



**RAMAIAH
UNIVERSITY**
OF APPLIED SCIENCES

M.S. Ramaiah University of Applied Sciences

Programme Structure and Course Details

Of

MD Emergency Medicine 2022 onwards

M.S. Ramaiah University of Applied Sciences

Ramaiah Medical College

Shalini

Principal and Dean

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

Bangalore - 560 054

Dean - Academics

M.S. Ramaiah University of Applied Sciences

M. L. Rao

Registrar

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



**RAMAIAH
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OF APPLIED SCIENCES

M.S. Ramaiah University of Applied Sciences

Programme Specifications

MD Emergency Medicine Programme 2022

onwards

Programme Code: MD141

M.S. Ramaiah University of Applied Sciences

Ramaiah Medical College

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

Shalini

Principal and Dean
Ramaiah Medical College and Hospital
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Meha 4/20
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

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
7. 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 Programmes.

Shalini

Principal and Dean

M.S. Ramaiah Medical College and Hospital

M.S. Ramaiah University of Applied Sciences

Bangalore - 560 054

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

Meo L Yao
Dean Academics

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

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Programme Specifications: MD Emergency Medicine

Faculty	Ramaiah Medical College
Department	Emergency Medicine
Programme	MD –Emergency Medicine
Programme Code	MD141
Dean of Faculty	Dr Shalini C Nooyi
Head of the Department	Dr. Aruna C Ramesh

1. Title of the Award: MD in Emergency 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. Date of 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 goal of the training program is to produce Emergency Physicians with the necessary knowledge, skill and attitude to diagnose and manage a wide range of clinical problems in Emergency Medicine as seen in the community or in secondary/tertiary care setting in an effective manner. Thus, emergency medicine is a unique independent specialty with training models different from standard traditional didactic teaching, to help residents in achieving emergency medicine core knowledge competencies, and skills to respond to these life-threatening events with confidence.



Shalini

Meena Rao

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Programme objectives (PO) for MD Emergency Medicine Postgraduate students

PO1. Upon completion of training, a resident is expected to be a competent specialist in Emergency Medicine capable of assuming a consultant's role in the specialty. The resident must acquire a working knowledge of the theoretical basis of the specialty, including its foundations in the basic medical sciences and research. (C, A)

PO2. The Specialist Emergency Physician possesses organizational skills in Emergency Department and disaster management and the ability to interface with and play a leadership role in the development and organization of Emergency Medical Services and Pre-hospital care. (C, A)

PO3. The Specialist Emergency Physician possesses the knowledge, skills, and attitudes for effective patient-centered care and service to a diverse population with attention to age, gender, culture, ethnicity, and ethics. The Specialist Emergency Physician can incorporate these perspectives in research methodology, data presentation, and analysis. (C, A, P)



Shalin

Meetha Y Rao

Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560054

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Bangalore - 560054

Programme specific outcome (PSO) for MD Emergency Medicine Postgraduate students

PSO1 - Demonstrate an understanding of scientific concepts and the knowledge necessary for: history taking, physical exam, diagnostic studies, differential diagnosis, and clinical intervention and therapeutics of acute and emergent medical conditions seen in the emergency department. (C, P)

PSO2 - Demonstrate the ability to think critically and problem solve to make informed decisions about diagnostic and therapeutic interventions using patient information, scientific evidence, and clinical judgment in the emergency department. (C)

PSO3- Perform common technical skills in the emergency department. (P)

PSO4- Demonstrate clinical skills of medical, surgical, and psychiatric history and physical examination; including competency in developing a comprehensive differential diagnosis of illness. (C, A, P)

PSO5- Demonstrate clinical skill and competency in medical management of patients for safe and appropriate discharge planning, including arranging follow-up care, contacting appropriate follow-up physicians/services to coordinate outpatient care. (C, A, P)

PSO6- Demonstrate respectful and compassionate use of medical skills for all individuals. This includes the utility of high-quality care and technology and, in the event of terminal illness, an awareness of the limits of medical intervention and the obligation to provide humane care. (A)

PSO7- Create a positive relationship with the patient and family to assure optimal medical care, assuring the emotional and cultural needs and expectations of all patients. (A)

PSO8- Participate and work effectively with others on interdisciplinary and/or multidisciplinary services to promote optimal patient care. (C, A)

PSO9- Work professionally with nursing and ancillary staff to promote optimal patient care. (A)

PSO10- Communicate effectively with primary care providers concerning their patients' clinical presentations, assessments, conditions, and disposition planning. (A)

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



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Principal and Dean
M.S. Ramaiah Medical College and Hospital
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Course-PO-PSO Mapping

Course Code and name	Program Outcomes			Program Specific Outcomes									
	PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
MDC557A Basic sciences and resuscitation	2	1	2	3	3	2	3	2	2	1	2	2	1
MDC558A Medical Emergencies	2	2	2	3	3	2	3	2	2	1	2	2	2
MDC559A Trauma and surgical emergencies	2	2	2	3	3	2	3	2	2	1	2	2	2
MDC560A Recent advances and Pediatric emergencies	2	1	2	3	3	2	3	2	2	1	2	2	1
MDP515A Thesis- Emergency Medicine.	2	1	2	1	2	1	1	2	1	1	2	1	1



Meetha Y Rao
Dean - Academics

M.S. Ramaiah University of Applied Sciences
Bangalore - 560054

Shalini

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10. Regulation**First Postgraduate Year (PGY1)**

The first postgraduate year of training is designed with an emphasis on the core medical specialties (Medicine, Emergency Pediatrics, Cardiology, Neurology, orthopedics, and Surgery). It is designed to provide the house officer with a broad-based experience in the management of simple and complex problems in the major specialties. Clinical or basic science –Anatomy, pharmacology, research activities (Synopsis) submission begins currently.

Second Postgraduate Year (PGY2)

The second year is largely divided between the emergency department and rotational units. The emphasis is on refining procedural and clinical skills and acquiring in-depth knowledge of complex pathophysiology. By the end of this training year, residents are expected to manage several critical patients simultaneously and prioritize levels of severity of illness under direct consultant supervision. Residents assume a larger role in the educational function & research of the program and in the training of junior residents and students.

Third Postgraduate Year (PGY3)

The resident manages a defined clinical area within the Emergency Department, is responsible for patient care and assists in the supervision of interns and medical students. Low or middle level organizational and administrative problems are brought to the resident for resolution. Research activities are brought to fruition and the resident is encouraged to present abstracts at local and national meetings. There is more active participation in medical student didactics and nursing and paramedical in-service training. The third-year residents assume a more active role in the administrative aspects of the department.

Description

Unlike other block rotations, the Emergency Medicine rotation combines facets of all subspecialties while focusing on acute care management and critical care, improving differential diagnosis insight and skills, and coordinating inpatient and outpatient healthcare with primary care providers and other services.

The Emergency Department is prepared and equipped to provide comprehensive emergency care to patients of all ages in consultation with the center's medical and surgical specialties.



Shalini
Principal and Dean
College and Hospital
Medical Sciences

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Meha Rao
Dean - Academics
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Orientation to the Emergency Department

Residents rotate through the Emergency Department on 12 hour shifts; working directly with an Emergency Medicine senior resident and attending physician. An orientation classes for new interns/residents to the department is conducted every 15 days 1st and 16th of every month.

