



**RAMAIAH
UNIVERSITY**
OF APPLIED SCIENCES

M.S. Ramaiah University of Applied Sciences
Programme Structure and Course Details
Of
MD General Medicine 2022 onwards

M.S. Ramaiah University of Applied Sciences
Ramaiah Medical College

Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

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Approved by the Academic Council meeting held on 27th September 2022



**RAMAIAH
UNIVERSITY**
OF APPLIED SCIENCES

M.S. Ramaiah University of Applied Sciences

Programme Specifications

MD General Medicine Programme 2022

onwards

Programme Code: MD135

M.S. Ramaiah University of Applied Sciences

Ramaiah Medical College

Shalini

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University's Vision, Mission, and Objectives

The M. S. Ramaiah University of Applied Sciences (MSRUAS) will focus on student-centric professional education and motivates its staff and students to contribute significantly to the growth of technology, science, economy, and society through their imaginative, creative and innovative pursuits. Hence, the University has articulated the following vision and objectives.

Vision

MSRUAS aspires to be the premier university of choice in Asia for student centric professional education and services with a strong focus on applied research whilst maintaining the highest academic and ethical standards in a creative and innovative environment.

Mission

Our purpose is the creation and dissemination of knowledge. We are committed to creativity, innovation and excellence in our teaching and research. We value integrity, quality, and teamwork in all our endeavors. We inspire critical thinking, personal development, and a passion for lifelong learning. We serve the technical, scientific, and economic needs of our Society.

Objectives

1. To disseminate knowledge and skills through instructions, teaching, training, seminars, workshops and symposia in Engineering and Technology, Art and Design, Management and Commerce, Health, and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences to equip students and scholars to meet the needs of industries, business and society.
2. To generate knowledge through research in Engineering and Technology, Art and Design, Management and Commerce, Health, and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences to meet the challenges that arise in industry, business, and society.
3. To promote health, human well-being and provide holistic healthcare.
4. To provide technical and scientific solutions to real life problems posed by industry, business and society in Engineering and Technology, Art and Design, Management and Commerce, Health, and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences
5. To instill the spirit of entrepreneurship in our youth to help create more career opportunities in the society by incubating and nurturing technology product ideas and supporting technology backed business.
6. To identify and nurture leadership skills in students and help in the development of our future leaders to enrich the society we live in

To develop partnership with universities, industries, businesses, research establishments, NGOs, international organizations, governmental organizations in India and abroad to enrich the experiences of faculties and students through research and developmental program

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Programme Specifications: MD General Medicine

Faculty	Ramaiah Medical College
Department	General Medicine
Programme	MD – General Medicine
Programme Code	MD135
Dean of Faculty	Dr Shalini C Nooyi
Head of the Department	Dr Shaikh Mohammed Aslam S

1. **Title of the Award:** MD in General Medicine
2. **Mode of Study:** Full-Time
3. **Awarding Institution /Body:** M. S. Ramaiah University of Applied Sciences, Bengaluru
4. **Joint Award:** Not Applicable
5. **Teaching Institution:** Ramaiah Medical College
6. **Date of Programme Specifications:** September 2022
7. **Programme Approval by the Academic Council of MSRUAS:** 27th September 2022
8. **Programme Approving Regulating Body and Date of Approval:** National Medical Council of India
9. **Rationale for the Programme-**

The purpose of PG education is to create specialists who would provide high quality health care and advance the cause of science through research & training. Department of General Medicine aims to train the postgraduates as per the guidelines of National Medical Commission. The competency-based training programme aims to produce a post-graduate student who after undergoing the required training should be able to deal effectively with the needs of the community and should be competent to handle all problems related to General Medicine including recent advances. The student should also acquire skill in teaching of medical/para-medical students in General Medicine that he/she has received his/her training. The student is also expected to know the principles of research methodology and modes of accessing literature.

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Programme objectives (PO) for MD General Medicine Postgraduate students

PO-1. Acquire the knowledge, skills and attitude to be a competent physician (C, P).

PO-2.- Be able to elicit adequate history and perform thorough general physical and systemic examination. (A,C,P)

PO-3- Arrive at appropriate differential diagnosis and order appropriate investigations and interpret them. (C, P)

PO-4.- Provide adequate treatment as per current standards of care and Evidence based medicine approach with integrity, empathy, compassion and with adequate communication. (A,C,P)

PO-5- Acquire and develop the knowledge, skills and attitude required to be a competent and ethical researcher and teacher. (A, C, P)

10. Programme specific outcome (PSO) for MD Radiotherapy Postgraduate students

PSO1. To acquire skills of detailed history taking and performing general physical examination and systemic examination pertaining to all the organ systems. (C,P)

