MGM SCHOOL OF BIOMEDICAL SCIENCES

(A constituent unit of MGM INSTITUTE OF HEALTH SCIENCES)
(Deemed to be University u/s 3 of UGC Act 1956)
Grade "A^{++}" Accredited by NAAC
Sector 1, Kamothe, Navi Mumbai-410209, Tel. No.:022-2743763, 27437632, 27432890
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CHOICE BASED CREDIT SYSTEM (CBCS)

(Academic Year 2025-26)

Curriculum for

M.Sc. Allied Health Sciences

M.Sc. Emergency and Trauma Care Technology

Semester I & II

DIRECTOR'S MESSAGE

Welcome Message from the Director

Dear Postgraduate Students,

Welcome to **MGM School of Biomedical Sciences (MGMSBS), MGMIHS**, a premier institution dedicated to advancing allied and health sciences education. As you embark on this transformative academic journey, you are joining a community that fosters excellence in research, clinical expertise, and innovation**.**

MGMIHS, accredited with **NAAC 'A^{++}' Grade (CGPA 3.55, 2022)** and recognized as a **Category I Institution by UGC**, offers an ecosystem that nurtures both academic and professional growth. With **NIRF (151-200 rank band) recognition, NABH-accredited hospitals, NABL-accredited diagnostic labs, and JCI accreditation for MGM New Bombay Hospital**, we uphold global benchmarks in education and healthcare.

At MGMSBS, our **15 postgraduate programs** are meticulously designed to align with the National Commission for Allied and Healthcare Professionals **(NCAHP)** standards**,** National Education Policy **(NEP)** 2020**,** and the National Credit Framework **(NCrF).** We have implemented the **Choice-Based Credit System (CBCS)** to provide academic flexibility while ensuring rigorous training in clinical and technical skills**.** Our state-of-the-art research laboratories, digital classrooms, and the Central Research Laboratory (CRL) foster an environment that encourages innovation and evidence-based learning**.**

Postgraduate education at MGMSBS goes beyond theoretical learning—our curriculum integrates **hands-on clinical training, interdisciplinary collaboration, and exposure to real-world healthcare challenges**. We emphasize **research-driven education**, encouraging students to actively participate in **scientific discoveries, publications, and international collaborations**.

Beyond academics, we believe in **holistic development**, with initiatives such as the **AARAMBH Science and Wellness Club**, which promotes **mental well-being, leadership, and professional networking**.

As you step into this **next phase of academic and professional growth**, we encourage you to explore new ideas, engage in impactful research, and contribute meaningfully to the **healthcare ecosystem**. We are confident that your journey at MGMSBS will shape you into **skilled, compassionate, and visionary professionals**, ready to lead in the ever-evolving healthcare landscape.

We look forward to witnessing your achievements and contributions!

Dr. Mansee Thakur
Director, MGM School of Biomedical Sciences
MGM Institute of Health Sciences, Navi Mumbai

ABOUT MGM SCHOOL OF BIOMEDICAL SCIENCES

Mission

To improve the quality of life, both at individual and community levels by imparting quality medical education to tomorrow's doctors and medical scientists and by advancing knowledge in all fields of health sciences though meaningful and ethical research.

Vision

Bytheyear2022, MGM Institute of Health Sciences aims to be top-ranking Centre of Excellence in Medical Education and Research. Students graduating from the Institute will have the required skills to deliver quality health care to all sections of the society with compassion and benevolence, without prejudice or discrimination, at an affordable cost. As a research Centre, it shall focus on finding better, safer and affordable ways of diagnosing, treating and preventing diseases. In doing so, it will maintain the highest ethical standards.

About–School of Biomedical Sciences

MGM School of Biomedical Sciences is formed under the aegis of MGM IHS with the vision of offering basic Allied Science and Medical courses for students who aspire to pursue their career in the Allied Health Sciences, teaching as well as research.

School of Biomedical Sciences is dedicated to the providing the highest quality education in basic medical sciences by offering a dynamic study environment with well-equipped labs. The school encompasses 24 courses each with its own distinct, specialized body of knowledge and skill. This includes 8 UG courses and 16 PG courses. The college at its growing years started with mere 100 students has recorded exponential growth and is now a full-fledged educational and research institution with the student strength reaching approximately **800**at present.

Our consistent theme throughout is to encourage students to become engaged, be active learners and to promote medical research so that ultimately they acquire knowledge, skills, and understanding so as to provide well qualified and trained professionals in Allied Health Sciences to improve the quality of life.