The Emergency Department is divided into three sectors: the front Accident & Emergency (AES)-Triage Zone, middle-Resuscitation Zone & Emergency OT and back Emergency ICU. AES comprises primarily of critical care, trauma, and acute medical/surgical, pediatric, obstetrics/gynecology, ENT, and orthopedics. All these patients are triaged and shifted to resuscitation Zone for intervention. The EICU consists primarily of patients requiring 48-hour observation, critically ill patients requiring monitored infusions, undifferentiated patients requiring evaluation. Internal medicine residents do not rotate in this sector they can, and are encouraged to cover these patients with the emergency medicine faculty.

Resident Role & Expectations during Rotation

1. Residents are expected to be present on time for their scheduled shifts 8-8 to take over care of those patients whose work-up and management is in progress; as well as start the evaluation and treatment of new individuals who present to the department during their shifts.
2. Residents are expected to write-up complete and accurate history & physical exams, review old patient records when available, to confirm medication profiles with patients and families, and to assist primary care providers in the care of their patients.
3. Residents are expected to share the burden of patient load in a fair manner with their cohorts and inform the attending physician on duty of any difficulties that might be arising.
4. Residents are expected to interact with physicians of different services in a collegial manner and make themselves available to assist in providing the best care for patients and their families.
5. Residents will be expected to develop more detailed differential diagnoses and streamlined work-up and treatment plans as they advance from PGY1 to PGY3 in their respective MD programs.
6. PGY1 residents will be expected to report to and discuss their treatment plans with the senior PGY3 on duty while PGY2 and PGY3 residents will be expected to function independently and report directly to the Emergency Medicine attending on duty.
7. Each student has 3 months DRP postings as per NMC.

Shalini

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M.S. Ramaiah Medical College and Hospital
M.S. Ramaiah University of Applied Sciences
Bangalore-560054

Meetha Y Rao
Dean - Academics

M.S. Ramaiah University of Applied Sciences



Level of Supervision

One or more Emergency Medicine attending physicians is in the Emergency Department at all times and is immediately available to the residents (interns & postgraduates). Senior Emergency Medicine residents and consultants are also available most hours of the day to assist the residents in their patient care plans and dispositions. It is not unusual to have duty Physicians and Surgeons from other services in the Emergency Department to assist in the urgent care of shared patients; and PGs are encouraged to clarify doubts on acute care within their subspecialty.

10. TEACHING AND LEARNING ACTIVITIES

B. Educational Program

The MD PGs will receive instruction from faculty assigned by RMC of EM. These educational experiences will include seminars with an emphasis on case-based teachings that will focus clinical management issues. The PGs will be given or they present a clinical scenario, and then the faculty instructor will lead the residents through a discussion that includes: developing a differential diagnosis, ordering appropriate laboratory and radiology diagnostic tests, finding the diagnosis/ differential diagnosis, and managing and treating the identified clinical problem/s. Faculty on the floor will also provide clinical teaching through bedside clinical rounds of specific patients.

GENERAL IMPLEMENTATION METHODS:

PG Study Groups – PGs will present in-depth discussions of specific areas of monthly topic and provide a presentation with PPT and bibliography.

Journal Club – Monthly review of current literature related to monthly topic and presented by a senior fellow and a faculty preceptor. Articles should be evaluated for review of format and pertinence to practice.

Board Review – Monthly review of topics from the curriculum in question format organized by a senior fellow and a faculty preceptor. Board style questions from PEER 7 or post-test questions can be used for review.

Case Presentation – Weekly session to review cases seen in the ED that contain valuable teaching points presented by senior PGs. This can include Morbidity/Mortality meeting. An expert faculty/consultant is asked to review the case and participate in the discussions of assessment and management in the case.

Grand Rounds – Coordinated by ED attending physicians or visiting faculty. Covers a variety of ED topics included in the core content areas and more cutting edge or administrative aspects.



Meetha. 4/20

Shalini

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Off-service lectures – Residents rotating off-site will participate in rounds and formal didactics from the departments with which they are rotating.

Each week, the program will dedicate at least 4 hours for educational sessions for the residents that will include didactic lectures, case presentation, journal article discussions, and guest lecturers. The residents will be excused from clinical responsibilities, and will have protected time for their educational development. Fundamental components of the education program include:

1. Lectures on the modular topic of the month
2. Evidence-based medicine
3. Journal article discussions
4. Grand rounds and guest speakers
5. Morbidity and mortality (M&M) meeting
6. Follow up case discussions on patients admitted through the emergency department
7. Procedures and skills seminars

11. Innovative Teaching & Learning Practices

ENHANCED SKILLS PROGRAM

The Enhanced Skills Program offers three types of learning experiences: specifically designed to meet the needs of doctors practicing in emergency departments.

Category 1 Programs with standardized curricula	Module addressing above subjects and covering common emergencies encountered in clinical practice.
Category 2 Programs with case discussions curricula .	Based on real life case scenarios covering common emergencies encountered in clinical practice.
Category 3 Customized Skills Programs	Designed to meet the needs of managing patients with common emergent problems.



Shalini

M. Chandra Rao
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

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

Customized Skills Program

The Simulation-assisted / Cadaver Emergency Medicine Procedures will be designed to allow physicians to acquire and review their skills in essential life-saving emergency procedures including:

1. Needle Cricothyrotomy and trans tracheal jet ventilation
2. Open Cricothyrotomy
3. Needle Thoracostomy
4. Chest Tube insertion
5. Intraosseous Vascular access in adults
6. Intraosseous Vascular access in Children
7. Pericardiocentesis
8. Central line Vascular access, landmark technique
9. Ultrasound-guided Central line vascular access
10. Principles of effective emergency resuscitation
11. Ultrasound in emergency resuscitation
12. Basics in wound care
13. Basic care in orthopedic emergencies

C. Mandatory clinical rotational postings

The PGs will rotate through both the emergency department and other important clinical services. The residents will spend 8/12 months each year in the Emergency Department and of the remainders of the time rotating through other services if there is no emergence of endemic/pandemic situation. The rotations in the other departments will provide the fellows with opportunities to develop important knowledge and skills in core subjects. Expected rotations will be as follows:

PGY1

1. Emergency Department (9 months)
2. Research (15days)
3. Ortho procedures & wound care (15days)
4. Pediatrics (15 days)
5. MICU (15 days)
6. CCU (15 days)
7. Anesthesia (15days)

PGY2

1. Emergency Department (8 months)
2. Ophthalmology (15 Days)
3. Radiology (15 days)
4. Neurology (15 days)
5. OB/Gyn (15days)
6. ENT (15days)
7. Surgery (15days)



Meena Y/ao

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8. Medicine (15 days)

9. Cardiology (15 days)

PGY3

1. Emergency Department (8 months)

2. Research/elective (2wk/2wk)

3. EICU (1 month)

4. PICU/NICU (15 days)

5. Ultrasound (15 days)

6. External posting (1 month)/ or elective

Point-of-Care Ultrasound training

1. Physics and Instrumentation

- Discuss the principle of attenuation and the relationship between ultrasound frequency and depth of penetration.
- Describe the tissue interactions such as reflection, echoes, transmission, and scatter.
- Discuss the relationship between echogenicity and the depiction of ultrasound images as white, gray, and black.
- Discuss the biologic effects and safety considerations related to ultrasonography.
- Discuss the piezoelectric effect and the differences between mechanical sector scanners and linear electronic transducers regarding their composition and ability to adjust focal length and direction of an ultrasound beam.
- Demonstrate the conventional positioning of the marker on the transducer when scanning in the cross-sectional plane and describe the orientation of the resultant image on the display.
- Discuss the use of receiver controls effecting gain and compensation (TGC).
- Discuss the characteristics of A mode, B mode, M mode and B scan (2-D).
- Discuss the causes and solution for the common ultrasound artifacts: pseudo-sludge (beam-width artifact), side lobe artifact, reverberation artifact (ring down artifact), mirror effect and gain artifact.