PSO2. To arrive at the differential diagnosis and most probable diagnosis. Order appropriate investigations and justify the purpose of investigations and interpret them. (C, P)

PSO3. Provide adequate treatment as per current standards of care. Identify the complications early and intervene at the earliest. Provide emergency care to the common medical emergencies and refer when required. Document adequately all the inpatient and outpatient records. (C,P)

PSO4. Effectively communicate and counsel the family with empathy and professionalism. Demonstrate the attributes of a leader and team member who understands and performs his roles and responsibilities in the healthcare ecosystem. (A)

PSO5. Acquire skills to conduct fundamental and applied research either independently (including thesis work) or as part of a team. Write a good research proposal and conduct a research project. (C)

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Note: A- Affective Domain, C- Cognitive Domain & P- Psychomotor Domain:

Course-PO-PSO Mapping

Course Code and name	Program Outcomes					Program Specific Outcomes				
	POs					PSOs				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
MDC533A Basic science as applied to Medicine	3	3	3	2	2	3	3	3	2	2
MDC534A Therapeutics and Tropical Medicine	3	3	3	2	2	3	3	3	2	2
MDC535A Systemic medicine of all organ systems	3	3	3	3	2	3	3	3	3	2
MDC536A Recent advances in Medicine	3	3	3	2	3	2	2	2	3	3
MDP504A Thesis-General Medicine					3					3



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10. Regulations:**(A) Attendance, Progress and Conduct**

1. A candidate pursuing degree course should work in the concerned department of the institution for the full period as a full-time student. No candidate is permitted to run or work in clinic/laboratory/nursing home while studying postgraduate course. No candidate shall join any other course of study or appear for any other examination conducted by this university or any other university in India or abroad during the period of study.
2. Each year shall be taken as a unit for the purpose of calculating attendance. Attendance of 80% every term is mandatory for appearing in the final university examination.
3. 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.
4. Every candidate is required to attend a minimum of 80% of the training during each academic term 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 term.
5. Any student who fails to complete the course in the manner stated above shall not be permitted to appear for the University Examinations.

(B) Monitoring of progress of Studies

1. Work diary / Logbook - Every candidate shall maintain a work diary and record of his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. as per the model checklists and logbook specimen copy.
2. Special mention may be made of the presentations by the candidate as well as details of clinical or planning procedures, if any conducted by the candidate. The work diary shall be scrutinized and certified by the Head of the Department and Head of the Institution and presented in the university practical/clinical examination.
3. Procedure for defaulters: There will be a committee constituted by all teachers to review such situations. The defaulting candidate is counselled by the guide and head of the department. In extreme cases of default, the departmental committee may recommend that defaulting candidate will be withheld from appearing the examination, if she/he fails to fulfil the requirements in spite of being given adequate chances to set himself or herself right.



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11. Teaching Learning Methods:

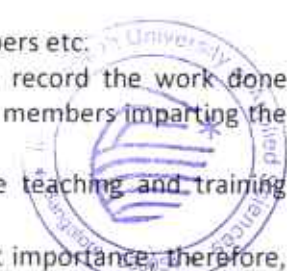
Didactic lectures are of least importance; seminars, journal clubs, symposia, reviews, and guest lectures get priority for acquiring theoretical knowledge. Bedside teaching, grand rounds, interactive group discussions and clinical demonstrations are the hallmark of clinical/practical learning. Students will have hands-on training in performing various procedures and ability to interpret results of various tests/investigations.

Exposure to newer specialized diagnostic/therapeutic procedures are given. Supervision of work in outpatient department covers the whole range of work in the unit. It is particularly necessary to attend sub-specialty and symptom specific clinics. The development of independent skills is an important facet of postgraduate training. Joint meetings with physician colleagues, e.g. radiologists and pathologists play a valuable part in training.

The training techniques and approach are based on principles of adult learning. It provides opportunities initially for practicing skills in controlled or simulated situations. Repetitions would be necessary to become competent or proficient in a particular skill. The more realistic the learning situation, the more effective will be the learning.

Clinical training includes measures for assessing competence in skills being taught and providing feedback on progress towards a satisfactory standard of performance. The following are various teaching/learning activities:

1. Intradepartmental and interdepartmental conferences related to case discussions.
2. Ward rounds along with emergency admissions.
3. Attendance at sub-specialty and symptom specific clinics
4. External rotation postings in departments like cardiology, neurology, critical care, endocrinology, nephrology and other subspecialties
5. Skills training
6. Conferences, Seminars, Continuing Medical Education (CME) Programmes.
7. Journal Club
8. Research Presentation and review of research work.
9. A postgraduate student of a postgraduate degree course in broad specialties/super specialties would be required to present one poster presentation, to read one paper at a national/state conference and to present one research paper which should be published/accepted for publication/sent for publication during the period of his postgraduate studies so as to make him eligible to appear at the postgraduate degree examination.
10. Participation in workshops, conferences and presentation of papers etc.
11. Maintenance of records. **Log books** should be maintained to record the work done which shall be checked and assessed periodically by the faculty members imparting the training.
12. Postgraduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
13. During the training programme, patient safety is of paramount importance; therefore, skills are to be learnt initially on the models, later to be performed under supervision followed by performing independently; for this purpose, provision of skills laboratories in the medical colleges is mandatory.



