagnose and manage basic psychiatric illness.

Course contents :

1. GASTROINTESTINAL & HEPATOBILIARY SYSTEM

Diseases of Oesophagus

Peptic ulcer diseases and its management

Upper gastrointestinal bleed

Lower gastrointestinal bleed

Approach to Mal-absorption and mal-digestion

Inflammatory bowel diseases

Irritable bowel syndrome (I.B.S).

Gastrointestinal motility disorders

Chronic Diarrhoea

Disorders of peritoneum

GI function tests

2. CARDIOVASCULAR DISEASES

Rheumatic fever and heart diseases

Congenital heart diseases

Atherosclerosis, coronary artery disease

Primary and secondary hypertension

Cardiac Failure

Cardiac arrhythmias – tachy and brady arrhythmias,

heart blocks

Infective endocarditis

Myocardial and Pericardial diseases

Pregnancy and heart diseases



Diseases of aorta
DVT and pulmonary embolism
Peripheral arterial and venous diseases
Acute and Chronic cor pulmonale
Disease of Lymphatic system
Non-cardiac surgery in cardiac patients- assessment of anaesthesia and surgery
Cardiac drug and drug interaction
Guidelines published by standard cardiology journals.

Apart from pathophysiology, clinical features and management, the importance of primary and secondary prevention must be stressed.

3. RESPIRATORY MEDICINE:

Applied aspects of Respiratory system & Respiratory Physiology.
Mycobacteriology: Diagnostic methods, pathogenesis of Mycobacterial diseases their clinical manifestations. Pulmonary and extrapulmonary as well as disseminated Tuberculosis, its pathogenesis, clinical features, diagnosis and management, National programme on Tuberculosis including DOTS
Non Tuberculosis Respiratory infection:
Community and hospital acquired pneumonias, infections of trachea – bronch tree including cystic, fibrosis, parasitic and fungal diseases of lungs, HIV infections and lungs.
Allergic diseases of respiratory system including bronchial asthma.
Industrial, occupational lung diseases including Interstitial Pulmonary Fibrosis
Suppurative lung diseases
Granulomatous diseases of lung including sarcoidosis.
Pulmonary manifestation of systemic diseases and drug induced lung diseases.
Tropical pulmonary eosinophilia
Diseases of pleura, mediastinum and diaphragm.
Intra-thoracic malignancies including etiology, diagnosis, staging and management of lung cancer.
Sarcoidosis

4. NERVOUS SYSTEM

Applied aspects of anatomy – Brain and spinal cord
Evaluation of CNS diseases
Glasgow coma scale (GCS) and AVPU scale
Clinical approach to:- Coma, head ache, seizure, Dementia, Aphasia, sleep disorders
Brain death
Cerebrovascular diseases
Cranial nerve disorders
CNS infection, Bacterial, Viral, Fungal, Neurotuberculosis, parasitic Prion diseases
Motor system diseases
Tumors of brain and Spinal cord
Extrapyramidal disorders
Cerebellar disorders



29
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Demyelinating diseases
Neuro-degenerative disorders
Autoimmune encephalitis
Peripheral Neuritis, polyneuritis & Guillain Barre Syndrome
Neurologic manifestations of systemic diseases
Cervical spondylosis
Phakomatosis
Disorders of muscle-Dystrophy, Myopathy syndrome

5. RHEUMATOLOGY AND CONNECTIVE TISSUE DISORDERS

Structure of connective tissue- collagen, elastin and proteoglycans
Immunological mechanism and Immunogenicity
Rheumatoid arthritis
SLE
Osteoarthritis
Vasculitis
Seronegative spondyloarthropathy
Crystal arthritis
Inflammatory/metabolic myopathies
Arthropathies associated with Endocrine diseases
Haematologic diseases
malignant diseases
Fibromyalgia syndromes
Lower back pain
Systemic sclerosis
Myositis
Mixed connective tissue disorder (MCTD)

6. ENDOCRINOLOGY & METABOLISM

Principles of Endocrinology: Mechanism of action of hormones and receptors
Assessment of endocrine function

Hypothalamus & Pituitary: Approach to pituitary diseases, diseases of anterior and posterior pituitary tumors, Acromegaly, short stature, prolactinoma, diabetes insipidus, SIADH, Cushing's disease, Panhypopituitarism, Sheehan's syndrome, Nonsecretory adenoma.