2. Cardiovascular Exam

- Demonstrate the ability to identify the cardiac chambers, myocardium, pericardium and grossly evaluate cardiac chamber size.
- Discuss the rationale for and demonstrate the use of ultrasound to diagnose electromechanical dissociation.
- Discuss the difference between the ultrasound appearance of a simple pericardial effusion and that of organized pericardial hematoma; discuss the sensitivity of ultrasound for diagnosing pericardial fluid and the possible confusion with pleural effusion or hyper-echoic pericardial fat



Shalini

Principal and Dean

M.S. Ramaiah Medical College and Hospital
M.S. Ramaiah University of Applied Sciences
Bangalore - 560054

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- d. Demonstrate the ability to recognize the key features of pericardial tamponade and to distinguish these findings from other causes of hypotension: cardiogenic shock, hypovolemia, pulmonary embolism.
- e. Demonstrate the ability to utilize ultrasound in penetrating cardiac trauma and describe the typical ultrasound appearance of fluid in the pericardial sac.
- f. Discuss the role of transesophageal 2-D echocardiography (TEE) in the diagnosis of suspected aortic dissection. Describe the findings seen on the standard left parasternal 2-D cardiac echo which suggest aortic dissection.

3. Abdominal Exam (FAST, AAA, and RUQ)

1. Demonstrate the ability to identify the gallbladder, liver, spleen, diaphragm, kidneys, aorta and its major branches, bowel (peristalsis) and bladder.
2. Discuss the benefit of rapid bedside sonography for the diagnosis of abdominal aneurysms. State the size of the aorta's normal external diameter at the level of the diaphragm and at the level of the renal bifurcation.
3. Demonstrate the ability to diagnose AAA using ultrasound and state the diagnostic accuracy of this modality.
4. State the common errors encountered in scanning for AAA.
5. Discuss the role of ultrasound for detecting hemoperitoneum in blunt abdominal trauma, specifically comparing it to DPL for sensitivity, ease and time required for performing the procedure.
6. Describe the sonographic appearance of fresh blood in the abdomen and define the regions which are routinely examined. Demonstrate the technique for examining the hepatorenal recess (Morison's pouch), splenorenal recess, cul-de-sac (pouch of Douglas), and subdiaphragmatic abdomen as well as the pleural space.
7. Discuss the threshold for reliably diagnosing hemoperitoneum and state the qualitative fluid characteristics of blood over time. Discuss the significance of absent liver mirror image artifact above the diaphragm.
8. State common errors in scanning for hemoperitoneum including artifacts.
9. Discuss the indications for U/S in evaluating RUQ abdominal pain. Discuss the clinical scenarios in which it can optimize patient care in the ED setting.
10. State the various sonographic characteristics of the gallbladder that make it favorable for evaluation by ultrasound.



Shalini

Principal and Dean

M.S. Ramaiah Medical College and Hospital
M.S. Ramaiah University of Applied Sciences
Bangalore - 560054

Meeha 4/ao

Dean - Academics

M.S. Ramaiah University of Applied Sciences
Bangalore - 560054

11. Discuss the significance of sonographic Murphy's sign, sludge, acoustic shadows, and gallbladder size and wall thickness in evaluating a patient for gallbladder disease.
12. Demonstrate the ability to diagnose cholelithiasis and cholecystitis.
13. State common errors in gallbladder scanning.
14. State the conditions in which ultrasound may be preferable for evaluation of renal colic; state the specific focus of the ultrasound exam for renal colic.
15. Demonstrate the ability to distinguish between the renal cortex, medulla and pelvis; demonstrate ability to diagnose renal calculi.
16. State the various anatomic considerations that make visualization of the right kidney easier than the left; demonstrate the technique that helps circumvent problems with visualizing the left kidney.
17. Demonstrate the ability to diagnose hydronephrosis and hydroureter on ultrasound exam of kidneys; demonstrate the ability to distinguish between chronic and acute hydronephrosis.
18. Discuss common errors in scanning the kidney.

Teaching/Learning Methods:

1. Didactics and hands-on sessions in ultrasound and general radiology
2. Rotations:
 - Application of radiologic studies in the Emergency Department
 - PoCUS training in ED
3. Assigned Readings: Ma and Mateer's Emergency Ultrasound



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

Shalini

Principal / Dean

M.S. Ramaiah Medical College and Hospital
 M.S. Ramaiah University of Applied Sciences
 Bangalore - 560 054

13. Assessment:

1. Monthly evaluations after Emergency Department rotations
2. Written evaluation after didactics
3. Procedure/Scanning Logs for all Ultrasounds and U/S Procedures.

EVALUATION AND ASSESSMENT

The PGs will be routinely evaluated to assess their continuous learning and incorporation of the emergency medicine knowledge and skills. They will also be given an opportunity to provide feedback and assessments of the MD program and the instructors on periodic basis. The PGs will take monthly post-tests for each module topic, and a minimum level of performance will be required in order to complete the program. In addition, the faculty will conduct an annual written and oral exam that covers the core topics of Emergency Medicine. A comprehensive final exam including both a written and an oral component will be given at the end of the PG program, with minimum requirements for certification.

In addition to PGs will be evaluated according to expectations of graduated experience, knowledge, and responsibilities as they progress in the 36-month curriculum. Senior PGs will be expected to provide bedside teaching, didactics, lectures, mentorship, and supervision of juniors. In this respect, the evaluation of PG's performance will be based on expected level of training. Rotating PGs will be evaluated based on the expectations listed on the rotation guides given to outside faculty at the start of the rotation. Faculty expected to return the resident evaluations at the end of each monthly rotation with feedback of specific suggestions and feed back to the PGs and HOD.

- PGs will be evaluated using the evaluation forms every month by at least one attending faculty, either an emergency medicine faculty or the main faculty supervising each outside rotation.
- The Emergency Department nursing staff regarding professionalism and interpersonal skills of the PG will complete one evaluation per year.
 1. PGs will be scheduled to review their evaluations, procedure logs, tests, and overall progress with the HOD / academic committee every six months. During this session, PGs will be given feedback on performance, pointers on how to improve their performance, and an opportunity to



Shalini
Principal and Dean

M.S. Ramaiah Medical College and Hospital
M.S. Ramaiah University of Applied Sciences
Bangalore - 560054

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Meena
Dean - Academics
M.S. Ramaiah University of Applied Sciences
Bangalore - 560054

discuss program-related issues with the HOD. This will also be an opportunity to review procedure logs and research projects.

2. PGs will be expected to fill-out an evaluation form for each monthly rotation. The HOD and academic committee to continuously improve the program will review these evaluations.
3. Any feedback from PGs regarding faculty or outside rotations will be provided to the faculty or outside rotations in an anonymous and constructive manner at the HOD's discretion.
4. PGs will be able to review their own files and past evaluations at any point during the MD with permission of the HOD/academic coordinator.
5. Either the PG or the HOD can arrange a meeting at any point in the fellowship to address issues pertinent to the PG's education.

Policy on Testing and Attendance

Policy on Testing & Attendance

The following policies regarding testing and attendance are relevant to all Post-Graduate Programs in Emergency Medicine.