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14. Innovative teaching learning practices

1. Training of post-graduate in Skills lab using high fidelity manikins.
2. Sessions on Problem Based Learning.
3. OSCE method of teaching learning and assessments.
4. Evidence Based Medicine practice training.
5. Problem Based Learning
6. Training in Geriatrics including Comprehensive Geriatric assessment, Counselling, Vaccination.



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12. Assessment:

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only also helps teachers to evaluate students, but also students to evaluate themselves. The monitoring will be done by the staff of the department based on participation of students in various teaching/learning activities.

1. Formative assessment is done during each case presentations, journal presentations and seminars by the moderators.
2. There will be three theory assessments of 100 marks at the end of each year.
3. There will be three clinics assessments of 100 marks at the end of each year.
4. Teaching skills: Candidates are encouraged to teach undergraduate medical students and paramedical students, if any. In addition, the second-year student acts as a mentor for the immediate junior in all aspects of the course.

Scheme of Examination:**A. Theory (Written Paper) 400 marks**

There shall be four question papers, each of three hours' duration. Each paper shall consist of 10 short essay questions each carrying 10 marks. Total marks for each paper will be 100. Questions on recent advances may be asked in any or all the papers. Details of distribution of topics for each paper will be as follows.

Name of the course	Course Code	Topics	Marks
Basic Sciences as applied to Medicine	MDC533A	Applied aspects of Anatomy, Physiology, Biochemistry, Pathology, Microbiology as applied to Medicine	100
Therapeutics and Tropical Medicine	MDC534A	Pharmacotherapeutics, adverse drug reaction drug interactions, Infectious diseases, diseases of environment, toxins, bites and stings.	100
Systemic medicine of all the Organ systems	MDC535A	Cardiology, Pulmonology, Nephrology, Neurology, Gastroenterology, Onco-haematology, Rheumatology.	100
Recent advances in Medicine	MDC536A	Recent Developments in field of Medicine.	100
Thesis-Medicine	MDP509A	Approval 6 month before Final examination.	

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B. Clinical:200marks

One long case of 100 and two short cases of 50 each.

C. Viva-voce: 100 marks**1) Viva-Voce Examination:(100Marks)**

All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach, expression, and interpretation of data. It includes all components of course contents. In addition, candidates will be given case reports, charts, Instruments, X-rays, CT scan images, drugs for interpretation. It includes discussion on dissertation also.

D. Total Marks Distribution:

Maximum marks for M.D degree course	Theory	Practical	Viva	Grand Total
	400	200	100	700



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Annexures**Annexure 1_Overall course plan year-wise**

Time	Content	Responsibilities	Postings	Teaching programmes
1 st year	Basic Cognitive and communication skills Procedural abilities OPD & ward work	Combined duties Supervised procedures History sheet writing Clinical abilities, Procedural abilities Laboratory-diagnostic Communication skills BLS & ACLS	With the guide First 3 months with the guide. Rotation postings of 3 months in other units	Emergency care Approach to symptoms Clinical examination Review of journal Basic research methodologies Completion of basic course in Biomedical research Submission of synopsis
2 nd year	Intermediate degree of cognitive abilities Specialised procedural skills Emergency	Independent duties All procedures Respiratory management abilities Communication skills Writing thesis - Teaching UGs	Nine months of postings in super-speciality departments (ICU, Cardiology, Neurology, Gastroenterology, Oncology, Respiratory medicine, Nephrology) Remaining three months in Medicine department	Subject Seminars Clinical seminars Tutorials Journal reviews Review articles Review of meta-analysis Poster presentation at National/State Conference
3 rd year	Special skills and Intensive critical care	Advanced level of Independent duties Casualty calls UG teaching Thesis writing and submission	Medicine department 2 months rotation in all units. Posted in Guide's unit during last 3 months	Subject Seminars Clinical seminars Clinicopathological conference Mortality audits Morbidity audit Multidisciplinary department meets Presenting paper at National/International conference

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Annexure 2 Sample of monthly schedules