As there is increased need to deliver high quality, timely and easily accessible patient care system the collaborative efforts among physicians, nurses and allied health providers become ever more essential for an effective patient care. Thus the role of allied health professionals in ever-evolving medical system is very important in providing high-quality patient care.

Last but by no means least, School of Biomedical Sciences envisions to continuously grow and reform. Reformations are essential to any growing institution as it fulfills our bold aspirations of providing the best for the students, for us to serve long into the future and to get ourselves up dated to changing and evolving trends in the health care systems.

Name of the Degree: M. Sc. Emergency & Trauma Care Technology

Duration of Study:

The duration of the study for M.Sc. Emergency & Trauma Care Technology will be of 2years.

Eligibility Criteria:

Candidate should have passed the Bachelor's Degree in Emergency Medicine, Respiratory Therapy, Physician Assistant, Anesthesiology Technology or its equivalent qualification from a recognized institution/University.

Medium of Instruction:

English shall be the Medium of Instruction for all the Subjects of study and for examinations.

For any query visit the website: www.mgmsbsnm.edu.in

Course Outcome:

- The course aims to provide students with the requisite clinical assessment, decision-making skills and management for arrange of Emergency conditions and including pharmacological and non-pharmacological the rapeutic interventions.

M.Sc. EMERGENCY & TRAUMA CARE TECHNOLOGY

Program Outcomes

Program Code	M.Sc. Emergency and Trauma Care Technology
PO1	**Advanced Knowledge and Skills in Emergency and Trauma Care:** In-depth understanding of emergency and trauma management in healthcare system. Proficiency in trauma diagnostics, patient assessment, and emergency protocols.
PO2	**Clinical Competency**: Develop clinical skills for managing trauma patients, including handling life-threatening situations such as cardiac arrest, severe injuries, or other medical emergencies. They will be trained to make critical decisions in high-pressure situations.
PO3	**Technological Proficience:** Strong understanding of advance technology used in emergency and trauma care, including diagnostic tools, monitoring systems, and life-support equipment. Efficiency in application of medical devices such as ventilators, defibrillators, and other advanced technology in trauma care.
PO4	**Leadership and Management:** Learn how to manage emergency healthcare teams, especially in high-stress environments like trauma units and emergency departments. Building leadership and communication skills essential for coordinating with healthcare professionals and patients during critical situations.
PO5	**Crisis Management and Decision-Making**: Acquire strong decision-making skills in crisis situations, understanding how to prioritize patient care and manage resources effectively.
PO6	**Effective Communication** – Communicate effectively with patients, families, and healthcare teams, ensuring clarity in emergency interventions, patient education, and crisis management.
PO7	**Interdisciplinary Healthcare Collaboration:** Ability to work in multidisciplinary teams, collaborating with physicians, nurses, paramedics, and other healthcare professionals to deliver comprehensive care.
PO8	**Research and Evidence-Based Practice:** Develop the ability to critically evaluate and integrate research findings into clinical practice, ensuring that trauma care and emergency interventions are based on the best available evidence. Contribute to the advancement of knowledge and best practices in emergency and trauma care through research and innovation.

Course Outcomes

Semester I

MET 101 T & MET 103 P	Trauma and Critical Care I (T+P)	Mapped PO	Teaching-Learning Methodology	Assessment Tools
CO1	Develop an in-depth understanding of trauma pathophysiology and the critical care needs of trauma patients.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7**	Lecture, Practical, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Theory exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment, MCQ
CO2	Demonstrate proficiency in trauma assessment, diagnostics, and intervention protocols in critical care settings.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7**	Lecture, Practical, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Theory exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment, MCQ
CO3	Analyse and apply trauma care techniques for life-threatening conditions, including respiratory failure, shock, and severe hemorrhage.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7**	Lecture, Practical, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Theory exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment, MCQ
CO4	Understand and manage multi-organ failure and support critical care systems in the trauma patient.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7**	Lecture, Practical, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Theory exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment, MCQ
CO5	Develop skills in managing trauma in the emergency	**PO1, PO2, PO3, PO4,**	Lecture, Practical,	Internal assessment, University exam, Theory