- The maximum excusable missed time during the three-year MD is 10% or 2.5 months. This time is only permissible if accompanied by a reasonable excuse. Missed time will be expected to be made up to gain full certification. For any missed months, the PG will be expected to:
 1. Make up the full clinical time
 2. Review all presentations for that month, and
 3. Successfully complete the monthly post-test examinations.
- 1. PGs must achieve an overall passing grade (> 70%) in nine monthly modules per year (clinical performance, written exam, and practical exam) in order to successfully complete that academic year.
- 2. All PGs are required to complete a research project prior to graduation. Beginning with the PGs starting in 2022, the research proposal must be submitted and approved by December 1st of the first year of the MD.
- 3. Every PG must take the 'end of first year' examination and receive a minimum score of 50%.
- 4. The final examination will be offered on an annual basis and will consist of a written and oral exam to be conducted over two days. A final cumulative exam score of 50% on the written and oral exam will be required to successfully pass the exam.



Shalini

M. S. Ramaiah
Dean - Academics

Principal
M.S. Ramaiah Medical College and Hospital
M.S. Ramaiah University of Applied Sciences
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FORMATIVE ASSESSMENT

INTERNAL ASSESSMENT

Internal assessment (Written)

50 marks written examination consisting of 5 questions of 10 marks each covering the modules of the preceding 6 months. This assessment is conducted twice a year and students are mentored based on performance. The corrective actions will be taken for poor performers by the faculty.

Internal assessment practical

This assessment conducted every 6 months will be in the form of OSCE stations and students are assessed with a standardized checklist.

Work Place – Based Assessments (WPBA):

These assessments will provide feedback to trainers and trainees and are intended to be formative. They aim to test skills, knowledge, work attitudes and behavior during day-to-day practice. It is not possible to cover the whole curriculum through these assessments but the more important skills and topics are chosen to facilitate further exploration and discussion. Through these assessments the trainee can chart his / her progress and learn from feedback provided by the assessor.

The trainee must complete a preset number of each of the agreed types of assessments and competence is evaluated at the end of each rotation by the appointed Faculty. Although the main workplace assessment is formative, summative evidence will be used during the Periodic review and this will contribute to the result of this evaluation.

A minimum of one WPBA per month is recommended, but more may be required for trainees to ensure competence. The number of WPBAs completed may not necessarily mean that competence at a particular level has been achieved.

Types of WPBAs used are:

- Multi source feedback (MSF)
- Mini Clinical Evaluation Exercise (Mini-CEX)
- Case Based Discussion (CBD)
- Direct Observation of Procedural Skills (DOPS)



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- Mock drills

Multi Source Feedback (MSF)

This is a method of assessment of professional competence within a team-working environment and can also provide feedback to the trainee.

Mini-Clinical Evaluation Exercise (Mini-CEX):

It is a method of assessment of skills essential for the provision of a good standard of clinical care, and will also facilitate feedback to the trainee. Both the clinical and professional skills of the trainee are assessed while working in the Critical care Department or during rotations in other Departments.

The assessments are based on clinical problems in a range of clinical settings. The way a trainee interacts with a patient is also observed and assessed. Most encounters last between 15 and 20 minutes. The areas of competence covered are listed according to the stage of training reached in a separate section of this logbook. A BST should have a minimum of 4 Mini-CEX per year and a HST should have a minimum of 8 Mini-CEX per year of training.

Case Based Discussion (CBD)

This method is designed to assess clinical judgment, decision-making and the application of medical knowledge in relation to patient care in cases for which the trainee has been directly responsible.

The method is particularly

Designed to test higher order thinking and synthesis as it allows assessors to explore deeper understanding of how trainees compile, prioritize and apply knowledge. By using clinical cases that offer a challenge to the trainee, rather than routine cases, the trainee is able to explain the complexities involved and the reasoning behind choices they made. It also enables the discussion of the ethical and legal framework of practice. It uses patient records as the basis for dialogue, for systematic assessment and structured feedback. As the actual record is the focus for the discussion, the assessor can also evaluate the quality of record keeping and the presentation of cases. Most assessments take no longer than 15-20 minutes.

Direct Observation of Procedural Skills (DOPS):

This is used to assess the trainees' technical, operative and professional skills in a range of basic diagnostic and interventional procedures, or parts of procedures, during routine practice and will facilitate developmental feedback. DOPS is used in simpler environments and procedures and can take place in the Emergency and Critical care Departments and wards. Lists of procedures that can be assessed in this manner are referenced later in this document according to the level of training.



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LIST OF WPBAS

<p>Mini CEX X 4 per year</p>	<p>Topics</p> <ol style="list-style-type: none"> 1. Examination of the unconscious patient 2. Examination of patient with chest pain, to include differential diagnosis and investigations 3. Examination of patient with acute abdominal pain, to include differential diagnosis and investigation 4. Perform a primary survey 5. Perform a secondary survey in polytrauma 6. Recognition of critically ill, e.g., sepsis, shock, poisoning, Near fatal asthma 7. Examination of the hand 8. Examination of the breathless patient 9. Examination of the patient with neurological injury, including indications for imaging and admissions 10. Breaking bad news and patient attendee counseling (Communication Skills)
<p>DOPS X 4 per year</p>	<ol style="list-style-type: none"> 1. Basic airway management including adjuncts e.g. BMV, oxygen delivery 2. Surgical airway 3. Observed defibrillation 4. Wound management, to include knowledge of anatomy, local anesthetic technique, and closure 5. Chest drains insertion 6. Perform ECG with posterior and right ventricular leads and be able these additional leads appropriately 7. External pacing 8. Conscious sedation, to include indications, consent and how to deal with any complications 9. Gastric Lavage and Decontamination.
<p>CBD X 4 per year</p>	<ol style="list-style-type: none"> 1. Indications for definitive airway and intubation 2. Cardiac arrest management, to include rhythm recognition and drug pharmacology and arrest in special situations 3. Life threatening conditions in trauma 4. 'The shocked patient' 5. Presentation and management of CVA/stroke, to include risk stratification and indications for thrombolysis 6. The breathless patient, to include differential diagnosis, investigations, and management plan 7. Acute coronary syndromes, to include differential diagnosis, investigations, and management plan.

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	Topics
Mini CEX X8 per year	<ol style="list-style-type: none"> 1. Assessment of the patient with acute headache, including investigations and treatment 2. Assessment and management of Stroke 3. Assessment of patient with weakness 4. Assessment of patients with various poisoning and drug over dose 5. Assessment of adult with head injury, including investigation and indications for admission 6. Assessment of adult with Thoracic injury, including investigation and indications for admission 7. Assessment of adult with Abdomen injury, including investigation and indications for admission 8. Assessment of adult with Pelvis and musculoskeletal injuries, including Investigation and indications for admission 9. Assessment of adult with Burns and inhalational injury, including investigation and indications for admission 10. Assessment of a neurovascular compromised limb 11. Management of the septic patient 12. Assessment of the mental health patient (to include suicide risk) 13. Ventilator management in special situations 14. Recognition and management of arrhythmias 15. Assessment and management of hanging, submersion and electrical injuries 16. Assessment of a patient with diabetic ketoacidosis (or other complex metabolic/toxicology problem) 17. Assessment of Maxillofacial trauma 18. Assessment of Altered Mental State 19. Dealing with a difficult patient/or DNAR orders 20. Dealing with a real time shop floor crisis e.g. critical incident or acute staffing problem

Topics

CBD

X 2 per year

1. Major trauma with a life-threatening primary survey injury
2. Major trauma with life threatening complex 'C' problem, such as pelvic injury/or use of interventional radiology
3. Acute presentation of non-traumatic rheumatologic conditions
4. The hot swollen joint
5. ATLS guidelines for head injury
6. Assessment of unilateral lower limb swelling
7. Acute renal failure
8. Acute ischemic limb



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9. The sexual health patient (may include HIV)
10. Major incident planning exercise
11. Management a patient with thermal injury (may include burns or cold)
12. Management of a patient with urological condition (may include renal colic, torsion or retention)
13. Anaphylaxis
14. Management of a complaint
15. Bleeding in early pregnancy
16. Collapse and syncope

EDUCATIONAL AND ACADEMIC ACTIVITIES:

The following courses are mandated for residents of emergency medicine. They are conducted on campus and post-graduate students are required to maintain a record in the following manner.