DAY	TOPIC
Monday	Skills lab – Lumbar Puncture
Tuesday	Subject Seminar - Filariasis
Wednesday	Short Topics 1. Melioidosis 2. Strongyloidiasis
Thursday	Clinical Seminar
Friday	Journal Club
Saturday	Skills Lab - Lumbar Puncture
Monday	Bedside Clinics
Tuesday	Short Topics 1. Epigenetics 2. Mitochondrial Medicine
Wednesday	Clinical Seminar
Thursday	Journal Club
Friday	Problem Based Learning
Saturday	Skills Lab- CVS auscultation
Monday	Bedside Clinics
Tuesday	CPC
Wednesday	Interesting Investigation – Nerve conduction studies
Thursday	Journal Club
Friday	Bedside Clinics
Saturday	Skills lab – RS auscultation
Monday	Subject Seminar – Motor Neuron Disease
Tuesday	Short Topics 1. Autosomal Dominant disorders 2. Autosomal recessive disease
Wednesday	Clinical Seminar
Thursday	Journal Club
Friday	Mortality audit
Saturday	Bedside Clinics
Monday	Subject Seminar – Myelodysplastic syndrome
Tuesday	Short Topics

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Annexure 3 PG outside posting policy

PG students are posted to DRP (District residency postings) for 3 months during their second year.

PG students are posted to departments of Cardiology, Neurology, Nephrology, Pulmonary Medicine, Medical Oncology, Endocrinology, Dermatology and Psychiatry during second year.



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Annexure 4_Logbook entry

CHECK-LIST FOR EVALUATION OF JOURNAL REVIEW					
Name of the Student:					
Name of the Faculty/Moderator:				Date:	
Title of the article:					
Journal:					
	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
Items for observation during presentation					
Relevance of the article chosen					
Extent of the understanding of the article					
Ability to respond to questions on the article					
Appropriate audio-visual aids used					
Ability to critically analyze the findings of the article					
Clarity of presentation					
Other relevant articles referred					
Total Score					
Signature of the Moderator					



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CHECK-LIST FOR EVALUATION OF SUBJECT SEMINAR						
Name of the Student:				Date:		
Name of the Moderator:						
Topic of the seminar						
Sl. No	Items for observation during presentation	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)
1.	Completeness of Preparation					
2.	Clarity of Presentation					
3.	Understanding of the concepts of the topic					
4.	Ability to answer questions					
5.	Time scheduling					
6.	Appropriate use of Audio-Visual aids					
7.	Relevant articles referred					
8.	Total score					
Moderator's signature						



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CHECK-LIST FOR EVALUATION OF CLINICAL SEMINAR						
Name of the Student:						
Diagnosis of the case:						
Name of the Faculty/Moderator:						
Sl. No	Parameters	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)
1.	Completeness of history					
2.	Clarity of presentation					
3.	Logical order of the case presentation					
4.	Accuracy of general physical examination					
6.	Performed all the physical signs correctly					
7.	Differential Diagnosis and approach to diagnosis					
8.	Rationale of the work up of the case					
9.	Clinical reasoning of the symptoms and signs					
10.	Ability to defend the questions					
Signature of Moderator						



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Annexure 5_Students appraisal form

Postgraduate Students Appraisal Form					
Name of the Department					
Name of the PG Student Period of Training					
Duration:.....to.....					
Sl. No	Particulars	Not satisfactory (1,2,3)	Satisfactory (4,5,6)	More than Satisfactory (7,8,9,10)	Remarks
1	Journal presentations				
2	Patient care and rounds				
3.	Clinical seminars				
4.	Communication skills				
5.	Log book				
6.	Thesis work				
7.	CME/Outreach programmes/Conference presentations				
8.	Self-directed learning				
9.	Under-graduate teaching				
10.	Research/Publication				
Sign of the student		Sign of the assessor			
Sign of Head of the Department.					



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Logbook entry

Date	
Setting/method	
Presented/attended.	
Summary in brief	
Reflection	
Teachers comments	



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Course Specifications

MD General Medicine 2022 onwards

Course Code: MDC533A



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Course Specifications

Course Title	Basic Sciences as applied to Medicine
Course Code	MDC533A
Department	MD General Medicine
Faculty	Ramaiah Medical College

Course summary:

This course is designed in such a way that the student will master the application of the basic science subjects like Anatomy, Physiology, Biochemistry, Pathology and Microbiology in General Medicine.