Pancreas: Hypoglycemia, Insulinoma,

Diabetes Mellitus: Prevalence, Etiopathogenesis, ADA criteria for diagnosis; ADA classification, Clinical features, investigations, complications- micro & macro -vascular, management-Diet, Exercise, oral hypoglycemics, Insulin therapy in Type 1 and type 2, Gestational diabetes, Diabetic keto-acidosis, HONK, Hypoglycemia

7/1



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Recombinant insulin
Principle of islet transplantation
Diabetes and pediatric age group

Thyroid: Iodine metabolism, Iodine deficiency disorder, Synthesis and secretion of thyroid hormone, hypothyroidism, hyperthyroidism, Cretinism, Sick euthyroid syndrome, thyroiditis, evaluations of nodule, ca. thyroid.

Parathyroid: Primary hyperparathyroidism, hypoparathyroidism, Pseudohypoparathyroidism.

Adrenal: Steroid biochemistry, Addison's disease, Cushing's syndrome, Congenital adrenal hyperplasia, pheochromocytoma, Primary aldosteronism. Gonads: - testes. Men - Hypogonadism - PGAS, Hypogonadotropic (Kallman's Syndrome) Hypergonadotropic (Klinefelter's syndrome), delay of puberty, precocious puberty, infertility.

Ovary: delayed puberty - Turner's syndrome, polycystic ovarian diseases, hirsutism, precocious puberty, approach to amenorrhea, postmenopausal syndrome, current concepts in management.

7. SEXUAL MEDICINE:

Applied aspects of anatomy and physiology of reproductive system - male and female. Human sexual response.

Etiology: Clinical features and management of common sexual problems - male and female.

Effect of psychiatric illness and systemic diseases including commonly used drugs on reproductive system.

Infertility - male & female - etiology, clinical features, investigations and physician's role in management.

8. METABOLIC BONE DISORDER (MBD)

Bone mineral, metabolism, osteoporosis, Osteomalacia & rickets
Carcinoid tumors, hyperlipidemia

9. NEPHROLOGY

Evaluation of patient with renal diseases

Interpretation of laboratory tests

Acute renal failure

Pathogenesis, pathology, clinical features, conservative management, diet in renal failure

Acute glomerulonephritis including idiopathic GN

Nephrotic syndrome

Urinary tract infection

Drugs and kidney

Nephrolithiasis and obstructive disorder

Renal involvement in systemic diseases



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Diabetic nephropathy
Pregnancy and kidney
Basics of renal transplantation
Organ donation
Concept of brain death and cadaveric transplantation
Electrolyte disturbance and its management
Immuno-suppressive drugs
Slow continuous renal replacement therapy

10. HAEMATOLOGY

Haematopoiesis
Anaemias-causes, clinical features and laboratory approach and treatment
Iron deficiency, megaloblastic, haemolytic and aplastic anaemias.
Various thalassemic syndromes, Hb electrophoresis,
Polycythaemias
Problem of iron overload
Auto immune blood disorders
Transfusion medicine
Recognition and management of transfusion disorders
Transfusion in patients with Haematological diseases (Component therapy)
Coagulopathy Hypercoagulable state
Leukaemias and its management
Myelodysplastic syndromes and myeloproliferative disorders
Platelet disorders-Purpuras-Primary and secondary.
Therapeutic plasmapheresis and cytapheresis,
ABVP, CHOP Chemotherapy

11. MEDICAL ONCOLOGY

Basics of oncology
Normal cell, Cancer cell-Cell cycle and its Regulation
Molecular Biology Techniques such as Southern blot, Northern blot, western blot, Karyotyping, FISH,
PCR
Metastatic cascade
Angiogenesis
Basic principles of Chemotherapy-Drug classification, Drug action, side effects
Radiotherapy
Structure of Atom,
Radioactivity and its effect on cell, side effects
Clinical oncology
Hematological cancers
Haematopoiesis
Leukemias and Lymphomas-Classification, Diagnosis, management
Solid tumors-Br. Carcinoma. Hepatomas. MM-Principles of management
Blood component therapy
Bone marrow transplant



Newer Modalities in Therapy and Supportive care
Biologic Response Modifiers
Gene therapy
Stem cell transplant
Newer antibiotics
Nutritional support
Growth factors

12. POISONING:-

OP compound, sedatives, alcohol, corrosives, anti-convulsants, general principles of management and specific management of poisons including snakes bites, scorpion stings.
Toxicology – Heavy metal poisoning, Fluorosis, Lathyrism
Pre anesthetic and postoperative medical problems
Geriatric medicines
Pregnancy medicine
Adolescent medicine

COURSE 3 (1203)- TROPICAL MEDICINE

COURSE OUTCOMES:

CO1: Ability to diagnose and manage common bacterial infections and PUO.