Mandatory Courses	AHA-BLS AHA-ACLS	ATLS	PALS	NALS
Date				

TUTORIALS:

Assessment of the tutorials will be carried out by the department's academic panel based on a set of criteria. Each criterion will be given a score of 1 to 4 based on the performance. A score 1 is lowest and a score of 4 as the highest. Finally, the resident's performance is graded according to the sum of the scores as

21-25	Excellent
16-20	Good
12-15	Fair
8-11	Average
Below 8	Poor



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The criteria assessed will be

1. Clarity of delivery:

Audibility, liveliness, and clarity of presentation. Confidence in delivery. Appropriate use of body language (Inc. eye contact).

2. Clarity of organization and structure:

Should contain Introduction with objectives, relevant pathophysiology, clinical features, approach, investigations, diagnosis, management, recent advances, and conclusion with take home message.

3. Appropriate use of sources:

Effective use of power-point presentations with a uniform font selection limiting up to 6 lines per slide. Entry of timeline at appropriate juncture. Use of pictures and algorithms as needed.

4. Integration of evidence and argument:

Extent, quality, and appropriateness of research. Substantiation of facts with citations

5. Use of appropriate duration of audio-visual aids (25-30 minutes):

6. Ability to interest audience and stimulate discussion:

Conceptual grasp of issues, quality of argument and ability to answer questions and interact

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 and resuscitation	MDC557A	Core concepts and skills of the areas of resuscitation science for emergency medicine:	100
Medical Emergencies	MDC558A	Principles and Practice of all Medical emergencies.	100
Trauma and surgical emergencies	MDC559A	Principles and Practice of Trauma and surgical emergencies	100
Recent advances and Paediatric emergencies	MDC560A	Recent advances in the field of Emergency medicine.	100
Thesis – Emergency Medicine.	MDP515A	Approval 6 months before examination.	



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ANNEXURES

List of Annexures

1. Présentation Assessment Criteria
2. Mini-Clinical Evaluation Exercise (Cex)
3. Direct Observation of Procedural Skills (DOPS) Form
4. Case Based Discussion (CBD) Form:
5. Resident Evaluation Form

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Annexure- 1
Présentation assessment criteria

Topic		
Date		
Clarity of delivery		
Clarity of organization and structure		
Appropriate use of sources		
Integration of evidence and argument		
length of 25-35 minutes use of visual		
interest audience and stimulate		
Points secured:		
Approved by		
Assessor's name and qualification		
Assessor's signature		



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Annexure- 2
MINI-CLINICAL EVALUATION EXERCISE (CEX)

Trainee's Surname : _____

Trainee's Forename : _____

Registration Number : _____

Clinical Setting (PLEASE CIRCLE):

EMS

ER

ICU

Complexity of Case (PLEASE CIRCLE):

LOW

HIGH

MED

Assessor's Position (PLEASE CIRCLE):

CONSULTANT

OTHER (PLEASE SPECIFY): _____

Assessor's satisfaction with Mini-CE (PLEASE CIRCLE):

Not at all satisfied

reasonably satisfied

very satisfied

Positive remarks:

Suggestions for development:

ASSESSOR NAME: _____

SIGNATURE: _____ ASSESSORS REGISTRATION NUMBER: _____

DATE:

Number of previous Mini CEX's observed by Assessor (PLEASE CIRCLE):



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	0	1	2	3	4	5	-9	>9	U/C*
Please grade the following reassuring scale heading as appropriate	Below Expectations for level of Trainee	Borderline for level of Trainee	Meets Expectations for level of Trainee	Above Expectations for level of Trainee					
History Taking									
Physical Examination Skills									
Communication Skills									
Clinical Judgment									
Professionalism									
Organization / Efficiency									
Overall Clinical Care									

U/C* -- PLEASE MARK THIS IF YOU HAVE NOT OBSERVED THE BEHAVIOUR AND THEREFORE FEEL UNABLE TO COMMENT



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Annexure- 3

DIRECT OBSERVATION OF PROCEDURAL SKILLS (DOPS) Form

Trainee's Surname : _____

Trainee's Forename : _____

Registration Number : _____

Clinical Setting (PLEASE CIRCLE):

A&E

CLINIC

WARD

ACUTE ADMISSION

Procedure: _____

Complexity of Case (PLEASE CIRCLE):

LOW

HIGH

MED

Assessors Position (PLEASE CIRCLE):

CONSULTANT

HST

Other (please specify)

Number of previous DOPS observed by (PLEASE CIRCLE):

0

1

2

3

4

5

9

>9

Number of times procedure performed by Trainee (PLEASE CIRCLE):

0

1-4

5-9

>9



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Please grade the following areas using scale heading as appropriate:	Below Expectations for level of Trainee	Borderline for level of Trainee	Meets Expectations for level of Trainee	Above Expectations for level of Trainee	U/C*
Demonstrates understanding of indications, relevant anatomy, and of procedure technique.					
Obtains informed consent.					
Demonstrates appropriate preparation pre-procedure.					
Appropriate Analgesia or safe sedation					
Technical ability					
Aseptic technique					
Seeks help where appropriate					
Post procedure management					
Communication skills					
Consideration of patient / professionalism					
Overall ability to perform procedure					

U/C* -- PLEASE MARK THIS IF YOU HAVE NOT OBSERVED THE BEHAVIOUR AND THEREFORE FEEL UNABLE TO COMMENT

Assessor's satisfaction with DOPS (PLEASE CIRCLE):

Not at all satisfied reasonably satisfied very satisfied

ASSESSOR NAME: _____

SIGNATURE: _____ ASSESSORS REGISTRATION NUMBER: _____



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Annexure- 4
CASE BASED DISCUSSION (CBD) Form:

Trainee's Surname : _____

Trainee's Forename : _____

Registration Number : _____

Clinical Setting (PLEASE CIRCLE):

A&E

CLINIC

WARD

ACUTE ADMISSION

Complexity of Case (PLEASE CIRCLE):

LOW

HIGH

MED

Assessor's Position (PLEASE CIRCLE):

CONSULTANT HST OTHER (PLEASE SPECIFY) _____

Number of previous CBDs undertaken by the Assessor (PLEASE CIRCLE):

0 1 2 3 4 5 -9 >9

Please grade the following areas using scale heading as appropriate:	Below Expectations for level of Trainee	Borderline for level of Trainee	Meets Expectations for level of Trainee	Above Expectations for level of Trainee
Clinical record keeping				
Clinical assessment (includes diagnostic skills)				
Medical treatment				
Investigations and treatment				
Follow up and management plan				
Clinical reasoning				
Overall Clinical Care				



U/C* - PLEASE MARK THIS IF YOU HAVE NOT OBSERVED THE BEHAVIOUR AND THEREFORE FEEL UNABLE TO COMMENT

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Mark. 4/100

Assessor's satisfaction with Mini-CE (PLEASE CIRCLE):

