M.Sc. OPERATION THEATRE & ANESTHESIA TECHNOLOGY

PROGRAM OUTCOMES (POs)

PO1	Nurture the scientific and/or clinical knowledge and skills for development of industrial applications, health care practices and entrepreneurship.
PO2	Develop the ability of critical thinking to analyse, interpret problems and to find out systematic approach for solution.
PO3	Impart decision making capability for handling various circumstances in their respective areas
PO4	Demonstrate research skills for planning, designing, implementation and effective utilization of research findings for community.
PO5	Develop an ability to function as an efficientindividual and team player in multidisciplinary sectors for effective outcomes
PO6	Demonstrate an effective written and oral communication skills to communicate effectively in health care sector, industries,academia and research.
PO7	Inculcate code of ethics in professional and social circumstances to execute them in daily practices and research inrespective areas of specialization
PO8	Develop lifelong learning attitude and values for enhancementof professional and social skills for an overall development

COURESE OUTCOMES (COs)

Course Code	M.Sc. OPERATION THEATRE & ANESTHESIA TECHNOLOGY
	SEMESTER I
MOTAT 101 T	**Applied Anatomy & Physiology**
CO1	Explain the structure and function of the human body in relation to healthcare practices.
CO2	Analyze physiological mechanisms and their relevance to clinical applications.
CO3	Apply anatomical and physiological concepts to patient care and medical procedures.
MOTAT 102 T	**Pre-operative Assessment & Optimization Strategies**
CO1	Identify key pre-operative assessment parameters to ensure patient safety.
CO2	Analyse risk factors and develop optimization strategies for surgical interventions.
CO3	Demonstrate decision-making skills in managing pre-operative patient conditions.
MOTAT 103 T	**Surgical Equipment & Technology**
CO1	Describe the working principles of various surgical instruments and technologies.
CO2	Demonstrate safe handling and maintenance of surgical equipment.
CO3	Apply knowledge of surgical technology in clinical and emergency settings.
CC 001 T	**Research Methodology & Biostatistics**
CO1	Understand the fundamentals of research methodology and biostatistics.
CO2	Apply statistical tools to analyze healthcare data and interpret research findings.
CO3	Develop research proposals addressing healthcare challenges.
MOTAT 104 P	**Pre-operative Assessment & Optimization Strategies**
CO1	Identify key pre-operative assessment parameters to ensure patient safety.
CO2	Analyze risk factors and develop optimization strategies for surgical interventions.

CO3	Demonstrate decision-making skills in managing pre-operative patient conditions.
MOTAT 105 P	**Surgical Equipment & Technology**
CO1	Describe the working principles of various surgical instruments and technologies.
CO2	Demonstrate safe handling and maintenance of surgical equipment.
CO3	Apply knowledge of surgical technology in clinical and emergency settings.
MOTAT 106 CP	**MOTAT Directed Clinical Education - I**
CO1	Demonstrate fundamental skills in OT and anesthesia procedures.
CO2	Assist in preoperative and intraoperative patient care.
CO3	Apply infection control and sterilization protocols in clinical settings.
CC 001 P	**Research Methodology & Biostatistics**
CO1	Understand the fundamentals of research methodology and biostatistics.
CO2	Apply statistical tools to analyze healthcare data and interpret research findings.
CO3	Develop research proposals addressing healthcare challenges.
SEMESTER II	
MOTAT 107 T	**Anaesthetic Equipment & Procedures**
CO1	Explain the principles and functioning of anaesthetic equipment.
CO2	Demonstrate proper handling and maintenance of anaesthetic devices.
CO3	Apply anaesthesia techniques based on clinical requirements.
MOTAT 108 T	**Advanced Anaesthesia Techniques**
CO1	Understand advanced anaesthesia techniques for different surgical procedures.
CO2	Analyze patient responses and modify anaesthetic plans accordingly.
CO3	Demonstrate proficiency in administering specialized anaesthesia methods.
MOTAT 109 T	**Concept of Disease in Relation to Critical Care**
CO1	Explain the pathophysiology of critical illnesses and their impact on patient management.
CO2	Analyze clinical conditions requiring critical care interventions.
CO3	Demonstrate decision-making skills in managing critically ill patients.
MOTAT 110 P	**Anaesthetic Equipment & Procedures**
CO1	Explain the principles and functioning of anaesthetic equipment.
CO2	Demonstrate proper handling and maintenance of anaesthetic devices.
CO3	Apply anaesthesia techniques based on clinical requirements.
MOTAT 111 P	**Concept of Disease in Relation to Critical Care**
CO1	Explain the pathophysiology of critical illnesses and their impact on patient management.
CO2	Analyze clinical conditions requiring critical care interventions.
CO3	Demonstrate decision-making skills in managing critically ill patients.
MOTAT 112 CP	**MOTAT Directed Clinical Education - II**
CO1	Manage anesthesia and surgical equipment effectively.
CO2	Assist in advanced anesthesia and OT procedures.