Course Outcomes:

CO 1: The students should be conversant with the applied aspects of Anatomy, physiology and Biochemistry, pathophysiology of the diseases. Have knowledge of symptomatology, signs, rationale of investigations and their interpretation. (C, P)

CO 2: The student should have knowledge about basic principles of genetics, genetic engineering, chromosomal disorders, genetic basis of cancer, genetic & gene therapy. (C)

CO 3: The student should demonstrate integrity, accountability, respect, compassion and dedicated patient care, commitment to excellence, continuous professional development and ethical principles relating to research conduct and publication as applicable to all the specific courses(A)

CO 4: Have knowledge of biomedical waste management and be familiar with appropriate disposal methods for each specimen, sample, reagents, instruments, autoclaving techniques, recycling of products and e-waste as applicable to the field of Medicine(C,P)



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Course Content: Basic Sciences as applied to Medicine

Applied aspects of Anatomy, Physiology, Biochemistry, Pathology, Hematology and Microbiology and Pharmacology. History of medicine

Clinical History and examination –Collecting history in detail, carryout clinical examination of various systems & diagnose the condition on clinical grounds.

Rational of diagnostic tests – ordering diagnostic tests with prioritizing the needs, based on the clinical, hospital and the socio-economic condition of the patient.

Concept of Essential Drugs and Rational use of drugs.

Communication skills with patients – Learning effective communication skills including compassionate explanation and giving emotional support to the suffering patient and his family.

Statistics – Descriptive statistics, analytical statistics, qualitative research methodology, research design and critical review of statistical procedures.

Principles of Evidence based medicine – Understanding journal-based literature study; the value of textbook, reference book articles; the value of review articles; original articles and their assessment. Understanding the value of retrospective, prospective, randomized controlled and blinded studies –the principles including meanings of various bio-statistical tests applied in these studies.

Medical Ethics & Social responsibilities of physicians Use of computers in medicine



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Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes					Program Specific Outcomes				
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
MDC533A Basic Sciences as applied to Medicine	CO 1	3	3	3	2	2	3	3	3	2	2
	CO 2	3	2	2	2	1	3	2	2	2	2
	CO 3	3	3	2	3	3	3	3	2	2	3
	CO 4	3	2	2	2	3	3	2	2	2	3
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution											

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Course Specifications

MD General Medicine 2022 onwards

Course Code: MDC534A



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Course Specifications

Course Title	Therapeutics and Tropical Medicine
Course Code	MDC534A
Department	General Medicine
Faculty	Ramaiah Medical College

Course Summary:

This course is designed in such a way that the student will master principles of pharmacotherapeutics related to General Medicine and identification and management of Tropical diseases.

Course Outcomes:

CO 1: Have the knowledge of concept of essential drugs, pharmacokinetics, pharmacodynamics of important drugs, drug interaction, pharmacogenomics, rational use of drugs and prescription writing. (C)

CO 2: Student should be conversant with the clinical presentation, diagnosis and treatment of environment related disorders, toxins, poisonings, envenomation, and nutrition. (C,P)

CO 3: Students should have knowledge about clinical presentation, diagnosis, management and prevention of viral, bacterial, protozoal, fungal diseases and common infections of skin (C,P)

Course Content:

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.

Blood transfusion: – Blood grouping, cross matching, component therapy, complications of blood transfusion, blood substitutes.

Shock and Multi-organ Failure:- Types of shock, diagnosis, resuscitation pharmacological support, ARDS, ventilator support and its prevention.

Host- parasite interactions, Immunisation 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, Intra-abdominal infections and abscess, P.I.D. Nosocomial Infections: Hospital Acquired infections, 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.

Anaerobic infections Mycobacterial diseases: Tuberculosis, Leprosy, Non-tubercular mycobacterium. Spirochetal: Syphilis, Leptospirosis, Endemic trepanomatosis.

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Rickettsia: R.M. Spotted fevers
Mycoplasma: M. pneumoniae.

Chlamydia: Psittacosis

Fungal Infections: Candidiasis, P. Carinii, Aspergillosis, Mucor mycosis, Coccidioidomycosis, Cryptococcosis, Histoplasmosis.

Viral Infections: Antiviral chemotherapy, DNA viruses: Herpes simplex, CMV, Chicken pox vaccinia, other pox viruses. Varicella zoster, Parvovirus, Epstein Barr, HPV, DNA & RNA respiratory viruses: Influenza, RNA Viruses: Rabies, ARBO viruses (dengue, KFD, Japanese encephalitis), Human retrovirus, Enterovirus, Mumps, Rubella
HIV & AIDS: - Epidemiology, clinical stages, complications, opportunistic infections(OI), laboratory investigations, HAART, PEP & counselling.

Protozoal and Helminthic infections : Life History, Clinical Manifestations, lab. diagnosis and therapy, Amoebiasis, Malaria, Giardiasis, Taeniasis, Echinococcosis, E.vermicularis, T. trichiura, Ascariasis, Hookworm infections, Filariasis, Leishmaniasis, Other free-living amoeba, Toxoplasmosis, Trichinella, Trypanosomiasis, Trichomoniasis, H.nana, D.latum, Schistosomiasis, Larva migrans syndrome.