Not at all satisfied *reasonably satisfied* *very satisfied*

Discussion with trainer:

Key learning points:

ASSESSOR NAME: _____

SIGNATURE: _____ ASSESSORS REGISTRATION NUMBER: _____

DATE:



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Annexure- 5

RESIDENT EVALUATION FORM

Name (Mentee):

PGY:

Evaluating Mentor:

Date of Evaluation:

Designation:

(Directions: Please evaluate the Emergency Medicine Resident on a scale of 1-5 assuming)

1= Unacceptable 2= Below Average 3= Average 4= Good 5= Excellent Patient Care

Sl. No	Criterion	Score
1.	Is effective in gathering the essential information when taking a patient history	
2.	Is effective in performing the physical examination on the patient in ER	
3.	Demonstrates good use of technical skills for therapeutic procedures on the patient in the ER	
4.	Uses sound clinical judgment in identifying life-threatening problems and is effective in developing a broad differential diagnosis and treatment plan with scientific evidence that supports it	
5.	Appropriately manages the patient's case and emergent condition through the use of Lab, x-ray, consultation/referrals, and other ancillary services	
6.	Effectively educates and counsels patients regarding their medical condition and treatment options, including side effects, risks, patient safety issues, and other concerns	
7.	Gives good quality case presentations that are efficient and organized in the use of time	

General Medical Knowledge

Sl. No	Criterion	Score
1.	Demonstrates knowledge of the Patho-physiology of common disease processes relevant in the emergency department	
2.	Effectively interprets diagnostic studies and incorporates them into treatment plans	
3.	Demonstrates the use of reference material and scientific reading in explaining the basis for decision-making on a case in regards to management	

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Interpersonal Skills and Communication

Sl. No	Criterion	Score
1.	Demonstrates effective and appropriate doctor-patient relationship	
2.	Provides and maintains comprehensive, legible, and timely medical records	
3.	Exhibited effective listening, written and oral communication skills with patients, families, and other healthcare providers	

Practice-based Learning and Improvement

Sl. No	Criterion	Score
1.	Demonstrates proficiency in locating, evaluating, and assimilating information from research studies into patient care, and utilizes hospital information and technology	
2.	Is aware of own limitations, takes advice gracefully, and uses this information for educational growth and improvement to participate actively in own learning	

Professionalism

Sl. No	Criterion	Score
1.	Is reliable and punctual for duty and class attendance	
2.	Maintains a professional appearance and an ethical demeanor	
3.	Demonstrates sensitivity and respect in regards to the patient's culture, religion, age, gender, sexual orientation, and mental and physical disabilities	
4.	Displays sensitivity and respect to the needs of the patients and them families in regards to privacy, welfare, and autonomy	

System-Based Practice

Sl. No	Criterion	Score
1.	Demonstrates a general understanding of the entire health care system	

Mentor Signature:



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SUMMATIVE ASSESSMENT

This is carried out at the end of 3 years of residency. 4 papers of 100 marks each will be administered. Each paper will comprise 10 questions of 10 marks each and will cover the following topics

Name of the Course	Course Code	Topics	Marks
Basic sciences and resuscitation	MDC557A	Basic Sciences -Applied aspects of Anatomy, Physiology, and Biochemistry, Pathology. Microbiology, Pharmacology, General Emergency Medicine topics, Cardiopulmonary resuscitation. Fluid & Electrolyte balance, Blood transfusion, Multiorgan failure, Poisoning. Toxicology, Pre anesthetic and post-operative emergencies, Disaster Medicine, Radiodiagnosis.	100
Medical Emergencies	MDC558A	Infectious diseases, HIV and AIDS, Cardiovascular emergencies, Gastrointestinal emergencies. Critical care, Pediatrics. Environmental emergencies (All pertaining to Emergency medicine)	100
Trauma and surgical emergencies	MDC559A	Respiratory medicine, Central Nervous system, Surgical emergencies, Obstetric and Gynecological Emergencies. All Surgical emergencies, Procedures in emergency medicine.	100
Recent advances and Paediatrics emergencies	MDC560A	Nephrology, Metabolism, Hematology, Medical oncology, psychiatry, dermatology, STDs and occupational diseases (All pertaining to emergency medicine)	100
Thesis – Emergency medicine	MDP515A	Approval 6 months before examination.	



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PRACTICAL EXAM SCHEME
TOTAL 300 MARKS

CLINICAL CASES			
MEDICAL CASE	SURGICAL CASE	PEDIATRIC CASE	OB/GYN
• EXAMPLES: <ul style="list-style-type: none"> • ACUTE STROKE • ACS-NSTEMI/UA • UGI BLEEDING • CAP • COPD EXACERBATION • DECOMPENSATED HEART FAILURE 	• EXAMPLES: <ul style="list-style-type: none"> • ACUTE ABDOMEN • NECROTIZING SOFT TISSUE INFECTION • ACUTE LIMB ISCHEMIA 	• EXAMPLES: <ul style="list-style-type: none"> • FEBRILE CONVULSION • EXACERBATION OF BRONCHIAL ASTHMA/ BROBCHIOLITIS • FEVER WITH RASH 	• EXAMPLES: <ul style="list-style-type: none"> • FEBRILE CONVULSION • EXACERBATION OF BRONCHIAL ASTHMA/ BROBCHIOLITIS • FEVER WITH RASH

25 MARKS X 4= 100 MARKS
15 MINUTES PER CASE PER CANDIDATE

OSCE STATION	MARKS
AIRWAY AND VENTILATION	20
BLS AND ACLS	20
PALS AND NRP	20
ATLS	20
POINT OF CARE USG	20
TOTAL	100

PEDAGOGY

- Thesis presentation :20 marks
- 10-minute presentation by candidate
- 5 minutes discussion

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VIVA-VOCE

- Equipment
- Monitors
- Procedures
- Drugs
- ABG case scenarios
- ECG case scenarios
 - 10 MINUTES DISCUSSION FOR EACH DOMAIN PER CANDIDATE
- 10 MARKS X 6 = 60 MARKS

Spotters

- 20 X 1 MARK = 20 MARKS
- ECG, RADIOLOGY, TOXICOLOGY, DERMATOLOGY

CLINICAL CASES	100 MARKS
OSCE	100 MARKS
PEDAGOGY	20 MARKS
VIVA-VOCE	60 MARKS
SPOTTERS	20 MARKS
TOTAL	300 MARKS



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Course Specifications

MD Emergency Medicine 2022 onwards

Course Code: MDC557A



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Course Specifications

Course Title	Basic sciences and resuscitation
Course Code	MDC557A
Department	Emergency Medicine
Faculty	Ramaiah Medical College

Course Summary:

This course is designed in such a way that the student will master the anatomy, physiology, and biochemical aspects relevant to emergency medicine and the necessary principles and practice of resuscitation of the critically ill patient in the emergency department.