CO2: Ability to diagnose and manage common viral infections.

CO3: Ability to diagnose and manage common parasitic infections.

CO4: Ability to diagnose and manage common fungal infections

Course Contents:

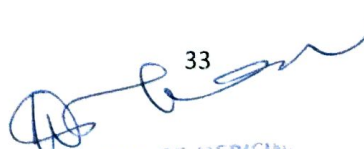
1. INFECTIOUS DISEASES

Basic considerations: Host – parasite interaction, Immunization principles, Lab. Diagnosis of infectious diseases, vaccination (BCG, Typhoid, Tetanus, Hepatitis A & B), Antimicrobial agents, Mol. Mechanism of microbial pathogenesis. Clinical syndromes, (community setting): - Septic shock, Infective endocarditis, PUO, infectious diarrhoea, Bacterial food poisoning, Common STD syndromes, inf. Complications of bites and stings, infections of skin, muscle, and soft tissue, Osteomyelitis, Infra-abdominal infections and abscess, P.I. Nosocomial Infections: Hospital acquired infection, infections in Transplant pts, Infection control in hospital.

Bacterial infections: Pneumococcal, staphylococcal, streptococcal & Enterococcal, Tetanus, Diphtheria, Anthrax, Listeria, Gas gangrene, Botulism, other clostridial infections.

Meningococcal, H. pylori, salmonella, shigella, cholera, legionella, moraxella
Brucella, Pseudomonas, Mixed anaerobic infections, H. influenza, Gonococcal, Pertussis, Plague, Campylobacter, Donovanosis, Actinomycosis.



33

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Anaerobic infections

Mycobacterial diseases: Tuberculosis, Leprosy, Non-tubercular mycobacterium,
Spirochaetal: Syphilis, Leptospirosis, Endemic trepanomatosi.
Rickettsiae: RMSpotted fevers
Mycoplasma: M. pneumonia
Chlamydia: psittacosis

Fungal Infections: Candidiasis, Pcarinii, Aspergillosis, Mucor mycosis
Coccidiomycosis, Cryptococcosis, Histoplasmosis.
Viral Infections: Antiviral chemotherapy

DNA viruses: Herpes simplex, CMV, Chicken pox vaccinia, other poxviruses.
Varicellazoster, parvovirus

Ebstein Barr, HPV
DNA & RNA respiratory viruses: Influenza

RNA viruses: Rabies, ARBO viruses (Dengue, KFD, Japanese encephalitis), Human retrovirus, Enteromumps, Rubella.

HIV & AIDS:- Epidemiology, clinical stages, complications, opportunistic infections (OI), laboratory investigations, HAART, PEP & counseling.
Protozoal and Helminthic infections: - Life history, clinical manifestations, lab diagnosis and therapy, Amoebiasis, Malaria, Giardiasis, Taeniasis, Echinococcosis, Evermicularis, T. trichiura, Ascariasis, Hookworm infections, Filariasis, leishmaniasis, other free living amoeba Toxoplasmosis, Trichinella, Trypanosomiasis, Trichomoniasis, H. nana, D latum, Schistosomiasis, Larva Migrans syndrome.

COURSE 4 (1204) - MEDICINE INCLUDING RECENT ADVANCES & PAEDIATRICS

COURSE OUTCOMES:

CO1: Competency to learn the recent advances in diagnosis & management of various medical diseases/conditions & apply it in practice

CO2: Ability to diagnose & manage basic paediatric diseases including congenital heart diseases

Course contents:

RECENT ADVANCES:

Recent advances in diagnosis & management of various Cardiovascular, Neurological, Respiratory, Gastro-intestinal, Endocrine & Rheumatological disorders

PAEDIATRICS:

Cyanotic congenital heart diseases, acyanotic congenital heart disease



X. TRAINING PROGRAMME

FIRST YEAR :

Haematology	- 15 days
Endocrinology	- 15 days
Paediatrics	- 15 days
Psychiatry	- 15 days
Dermatology	- 15 days
Coronary Care unit	- 15 days
Intensive Medical Care Unit	- 15 days
Thoracic Medicine	- 15 days
Radiology including imaging techniques & Nuclear medicine	- 15 days
Clinical epidemiology	- 15 days
Venereology	- 15 days
Diabetology	- 15 days
Rheumatology	- 15 days
Cancer Chemotherapy	- 15 days
Geriatrics	- 15 days
General Medical wards	- 4 ½ months
Total	<u>: 12 months</u>

SECOND YEAR :

Cardiology	- 1 month
Nephrology	- 1 month
Neurology	- 1 month
Medical Gastroenterology	- 1 month
General Medical Ward	- 8 months
Total	<u>: 12 months</u>

THIRD YEAR :

General Medical Wards - 12 months

Note: The Post-Graduate student should attend the regular out patients departments of their parent medical unit and do the night duties in their parent unit on every admission days. They should make a record of medical emergencies they have attended in their log books.