	department (ED) setting, including the integration of emergency medical services (EMS) and trauma teams.	**PO5, PO6, PO7**	Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment, MCQ
MET 102 T & MET 104 P	**Trauma and Critical Care II (T+P)**	**Mapped PO**	**Teaching-Learning Methodology**	**Assessment Tools**
CO1	Demonstrate advanced clinical competencies in managing complex trauma cases, including severe head injuries, abdominal trauma, and spinal cord injuries.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7**	Lecture, Practical, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Theory exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment, MCQ
CO2	Apply evidence-based trauma care protocols for multi-organ failure and life-threatening conditions in the ICU.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7**	Lecture, Practical, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Theory exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment, MCQ
CO3	Integrate advanced monitoring techniques and critical care technologies in the management of trauma patients.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7**	Lecture, Practical, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Theory exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment, MCQ
CC 001 T & CC 001 P	**Research Methodology & Biostatistics (T+ P)**	**Mapped PO**	**Teaching-Learning Methodology**	**Assessment Tools**
CO1	Student will be able to understand develop statistical models, research designs with the understating of background theory of various commonly used statistical	**PO3, PO4, PO8**	Lecture, Practical, Assignment, Seminar,	Internal assessment, University exam, Theory exam, Practical exam, Station exercise/OSCE/OSPE, Viva-voce, Assignment,

	techniques as well as analysis, interpretation & reporting of results and use of statistical software.			MCQ
MET 105 CP	**MET Directed Clinical Education – I**	**Mapped PO**	**Teaching-Learning Methodology**	**Assessment Tools**
CO1	Build a robust theoretical foundation, enabling students to understand healthcare practices, disease management, and patient care, thereby empowering them to make informed decisions and adapt to evolving medical technologies.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7**	Practical, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment
CO2	Emphasize hands-on training, ensuring proficiency in clinical procedures, diagnostic techniques, and the use of advanced medical equipment. This practical exposure will bridge the gap between theory and practice, enhancing students; confidence and competence in delivering quality patient care.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7**	Practical, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment
CO3	Focus on developing professionalism, empathy, ethical conduct, teamwork, and communication skills-key traits for holistic patient care and effective collaboration in interdisciplinary healthcare teams.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8**	Practical, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment

Semester II

MET 106 T & MET 108 P	Advance Critical Care and Management I (T+P)	Mapped PO	Teaching-Learning Methodology	Assessment Tools
CO1	Master the management of critical conditions such as respiratory failure, cardiac arrest, and septic shock in trauma patients.	PO1, PO2, PO3, PO4, PO5, PO6, PO7	Lecture, Practical, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Theory exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment, MCQ
CO2	Utilize advanced pharmacological agents and life-support systems to stabilize trauma patients in the ICU.	PO1, PO2, PO3, PO4, PO5, PO6, PO7	Lecture, Practical, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Theory exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment, MCQ
CO3	Develop proficiency in managing complex trauma patients with multisystem involvement, including monitoring and decision-making in the ICU.	PO1, PO2, PO3, PO4, PO5, PO6, PO7	Lecture, Practical, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Theory exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment, MCQ
MET 107 T	**Advance Critical Care and Management II**	**Mapped PO**	**Teaching-Learning Methodology**	**Assessment Tools**
CO1	Apply advanced techniques in the management of post-surgical trauma patients, including pain management, nutrition, and wound care.	PO1, PO2, PO3, PO4, PO5, PO6, PO7	Lecture, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Theory exam, Practical exam, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment, MCQ
CO2	Develop proficiency in managing trauma-induced acute kidney injury, respiratory failure, and other	PO1, PO2, PO3, PO4, PO5, PO6, PO7	Lecture, Demonstrations, Assignments, Case-study, Seminar,	Internal assessment, University exam, Theory exam, Practical exam, Log book, Seminar presentation,

	complications in critical care.		Workshops, Clinical simulation	Assignments, Case study presentation Journal club, Skill assessment, MCQ
CO3	Analyze and integrate new research findings into clinical practice to improve outcomes in critical trauma care.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7**	Lecture, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Theory exam, Practical exam, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment, MCQ
MET 109 CP	**MET Directed Clinical Education – II**	**Mapped PO**	**Teaching-Learning Methodology**	**Assessment Tools**
CO1	Build a robust theoretical foundation, enabling students to understand healthcare practices, disease management, and patient care, thereby empowering them to make informed decisions and adapt to evolving medical technologies.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7**	Practical, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment
CO2	Emphasize hands-on training, ensuring proficiency in clinical procedures, diagnostic techniques, and the use of advanced medical equipment.This practical exposure will bridge the gap between theory and practice, enhancing students; confidence and competence in delivering quality patient care.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7**	Practical, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment
CO3	Focus on developing professionalism, empathy, ethical conduct, teamwork, and communication skills-key traits for holistic patient care and effective collaboration in interdisciplinary healthcare teams.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8**	Practical, Demonstrations, Assignments, Case-study, Seminar, Workshops, Clinical simulation	Internal assessment, University exam, Practical exam, Station Exercise/OSCE/OSPE, Viva-voce, Log book, Seminar presentation, Assignments, Case study presentation Journal club, Skill assessment
SEC 001 T	**Innovation and Entrepreneurship**	**Mapped PO**	**Teaching-Learning Methodology**	**Assessment Tools**
CO1	Understand the principles of innovation in the healthcare sector, especially in trauma	**PO1, PO2, PO3, PO4, PO5, PO6,**	Theory, E-Learning, Guest lecture, Poster and videos	Internal assessment, University exam, Theory exam, Seminar, MCQ