Course Outcomes:

CO 1: Demonstrate comprehensive applied knowledge anatomy, physiology, and biochemical aspects in relevance to approach and management of various emergencies in adults and children. (C)

CO 2: Demonstrate a good understanding of knowledge, skills, and communication for resuscitating critically ill adults and children. (C, A, P)

Course Content:

Knowledge, core concepts and skills of the following areas of resuscitation science for emergency medicine:

1. Sudden Cardiac Death
2. Approach to Nontraumatic Shock
3. Approach to Traumatic Shock
4. Allergy and Anaphylaxis
5. Acid-Base Disorders
6. Blood Gases, Pulse Oximetry, and Capnography
7. Fluids and Electrolytes
8. Cardiac Rhythm Disturbances
9. Resuscitation in Pregnancy
10. Post-Cardiac Arrest Syndrome
11. Ethical Issues of Resuscitation
12. Pharmacology of Antiarrhythmics and Antihypertensives
13. Cardiac Resuscitation
14. Pharmacology of Vasopressors and Inotropes
15. Hyperbaric Oxygen Therapy
16. Resuscitative Procedures
17. Basic Cardiopulmonary Resuscitation
18. Defibrillation and Electrical Cardioversion
19. Non-invasive Airway Management and Supraglottic Airways
20. Tracheal Intubation
21. Mechanical Ventilation
22. Cardiogenic Shock



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23. Low-Probability Acute Coronary Syndrome
24. Syncope
25. Acute Heart Failure
26. Valvular Emergencies
27. Cardiomyopathies and Pericardial Disease
28. Surgical Airways
29. Vascular Access
30. Hemodynamic Monitoring
31. Cardiac Pacing and Implanted Defibrillation
32. Pericardiocentesis
33. Venous Thromboembolism Including Pulmonary Embolism.
34. Analgesia, Anesthesia, and Procedural Sedation
 - a. Acute Pain Management
 - b. Local and Regional Anesthesia
35. Prehospital Care
36. Mass Gatherings
37. Disaster Management
38. Disaster Preparedness
39. Natural Disasters
40. Bomb, Blast, and Crush Injuries
41. Chemical Disasters
42. Emergency Medical Services
43. Prehospital Equipment
44. Air Medical Transport
45. Bioterrorism



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Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes			Program Specific Outcomes										
		PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO6	PSO7	PSO8	PSO9	PSO10
MDC557A Basic sciences and resuscitation															
	CO 1	3	1	2											2
	CO 2	3	2	3	3	3	3	3	3	2	2	2	3	2	2
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution															



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Course Specifications

MD Emergency Medicine 2022 onwards

Course Code: MDC558A



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Course Specifications

Course Title	Medical Emergencies
Course Code	MDC558A
Department	Emergency Medicine
Faculty	Ramaiah Medical College

Course summary:

This course is designed in such a way that the student will master the emergency approach, management, and disposition to a plethora of medical emergencies in adults and some common disease processes in depth.

Course Outcomes:

CO 1: Demonstrate comprehensive knowledge of Epidemiology, pathophysiology, ED presentation and management of various medical emergencies. (C)

CO 2: Demonstrate a good understanding of prerequisite skills of assessment and stabilization of various medical emergencies. (A, P)

Course Content:**PULMONARY EMERGENCIES IN ADULTS**

1. Congenital cystic fibrosis
2. Inflammatory and Infectious disorders asthma, bronchitis, bronchiolitis, pneumonia, empyema, COPD exacerbation, lung abscess, pleurisy and
3. pleural effusion, pulmonary fibrosis, tuberculosis
4. Traumatic and related problems foreign body inhalation, haemothorax,
5. Tension pneumothorax, pneumomediastinum
6. Tumours common complications and acute complications of pulmonary and metastatic tumours, Vascular disorders pulmonary embolism

NEUROLOGICAL EMERGENCIES IN ADULTS

1. Inflammatory and Infectious disorders brain abscess, encephalitis, Guillain-Barré syndrome, meningitis, peripheral facial palsy (Bell's palsy), temporal arteritis
2. Traumatic and related problems complications of CNS devices, spinal cord syndromes, peripheral nerve trauma and entrapment, traumatic brain injury
3. Tumours common presentations and acute complications of neurological and metastatic tumours
4. Vascular disorders: carotid artery dissection, stroke, subarachnoid haemorrhage, subdural and extradural haematomata, transient ischaemic attack, venous sinus thrombosis



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5. Other problems acute complications of chronic neurological conditions (e.g., myasthenic crisis, multiple sclerosis), acute peripheral neuropathies, seizures, and status epilepticus.

CARDIOVASCULAR EMERGENCIES IN ADULTS

1. Arrhythmias
2. Contractility disorders, pump failure cardiomyopathies, congestive heart failure, acute pulmonary oedema, tamponade, valvular emergencies
3. Inflammatory and infectious cardiac disorders endocarditis, myocarditis, pericarditis
4. Ischaemic heart disease acute coronary syndromes, stable angina
5. Traumatic injuries
6. Vascular and thromboembolic disorders
7. Aortic dissection/aneurysm rupture, deep vein thrombosis, hypertensive emergencies, occlusive arterial disease, thrombophlebitis, pulmonary embolism, pulmonary hypertension

DERMATOLOGICAL EMERGENCIES IN ADULTS

1. Inflammatory and Infectious disorders
2. Skin manifestations of immunological disorders, systemic disorders, toxic disorders

ENDOCRINE AND METABOLIC EMERGENCIES IN ADULTS

1. Adrenal insufficiency and crisis
2. Disorders of glucose metabolism hyperosmolar hyperglycaemic state, hypoglycaemia, ketoacidosis
3. Thyroid disease emergencies hyperthyroidism, hypothyroidism, myxoedema coma, thyroid storm

FLUID AND ELECTROLYTE DISTURBANCES

1. Acid-Base disorders
2. Electrolyte disorders
3. Volume status and fluid balance disturbances

GASTROINTESTINAL EMERGENCIES IN ADULTS

1. Inflammatory and infectious disorders appendicitis, cholecystitis, cholangitis, diverticulitis, exacerbations, and complications of inflammatory
2. bowel diseases, gastritis, gastroenteritis, gastro-oesophageal reflux
3. disease, hepatitis, pancreatitis, peptic ulcer, peritonitis
4. Metabolic disorders hepatic disorders, hepatic failure
5. Vascular disorders/Ischaemia and bleeding
6. Other problems complications of gastrointestinal devices and surgical
7. Procedures

HAEMATOLOGY AND ONCOLOGY EMERGENCIES IN ADULTS

1. Anaemias
2. Complications of lymphomas and leukemias



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3. Congenital disorders haemophilia and Von Willebrand's disease, hereditary haemolytic anaemias, sickle cell disease
4. Inflammatory and Infectious disorders neutropenic fever, infections in immuno-compromised patients
5. Vascular disorders/ Ischaemia and bleeding: acquired bleeding disorders (Coagulation factor deficiency, disseminated intravascular coagulation), drug induced bleeding (anticoagulants, antiplatelet agents, fibrinolytics),
6. Idiopathic thrombocytopenic purpura, thrombotic thrombocytopenic purpura
7. Transfusion reactions

IMMUNOLOGICAL EMERGENCIES IN ADULTS

1. Allergies and anaphylactic reactions
2. Inflammatory and Infectious disorders
3. Acute complications of vasculitis

INFECTIOUS DISEASES AND SEPSIS IN ADULTS

1. Common viral and bacterial infections
2. Food and water-borne infectious diseases
3. HIV infection and AIDS
4. Common tropical diseases
5. Parasitosis
6. Rabies
7. Sepsis and septic shock
8. Sexually transmitted diseases
9. Streptococcal toxic shock syndrome
10. Tetanus

TOXICOLOGY IN ADULTS

1. General principles of toxicology and management of poisoned patients
2. Principles of drug interactions
3. Specific aspects of poisoning
4. Drugs (including paracetamol, amphetamine, anticholinergics, Anticonvulsants, antidepressants, antihypertensives, benzodiazepines,
5. Digitalis, monoamine oxidase inhibitors, neuroleptics) industrial, chemicals
6. Plants & mushrooms alcohol abuse and alcohols poisoning drugs of abuse
7. Local poisonings such as OPC, aluminium phosphide, yellow Phosphorous, heavy metal poisoning, plant poisonings, paraquat poisoning, cyber methrine poisoning, corrosives petroleum products, methanol and ethanol, dyes, and nitrobenzene.