Delirium and dementia, Misuse of and dependence on - alcohol and drugs, Schizophrenia and related - (including acute and - chronic delusional disorders, Depressive and manic disorders of all degrees of severity, Acute reactions to stress, PTSD, and adjustment disorders - (including reactions to terminal illness and normal and abnormal grief) Anxiety, phobic and obsessional - disorders - Somatoform disorders, Disorders of eating sleeping, - Clinical presentations psychosexual functions - Principles of management of

uncomplicated cases Personality disorders - Concepts of personality and personality disorders, Influence on physical and mental illnesses Mental retardation - Principles of prevention Recognition of the most common syndromes Principles of management Childhood psychiatric disorders - Common psychiatric disorders of childhood and adolescence Principles of management, Old age psychiatric disorders - Impact of aging on health and psychiatric illness, Recognition and principles of management of psychiatric disorders in the elderly, Suicide - Assessment of risk, Management of potentially suicidal patients

The skin manifestations of various diseases:- Leprosy, STD, HIV, Systemic infections and infestations Internal malignancy

Drug reactions, Systemic diseases with skin manifestation Psoriasis, Vitiligo, Fungal infections, Lichen planus Viral , bacterial infections Cutaneous metastasis Panniculitis

RDA of nutritional substances, nutritional assessment, nutritional recall, metabolic response to stress, malnutrition, PCM, nutritional deficiency states, nutritional response in stress, enteral and parenteral nutrition, dietary advice in obesity, DM, renal, hepatic failure, hyperlipidemia, IHD.

Poisoning: - OP compound, sedatives, alcohol, corrosives, anti-convulsant, general principles of management & specific management of poisons including snakes bites, scorpion stings.

Toxicology – Heavy metal poisoning, Fluorosis, Lathyrism, Heat stroke, Heat exhaustion, Hypothermia, High altitude pulmonary edema

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Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes					Program Specific Outcomes				
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
MDC534A Therapeutics and Tropical Medicine	CO 1	3	3	3	2	2	3	3	3	2	2
	CO 2	3	3	3	3	2	3	3	3	3	2
	CO 3	3	3	3	3	2	3	3	3	3	3
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution											



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Course Specifications

MD General Medicine 2022 onwards

Course Code: MDC535A



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Course Specifications

Course Title	Systemic medicine of all the Organ systems
Course Code	MDC535A
Department	General Medicine
Faculty	Ramaiah Medical College

Course Summary:

The course is designed in such a way that the student will master the clinical presentations, management and prevention of medical conditions of all the organ systems.

Course Outcomes:

CO 1: Student should be conversant with the clinical features, diagnosis, management, and complication of various systemic diseases related to Medicine and common diseases of Psychiatry. (C,P)

Course Content:

Cardiovascular system- Rheumatic Fever & heart diseases Congenital heart diseases Atherosclerosis, coronary artery disease Primary and Secondary hypertension Cardiac failure Cardiac arrhythmias – Tachy & brady arrhythmias, heart blocks Infective endocarditis Myocardial & 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 Noncardiac surgery in cardiac patients - assessment for anesthesia and surgery Cardiac drugs 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. Clinical cardiology. Adequate exposure to cardiac OPD work, cardiology ward work and coronary care unit: During the posting, the student should accompany his cases for stress-ECG (TMT), echocardiography and Cath lab.

Respiratory system- Applied aspects of Respiratory system & Respiratory Physiology. Mycobacteriology: Diagnostic methods, pathogenesis of Mycobacterial diseases, their clinical manifestations. Pulmonary and extra pulmonary, as well as disseminated tuberculosis, its pathogenesis, clinical features, diagnosis and management, National programme on Tuberculosis including DOTS. Non-tuberculous Respiratory infection. Community and hospital acquired pneumonias, infections of trachea- bronchial tree including cystic fibrosis, parasitic and fungal diseases of lungs, HIV infections and lungs. Allergic diseases of respiratory system including bronchial asthma. Interstitial, industrial, occupational lung diseases including Interstitial Pulmonary Fibrosis. Suppurative lung diseases Granulomatous diseases of lungs including sarcoidosis. Pulmonary manifestations 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.

Neurology - Applied aspects of anatomy -Brain and Spinal cord Evaluation of CNS diseases Clinical approach to: - Coma, Headache, Seizure, Dementia, Aphasia, Sleep disorders Brain death, Cerebrovascular diseases, Cranial Nerve disorders CNS infections, Bacterial, Viral, Fungal, Neuro-tuberculosis, parasitic. Motor system diseases Tumors of Brain and Spinal cord, Extrapyrimal disorders, Cerebellar disorders Demyelinating

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diseases. Neuro-degenerative disorders Nutritional disorders affecting nervous system, Cerebrovascular anomalies, Peripheral Neurites, polyneuritis & Guillain Barre Syndrome, Cervical Spondylosis. Disorders of muscle-Dystrophy, Myopathies & Myasthenic syndrome.