CO3	Evaluate and respond to critical situations in the operation theatre.	
SEC 001 T	**Innovation and Entrepreneurship**	
CO1	Develop an entrepreneurial mindset in the healthcare sector.	
CO2	Apply innovation strategies to improve medical practices and patient care.	
CO3	Demonstrate business planning and problem-solving skills in healthcare startups.	
SEC 002 T	**NPTEL (One Health)**	
CO1	Understand the interconnectedness of human, animal, and environmental health in a global context.	
CO2	Analyze the impact of zoonotic diseases and antimicrobial resistance on public health and ecosystems.	
CO3	Evaluate policies and strategies for disease prevention and sustainable development within the One Health framework.	

MGM SCHOOL OF BIOMEDICAL SCIENCES, NAVI MUMBAI
(A constituent unit of MGM INSTITUTE OF HEALTH SCIENCES)
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CO PO Mapping
Programe - M.Sc. Operational Thatre & Anesthesia Technology
Semester I and IV

PO1	Nurture the scientific and/or clinical knowledge and skills for development of industrial applications, health care practices and entrepreneurship.
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PO Mapping same with correlation level 3,2,1 The notation of 1 - low, 2 - moderate , 3 - high

Semester	Course / Course Code	Course Outcome	Course Outcome	Knowledge and Skill PO1	Critical Thinking Abilities P02	Decision Making PO3	Research Skill PO4	leadership and Teamwork Capabilities PO5	Communication Skills PO6	Professional Ethics and Integrity PO7	Lifelong Learning and Adaptability PO8	Average
Semester 1	Applied Anatomy & Physiology (MOTAT 101 T)	CO1	Explain the structure and function of the human body in relation to healthcare practices.	1	3	1	2	3	3	1	1	1.9
		CO2	Analyze physiological mechanisms and their relevance to clinical applications.	2	1	2	3	2	2	3	3	2.3
		CO3	Apply anatomical and physiological concepts to patient care and medical procedures.	2	2	1	3	2	3	2	2	2.1
		Average		1.7	2.0	1.3	2.7	2.3	2.7	2.0	2.0	2.1
	Pre-operative Assessment & Optimization Strategies (MOTAT 102 T)	CO1	Identify key pre-operative assessment parameters to ensure patient safety.	3	2	1	2	3	1	2	2	2
		CO2	Analyze risk factors and develop optimization strategies for surgical interventions.	2	1	3	1	2	1	3	1	1.8
		CO3	Demonstrate decision-making skills in managing pre-operative patient conditions.	2	1	1	2	1	2	1	3	1.6
		Average		2.3	1.3	1.7	1.7	2.0	1.3	2.0	2.0	1.8
	Surgical Equipment & Technology (MOTAT 103 T)	CO1	Describe the working principles of various surgical instruments and technologies.	1	1	1	3	1	1	3	3	1.8
		CO2	Demonstrate safe handling and maintenance of surgical equipment.	1	3	2	2	3	3	1	1	2.0
		CO3	Apply knowledge of surgical technology in clinical and emergency settings.	3	2	1	2	2	3	2	3	2.3
		Average		1.7	2.0	1.3	2.3	2.0	2.3	2.0	2.3	2.0
	Research Methodology & Biostatistics (CC 001 T)	CO1	Understand the fundamentals of research methodology and biostatistics.	3	2	1	1	1	2	2	2	1.8
		CO2	Apply statistical tools to analyze healthcare data and interpret research findings.	3	3	2	1	2	1	3	3	2.3
		CO3	Develop research proposals addressing healthcare challenges.	1	2	3	3	1	3	1	2	2.0
		Average		2.3	2.3	2.0	1.7	1.3	2.0	2.0	2.3	2.0