9A



35
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XI. EXAM PATTERN:

THEORY EXAMINATION:

Theory	Title	Duration in hours	Maximum Marks
Paper I	Basic sciences	3	100
Paper II	Medicine including Psychiatry	3	100
Paper III	Tropical Medicine	3	100
Paper IV	Medicine including Paediatrics & Recent Advances	3	100

CLINICAL EXAMINATION:

	No. of Cases	Duration	Marks
Long case	One	1 Hour	80
Short cases	Three	45 mts.	120
Total			200

Guidelines for Long Case:

Long Case 1 Hour - CNS or multi system Involvement including detailed case sheet writing.

Guidelines for Short Cases:

1. General Examination & CVS - 15 Mts.
2. General Examination & R.S - 15 Mts.
3. General Examination & abdomen - 15 Mts.

No case sheet writing

The Candidate should be examined in each of the systems (viz) C.N.S., C.V.S., R.S. & abdomen.

Oral and Practical:

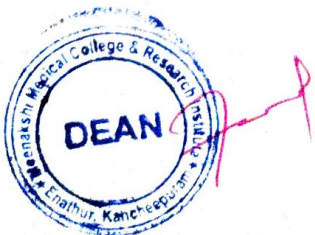
1. Slide
2. Specimen
3. X-Ray
4. C.T. Scans / MRI, Ultra Sound 5X5 marks - 25 Marks
5. Echo Cardiograph

E.C.G.

Orals

75 Marks

Total 100 marks



36
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XII. RECOMMENDED LIST OF BOOKS AND JOURNALS

TEXT BOOKS (Latest Edition)

1. Harrisons Principles of Internal Medicine Volumes No. 1 & 2.
2. Cecil-Text Book of Medicine Volumes 1 & 2.
3. Oxford Text Book of Medicine Volumes 1 & 2.
4. Davidson's Principles & Practice of Medicine.
5. A.P.I. Text Book of Medicine.
6. Text Book of Medicine by Dr. K. V. Krishna Das.
7. Brain's Diseases of the Nervous System-Walton.
8. Crofton and Douglas's respiratory Diseases.
9. Heart Disease A Text Book of Cardio Vascular Medicine - Eugene Braunwald.
10. The Kidney H.E. De Wardener.
11. De Grouchy's Clinical Hematology in Medical Practice.
12. Diseases of Liver and Biliary System Sheila Sherlock.

LIST OF CLINICAL TEXT BOOKS:

1. Hutchison's Clinical Methods - Michael Swash & Stuart Mason.
2. Clinical Examination - John Macleod.
3. Clinical Skills Ian Bouhier & John morris.
4. Physical Diagnosis - Vakil & Golwala.
5. Signs & Symptoms in Medicine - Chamberlain.
6. Neurological Differential Diagnosis by John Pattern.
7. Clinical Neurology De Jong.
8. Neurological Examination Bicker staff.
9. Neurological Examination Mayo Clinic.
10. Bings Local Diagnosis in Neurological disease.
11. Localisation in Cincinal Neurology paul W. Braziz Joseph & C. Masdev.

JOURNALS:

1. Applied Medicine.
2. I.J.C.P
3. J.A.P.I
4. B.M.J (Indian)
5. B.M.J (Original)
6. British Journal of Clinical Practices.
7. The Lancet.
8. Mayo Clinic Proceedings.
9. Post-Graduate Medicine.



10. Annals of Internal Medicine
11. Tropical Medicine
12. Medicine
13. N.E.J.M. (New England Journal of Medicine)
14. Medical Clinics of North America.

XIII. REFERENCES:

1. Principles of Neurology by 1. Raymond Adams 2. Maurice Victor.
2. Text book of Respiratory Medicine Murray & Adel.
3. Crofton & Douglas's Respiratory Diseases.
4. The Heart, Arteries & Veins O.J. Willis Hurtt.
5. Clinical Heart Diseases Samuel Oram.
6. Clinical Cardiology - Maurice Solow.
7. The Kidney - Brenner & Rector
8. Clinical Hematology Maxwell M. Wintrobe.
9. Haematology Williams J. Williams
10. Harrison's text book of Medicine.



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