	and emergency care technology.	**PO7, PO8**		
CO2	Develop entrepreneurial skills to create solutions that improve the delivery of emergency and trauma care in resource-limited settings.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8**	Theory, E-Learning, Guest lecture, Poster and videos	Internal assessment, University exam, Theory exam, Seminar, MCQ
CO3	Analyze business models and strategies to launch healthcare-related startups focused on trauma care technology.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8**	Theory, E-Learning, Guest lecture, Poster and videos	Internal assessment, University exam, Theory exam, Seminar, MCQ
SEC 002 T	**One Health (NPTEL)**	**Mapped PO**	**Teaching-Learning Methodology**	**Assessment Tools**
CO1	Understand the One Health approach to integrating human, animal, and environmental health in the context of emergency and trauma care.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8**	E-learning, Assignment, Theory	Online MCQ test
CO2	Analyse how environmental factors, zoonotic diseases, and global health issues impact trauma care systems.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8**	E-learning, Assignment, Theory	Online MCQ test
CO3	Develop strategies to address the interconnections between human health, animal health, and ecosystem health to enhance trauma care management.	**PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8**	E-learning, Assignment, Theory	Online MCQ test

OUTLINE OF COURSE CURRICULUM

M.Sc. Emergemcy and Trauma Care Technology

Semester I

Code No.	Core Course	Credits/Week					Hrs/Semester					Marks		
		Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posing/ Rotation (CP)	Total Credits (C)	Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posing/ Rotation (CP)	Total (hrs.)	Internal Assement (IA)	Semester End Exam (SEE)	Total
Discipline Specific Core Theory														
MET 101 T	Trauma and Critical Care I	4	-	-	-	**4**	60	-	-	-	**60**	**20**	**80**	**100**
MET 102 T	Trauma and Critical Care II	3	-	-	-	**3**	45		-	-	**45**	**20**	**80**	**100**
CC 001 T	Research Methodology & Biostatics (Core Course)	3	-	-	-	**3**	45	-	-	-	**45**	-	**50**	**50**
Discipline Specific Core Practical														
MET 103 P	Trauma and Critical Care I	-	-	4	-	**2**	-	-	60	-	**60**	**10**	**40**	**50**
MET 104 P	Trauma and Critical Care II	-	-	4	-	**2**	-	-	60	-	**60**	**10**	**40**	**50**
MET 105 CP	MET Directed Clinical Education-I	-	-	-	12	**4**	-	-	-	180	**180**	-	**50**	**50**
CC 001 P	Research Methodology & Biostatics (Core Course)	-	-	4	-	**2**	-	-	60	-	**60**	-	**50**	**50**
Total		**10**	**0**	**12**	**12**	**20**	**150**	**0**	**180**	**180**	**510**	**60**	**390**	**450**

OUTLINE OF COURSE CURRICULUM

M.Sc. Emergemcy and Trauma Care Technology

Semester II

Code No.	Core Course	Credits/Week					Hrs/Semester					Marks		
		Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posing/ Rotation (CP)	Total Credits (C)	Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posing/ Rotation (CP)	Total (hrs.)	Internal Assement (IA)	Semester End Exam (SEE)	Total
Discipline Specific Core Theory														
MET 106 T	Advance Critical Care and Management I	4	-	-	-	**4**	60	-	-	-	**60**	**20**	**80**	**100**
MET 107 T	Advance Critical Care and Management II	4	-	-	-	**4**	60	-	-	-	**60**	**20**	**80**	**100**
Discipline Specific Core Practical														
MET 108 P	Advance Critical Care and Management I	-	-	6	-	**3**	-	-	90	-	**90**	**10**	**40**	**50**
MET 109 CP	MET Directed Clinical Education-II	-	-	-	18	**6**	-	-	-	270	**270**	-	**50**	**50**
Skill Enhancement Course														
SEC 001 T	Innovation and Entrepreneurship	3	-	-	-	**3**	45	-	-	-	**45**	-	**50**	**50**
SEC 002 T	One Health (NPTEL)													
Total		**11**	**0**	**6**	**18**	**20**	**165**	**0**	**90**	**270**	**525**	**50**	**300**	**350**