Semester	Course	CO	Course Outcome									Avg
	Pre-operative Assessment & Optimization Strategies (MOAT 104 P)	CO1	Identify key pre-operative assessment parameters to ensure patient safety.	3	2	1	2	3	1	2	2	2.0
		CO2	Analyze risk factors and develop optimization strategies for surgical interventions.	2	1	3	1	2	1	3	1	1.8
		CO3	Demonstrate decision-making skills in managing pre-operative patient conditions.	2	1	1	2	1	2	1	3	1.6
		Average		2.3	1.3	1.7	1.7	2.0	1.3	2.0	2.0	1.8
	Surgical Equipment & Technology (MOTAT 105 P)	CO1	Describe the working principles of various surgical instruments and technologies.	1	1	1	3	1	1	3	3	1.8
		CO2	Demonstrate safe handling and maintenance of surgical equipment.	1	3	2	2	3	3	1	1	2.0
		CO3	Apply knowledge of surgical technology in clinical and emergency settings.	3	2	1	2	2	3	2	3	2.3
		Average		1.7	2.0	1.3	2.3	2.0	2.3	2.0	2.3	2.0
	MOTAT Directed Clinical Education - I (MOTAT 106 CP)	CO1	Demonstrate fundamental skills in OT and anesthesia procedures.	2	1	1	1	3	3	2	1	1.8
		CO2	Assist in preoperative and intraoperative patient care.	1	2	2	2	3	3	2	2	2.1
		CO3	Apply infection control and sterilization protocols in clinical settings.	2	3	1	2	1	2	2	2	1.9
		Average		1.7	2.0	1.3	1.7	2.3	2.7	2.0	1.7	1.9
	Research Methodology & Biostatistics (CC 001 P)	CO1	Understand the fundamentals of research methodology and biostatistics.	3	2	1	1	1	2	2	2	1.8
		CO2	Apply statistical tools to analyze healthcare data and interpret research findings.	3	3	2	1	2	1	3	3	2.3
		CO3	Develop research proposals addressing healthcare challenges.	1	2	3	3	1	3	1	2	2.0
		Average		2.3	2.3	2.0	1.7	1.3	2.0	2.0	2.3	2.0
Semester 2	**Anaesthetic Equipment & Procedures (MOTAT 107 T)**	CO1	Explain the principles and functioning of anaesthetic equipment.	2	2	2	2	2	1	3	2	2.0
		CO2	Demonstrate proper handling and maintenance of anaesthetic devices.	2	3	3	3	2	1	2	3	2.4
		CO3	Apply anaesthesia techniques based on clinical requirements.	3	3	3	2	1	3	3	1	2.4
		Average		2.3	2.7	2.7	2.3	1.7	1.7	2.7	2.0	2.3
	Advanced Anaesthesia Techniques (MOTAT 108 T)	CO1	Understand advanced anaesthesia techniques for different surgical procedures.	3	3	2	1	1	2	3	2	2.1
		CO2	Analyze patient responses and modify anaesthetic plans accordingly.	2	2	1	3	1	2	2	2	1.9
		CO3	Demonstrate proficiency in administering specialized anaesthesia methods.	3	2	1	3	1	2	2	3	2.1
		Average		2.7	2.3	1.3	2.3	1.0	2.0	2.3	2.3	2.0
	Concept of Disease in Relation to Critical Care (MOTAT 109 T)	CO1	Explain the pathophysiology of critical illnesses and their impact on patient management.	2	1	2	1	2	3	2	3	2
		CO2	Analyze clinical conditions requiring critical care interventions.	3	3	2	1	2	1	2	1	2
		CO3	Demonstrate decision-making skills in managing critically ill patients.	3	1	1	1	2	1	3	2	2
		Average		2.7	1.7	1.7	1.0	2.0	1.7	2.3	2.0	1.9
	Anaesthetic Equipment & Procedures(MOTAT 110 P)	CO1	Explain the principles and functioning of anaesthetic equipment.	2	2	2	2	2	1	3	2	2.0
		CO2	Demonstrate proper handling and maintenance of anaesthetic devices.	2	3	3	3	2	1	2	3	2.4
		CO3	Apply anaesthesia techniques based on clinical requirements.	3	3	3	2	1	3	3	1	2.4
		Average		2.3	2.7	2.7	2.3	1.7	1.7	2.7	2.0	2.3