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Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes			Program Specific Outcomes										
		PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO6	PSO7	PSO8	PSO9	PSO10
MDC558A Medical Emergencies	CO 1	3	3	2	3	3	2	3	3	3	2	2	2	2	2
	CO 2	3	2	2	2	2	3	2	3	2	1		1	2	1
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution															



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Course Specifications

MD Emergency Medicine 2022 onwards

Course code: MDC559A



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Course Specifications

Course Title	Trauma and surgical emergencies
Course Code	MDC559A
Department	Emergency Medicine
Faculty	Ramaiah Medical College

Course Summary:

The course is designed in such a way that the student will master team-based, holistic approach to assessing and managing major and minor trauma. The course also entails knowledge and skills prerequisite for appropriate assessment, management, and disposition of patients with surgical emergencies.

Course Outcomes:

CO 1: Demonstrate comprehensive knowledge of Epidemiology, pathophysiology, ED presentation and ED management of various surgical emergencies. (C)

CO 2: Demonstrate a good understanding of knowledge, skills, and communication for managing major and minor trauma in adults and children. (C, A, P)

Course Content:

1. Abnormal Uterine Bleeding
2. Abdominal and Pelvic Pain in the Nonpregnant Female
3. Ectopic Pregnancy and Emergencies in the First 20 Weeks of Pregnancy
4. Comorbid Disorders in Pregnancy
5. Maternal Emergencies After 20 Weeks of Pregnancy and in the Peripartum Period
6. Anorectal Disorders
7. Gastrointestinal Procedures and Devices
8. Complications of General Surgical Procedures
9. Complications of Gynecologic Procedures
10. Eye, Ear, Nose, Throat, and Oral Disorders
11. Eye Emergencies
12. Ear Disorders
13. Face and Jaw Emergencies
14. Nose and Sinuses
15. Oral and Dental Emergencies
16. Neck and Upper Airway
17. Complications of Airway Devices
18. Trauma
19. Trauma in Adults
20. Trauma in the Elderly
21. Wound Evaluation



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22. Wound Preparation
23. Wound Closure
24. Face and Scalp Lacerations
25. Arm, Forearm, and Hand Lacerations
26. Thigh, Leg, and Foot Lacerations
27. Non-infectious Pulmonary Infiltrates
28. Soft Tissue Foreign Bodies
29. Puncture Wounds and Bites
30. Post repair Wound Care
31. Gastrointestinal Disorders
32. Acute Abdominal Pain
33. Acute Appendicitis
34. Diverticulitis
35. Bowel Obstruction
36. Hernias



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Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes			Program Specific Outcomes										
		PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO6	PSO7	PSO8	PSO9	PSO10
MDC559A Trauma and surgical emergencies	CO 1	3	2	3	3	3	2	3	3	3	2	3	3	2	3
	CO 2	3	2	3	3	3	2	3	3	3	2	3	3	2	3
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution															



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Course Specifications

MD Emergency Medicine 2022 onwards

Course code: MDC560A



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Course Specifications

Course Title	Recent advances and Pediatric emergencies
Course Code	MDC560A
Department	Emergency Medicine
Faculty	Ramaiah Medical College

Course Summary:

The course is designed in such a way that the student will have good knowledge with optimal skills for identifying and managing a child presenting to the emergency department. The course also fills in gaps of knowledge related to minor emergencies and knowledge and application of newer advances in the field of emergency medicine.

Course Outcomes:

CO 1: Demonstrate comprehensive knowledge of Epidemiology, pathophysiology, ED presentation and ED management of various pediatric emergencies. (C)

CO 2: Demonstrate a good understanding of knowledge and application of recent advances in emergency medicine. (C)

Course Content:

1. Acute Kidney Injury
2. Neonatal and Pediatric Transport
3. Resuscitation of Neonates
4. Resuscitation of Children
5. Rhabdomyolysis
6. End-Stage Renal Disease
7. Minor Head Injury and Concussion in Children
8. Cervical Spine Injury in Infants and Children
9. Intubation and Ventilation of Infants and Children
10. Vascular Access in Infants and Children
11. Urinary Tract Infections and Hematuria
12. Acute Urinary Retention
13. Male Genital Problems
14. Urologic Stone Disease
15. Pain Management and Procedural Sedation for Infants and Children
16. Complications of Urologic Procedures and Devices
17. Pediatric Trauma
18. Vulvovaginitis
19. Pelvic Inflammatory Disease



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20. Breast Disorders
21. Emergency Delivery
22. Neonatal Emergencies and Common Neonatal Problems
23. Brief Resolved Unexplained Events and Apparent Life-Threatening Events
24. Sudden Infant Death Syndrome
25. Fever and Serious Bacterial Illness in Infants and Children
26. Pediatric Orthopedic Emergencies
27. Rashes in Infants and Children
28. Sickle Cell Disease in Children
29. Hematologic Emergencies in Infants and Children
30. Oncologic Emergencies in Infants and Children
31. Metabolic Emergencies in Infants and Children
32. Diabetes in Children
33. The Child with Special Healthcare Needs
34. Meningitis in Infants and Children
35. Ear and Mastoid Disorders in Infants and Children
36. Eye Emergencies in Infants and Children
37. Nose and Sinus Disorders in Infants and Children
38. Mouth and Throat Disorders in Infants and Children
39. Neck Masses in Infants and Children
40. Stridor and Drooling in Infants and Children
41. Wheezing in Infants and Children
42. Pneumonia in Infants and Children
43. Behavioral Disorders in Children
44. Child Abuse and Neglect
45. Congenital and Acquired Pediatric Heart Disease



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Course Code and name	Course Outcomes	Program Outcomes			Program Specific Outcomes										
		PO1	PO2	PO3	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO6	PSO7	PSO8	PSO9	PSO10
MDC506A Recent advances and Pediatric emergencies	CO 1	3	1	1	3	3	2	3	2	2	2	2	2	2	3
	CO 2	3	1	1	3	2		2	2						

3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution

Course Mapping (CO-PO-PSO Mapping)



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Course Specifications

MD Emergency Medicine 2022 onwards

Course code: MDP515A



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Course Specifications

Course Title	Thesis– Emergency Medicine
Course Code	MDP515A
Department	Emergency 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:

Describe the techniques of research, identify available literature, and critically analyse 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	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
MDP515A Thesis- Emergency Medicine	CO 1			2				3								

3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution

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

Shalini
Principal and Dean
M.S. Ramaiah Medical College and Hospital
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Madh. Gao
Dean - Academics
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Course Materials:

BOOKS

1. Peter Rosen's Textbook on Emergency Medicine 10th edition
2. Tintinalli's Emergency Medicine 9th edition
3. Goldfrank's Toxicologic Emergencies

JOURNALS

1. American Journal of Emergency Medicine
2. Annals of Emergency Medicine
3. Clinical Toxicology
4. European Journal of Emergency Medicine
5. Human and Experimental Toxicology
6. International Journal of Critical Illness and Injury Science
7. Journal of Emergencies, Trauma and Shock
8. Journal of Emergency Medicine
9. Journal of Trauma and Acute Care Surgery Shock



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