Gastro-intestinal system - Disease of Esophagus, Peptic ulcer disease and its management Upper Gastrointestinal bleed, Lower Gastrointestinal bleed, Approach to Malabsorption and Mal-digestion Inflammatory bowel diseases, Irritable bowel syndrome (I.B.S.), Gastrointestinal motility disorders Chronic Diarrhea Disorders of Peritoneum G.I function tests . Bilirubin metabolism, Cirrhosis of Liver, Biliary Cirrhosis & N.C.P.F& Budd Chiari syndrome, Acute & Chronic Hepatitis- Viral, Toxic Alcoholic Liver Disease, Amoebic Liver Abscess Obstructive Jaundice, Acute & Chronic Hepatic insufficiency Cong. Hyperbilirubinemias, Tumors of the liver, Drugs and Liver . Diseases of Gall bladder AC & Chronic cholecystitis Gall Stone, Diseases, and disorders of Pancreas :- Acute & Chronic Pancreatitis

Endocrinology- Principles of Endocrinology : Mechanism of action of hormones & receptors Assessment of endocrine function, Hypothalamus & Pituitary : Approach to pituitary disease, diseases of anterior & posterior-pituitary tumors, Acromegaly, short stature, prolactinoma, diabetes insipidus, SIADH, Cushing's disease, Panhypopituitarism, Sheehan's syndrome, Non secretory adenoma.

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 & type 2, Gestational diabetes, Diabetic keto-acidosis, HONK, Hypoglycemia 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, Tetany, 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), delayed puberty, precocious puberty, infertility.

Ovary : Delayed puberty – Turner's syndrome, polycystic ovarian disease, Hirsutism, precocious puberty, approach to amenorrhea, postmenopausal syndrome, current concepts in management.

Applied aspects of anatomy and physiology of Reproductive system – male & female. Etiology, Clinical features, and management of common sexual problems – male & female. Effects 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.

Bone mineral, metabolism, osteoporosis -Osteomalacia & rickets
Carcinoid tumours, hyperlipidemia

Evaluation of patient with renal diseases Interpretation of laboratory tests Acute renal failure
Chronic renal failure- Pathogenesis, pathology, clinical features conservative management

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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, 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

Hematopoiesis

Anemias- causes, clinical features and laboratory approach and treatment. Iron deficiency,
 megaloblastic, hemolytic and aplastic anemias.

Various thalassemic syndromes, Hb Electrophoresis, Polycythemias.

Problem of Iron over load, Autoimmune blood disorders

Transfusion medicine, Recognition and management of Transfusion disorders

Transfusion in patients with Hematological diseases (component therapy) Coagulopathy

Hypercoagulable state, Leukemias and its managements

Myelodysplastic syndromes and Myeloproliferative disorders

Platelet disorders-Purpuras - Primary & sec.

Therapeutic plasmapheresis, ABVP, CHOP Chemotherapy.

Structure of connective tissue – collagen, elastin & proteoglycans Immunological mechanisms &
 Immunogen in Rheumatoid arthritis, SLE Osteo arthritis, Vasculitis

Seronegative spondyloarthropathy Crystal arthritis

Inflammatory /metabolic myopathies Arthropathies associated with Endocrine diseases

Hematologic diseases, Malignant diseases, Fibromyalgia syndromes

Low back pain, Systemic sclerosis, Myositis, Mixed connective Tissue disorder (MCID)

Basic & Advanced Life Support Shock Syndromes

Anaphylaxis, Acid base imbalance Multi organ failure, Poisoning – OP compound, sedatives

Basics of mechanical ventilation, Transfusion reaction, Upper G.I hemorrhage Upper

Airway obstruction Tension, Pneumothorax, Acute asthma,

ARDS Cardiac arrest, Cardiac Tamponade, Hypertensive emergencies & urgencies

Status epilepticus, Coma in Diabetes Endocrinal, Emergencies Cerebral Malaria

Antibiotic usage in ICU, Enteral & Parental Nutrition, Brain death

Cardiopulmonary resuscitation / cardio-version / defibrillation Emergent airway intubation

Central venous cannulation, Arterial cannulation, Mechanical ventilation

Basics of Oncology

Normal cell, Cancer cell- Cell cycle & 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, Hematologic Cancers, Hematopoiesis, Leukemias & Lymphomas –

Classification, Diagnosis, management Solid tumors - Br.Carcinoma, Hepatomas, MM- Principles
 of Management Blood component therapy, Bone Marrow transplant, Newer Modalities in

Therapy & Supportive Care, Biologic Response Modifiers Gene therapy, Stem cell transplant,

Newer antibiotics, Nutritional support Growth factors



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Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes					Program Specific Outcomes				
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
MDC534A Systemic medicine of all the Organ systems	CO 1	3	3	3	3	2	3	3	3	3	2
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution											



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Course Specifications

MD General Medicine 2022 onwards

Course Code: MDC535A



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Course specifications

Course Title	Recent advances in field of Medicine.
Course Code	MDC535A
Department	MD General Medicine
Faculty	Ramaiah Medical College

Course Summary:

The course is designed in such a way that the student will master recent developments and advances in the field of General Medicine

Course Outcomes:

CO 1: Should be conversant with the newer advances in the field of Medicine including newer guidelines of the diseases, , investigation modalities like immunohistochemistry, flow cytometry, molecular tests, newer drugs, recent trials, awards, discoveries, national programmes.(C)

CO 2: The student should be conversant with the use of technologies in the field of Medicine, newer methods of imaging and artificial intelligence. (C)

Course Content:

General:-The importance and scope of different radiological examinations in the diagnosis, treatment, and management of various diseases.

Newer imaging modalities: Different imaging modalities including the newer imaging techniques - ultrasonography, colour doppler imaging, color flow mapping, Computed Tomography, MRI, Nuclear imaging, PET and SPECT- basic principles.

Protocols to be followed while referring for various routine investigations Barium studies, Ultrasonography, Computed tomography, MRI imaging, nuclear medicine investigations

Various contrast investigations and contrast materials used in imaging techniques and adverse reactions.

Interpretation of plain, contrast X-rays, Ultrasonography, CT,MRI.

The students should gain the knowledge regarding all the newer advances happening in the field of Medicine. Newer drugs, technologies, treatment modalities, guidelines, awards, national and international programmes.



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Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes					Program Specific Outcomes				
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
MDC552A Recent Advances in field of Medicine.	CO 1	3	3	3	3	3	3	3	3	3	3
	CO 2	3	3	3	2	3	3	3	2	3	3
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution											



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Course Specifications

MD General Medicine 2022 onwards

Course Code: MDP509A

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Course Specification

Course Title	Thesis – General Medicine
Course Code	MDP509A
Department	MD General Medicine
Faculty	Ramaiah Medical College

Course Summary:

The course is designed in such a way that the student will master the science of research in terms of designing, conducting, and interpreting the results.

Course Outcome:

CO1: Describe the techniques of research, identify available literature, and critically analyze the same. (C)

Course details:

Every candidate pursuing MD Medicine 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 is aimed to train a post graduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, comparison of results and drawing conclusions.

Every candidate shall submit to the Registrar (Academic) of the University in the prescribed proforma, a synopsis containing particulars of proposed dissertation work within six months from the date of commencement of the course on or before the dates notified by the University. The synopsis shall be sent through the proper channel.

Such synopsis will be reviewed and the dissertation topic will be registered by the University. No change in the dissertation topic or guide shall be made without prior approval of the University.

The dissertation should be written under the following headings:

1. Introduction
2. Aims or Objectives of study.
3. Review of Literature
4. Material and Methods
5. Results
6. Discussion
7. Conclusion
8. Summary
9. References (Vancouver style)
10. Tables
11. Annexures

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Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes					Program Specific Outcomes				
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
MDC509A Thesis- General Medicine	CO 1	3	3	3	2	3	2	2	2	3	3
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution											

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Course Materials:**Books**

Text Books	Reference books	Clinical methods
API Text book of Medicine	Hurst : The Heart	Hutchinson's Clinical Methods
Davidson's Principles and Practice of Medicine	Braunwald - Heart Disease: A Textbook of Cardiovascular Medicine	Macleod's Clinical examination
Kumar & Clark : Book of Clinical Medicine	Marriot's Practical Electrocardiography	John Patten : Neurological Differential Diagnosis
Harrison's Principles & Practice of Medicine	Crofton and Douglas : Respiratory Diseases	Neurological examination in Clinical Practice by Bickerstaff
Oxford Text book of Medicine	Brain's Diseases of the Nervous system	
Manson's Tropical Diseases	Adam's Principles of Neurology	
Cecil : Text Book of Medicine	William's Text Book of Endocrinology	
	De Gruchi's Clinical Hematology in Medical Practice	
	Kelly's Text Book of Rheumatology	
	Slesenger&Fordtran : Gastrointestinal and Liver disease	

Journals

- Journal of physicians association of India
- New England Journal of Medicine
- Journal of American Medical Association
- Lancet
- Indian journal of Gastroenterology
- Indian Journal of Cardiology
- Indian Journal of Nephrology
- Neurology Clinics of North America

Additional Reading

1. ICMR
3. UpToDate

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