Semester	Course	CO	Course Outcome									Average
	Concept of Disease in Relation to Critical Care (MOTAT 111 P)	CO1	Explain the pathophysiology of critical illnesses and their impact on patient management.	2	1	2	1	2	3	2	3	2.0
		CO2	Analyze clinical conditions requiring critical care interventions.	3	3	2	1	2	1	2	1	1.9
		CO3	Demonstrate decision-making skills in managing critically ill patients.	3	1	1	1	2	1	3	2	1.8
		Average		2.7	1.7	1.7	1.0	2.0	1.7	2.3	2.0	1.9
	MOTAT Directed Clinical Education - II (MOTAT 112 CP)	CO1	Manage anesthesia and surgical equipment effectively.	3	2	3	3	1	1	2	2	2.1
		CO2	Assist in advanced anesthesia and OT procedures.	2	2	1	2	3	3	3	2	2.3
		CO3	Evaluate and respond to critical situations in the operation theatre.	3	1	2	2	3	3	2	1	2.1
		Average		2.7	1.7	2.0	2.3	2.3	2.3	2.3	1.7	2.2
	Innovation and Entrepreneurship (SEC 001 T)	CO1	Develop an entrepreneurial mindset in the healthcare sector.	3	1	2	2	1	3	2	2	2.0
		CO2	Apply innovation strategies to improve medical practices and patient care.	1	1	1	2	1	2	3	1	1.5
		CO3	Demonstrate business planning and problem-solving skills in healthcare startups.	3	3	3	3	3	2	3	1	2.6
		Average		2.5	1.8	2.0	1.8	1.9	2.0	2.4	1.8	2.0
	NPTEL (One Health) (SEC 002 T)	CO1	Understand the interconnectedness of human, animal, and environmental health in a global context.	3	2	2	2	1	2	3	3	2.3
		CO2	Analyze the impact of zoonotic diseases and antimicrobial resistance on public health and ecosystems.	2	3	2	3	2	3	2	3	2.5
		CO3	Evaluate policies and strategies for disease prevention and sustainable development within the One Health framework.	2	2	3	3	3	2	2	3	2.5
		Average		2.3	2.3	2.3	2.7	2.0	2.3	2.3	3.0	2.4
Semester 3	Clinical Surgery-I (T)	CO1	Describe fundamental surgical principles and procedures.	3	1	2	2	2	1	3	1	1.9
		CO2	Identify surgical instruments and their applications.	1	3	2	1	1	2	1	3	1.8
		CO3	Assist in basic surgical procedures under supervision.	3	3	3	2	3	2	2	3	2.6
		Average		2.3	2.3	2.3	1.7	2.0	1.7	2.0	2.3	2.1
	Clinical Surgery-II (T)	CO1	Explain advanced surgical techniques and protocols.	1	3	3	3	1	3	3	3	2.5
		CO2	Demonstrate the ability to manage perioperative patient care.	3	1	2	3	2	3	2	3	2.4
		CO3	Apply aseptic techniques to prevent surgical infections.	1	3	3	1	1	2	2	1	1.8
		Average		1.7	2.3	2.7	2.3	1.3	2.7	2.3	2.3	2.2
	Fundamental Concepts and Procedures Related to Operation Theatre (T)	CO1	Understand and implement OT safety protocols.	2	1	1	2	1	3	2	2	1.8
		CO2	Demonstrate proper sterilization techniques.	3	1	3	3	1	3	3	1	2.3
		CO3	Manage OT equipment and surgical instruments.	2	1	3	3	3	1	2	3	2.3
		Average		2.3	1.0	2.3	2.7	1.7	2.3	2.3	2.0	2.1
	MOTAT Directed Clinical Education - III (CP)	CO1	Apply theoretical knowledge in real-time OT settings.	1	2	2	2	1	3	1	2	1.8
		CO2	Assist in advanced anesthesia and surgical procedures.	2	3	1	2	1	3	1	2	1.9
		CO3	Develop clinical decision-making skills in high-pressure situations.	1	2	3	2	3	1	2	1	1.9
		Average		1.3	2.3	2.0	2.0	1.7	2.3	1.3	1.7	1.8
	Clinical Surgery-I(P)	CO1	Describe fundamental surgical principles and procedures.	3	1	2	2	2	1	3	1	1.9
		CO2	Identify surgical instruments and their applications.	1	3	2	1	1	2	1	3	1.8

		CO3	Assist in basic surgical procedures under supervision.	3	3	3	2	3	2	2	3	2.6
		Average		2.3	2.3	2.3	1.7	2.0	1.7	2.0	2.3	2.1
	Clinical Surgery-II (P)	CO1	Explain advanced surgical techniques and protocols.	1	3	3	3	1	3	3	3	2.5
		CO2	Demonstrate the ability to manage perioperative patient care.	3	1	2	3	2	3	2	3	2.4
		CO3	Apply aseptic techniques to prevent surgical infections.	1	3	3	1	1	2	2	1	1.8
		Average		1.7	2.3	2.7	2.3	1.3	2.7	2.3	2.3	2.2
Semester 4	Procedures in Abdomen, Obstetrics, Gynaecology & Urology OT(T)	CO1	Explain surgical procedures in abdominal and obstetric surgeries.	2	1	2	3	3	2	3	2	2.3
		CO2	Assist in gynecological and urology-related surgeries.	1	2	1	2	1	1	1	2	1.4
		CO3	Demonstrate proficiency in instrument handling during these surgeries.	2	2	1	1	1	1	3	3	1.8
		Average		1.7	1.7	1.3	2.0	1.7	1.3	2.3	2.3	1.8
	Procedures in Ear, Nose, Throat (ENT), Ophthalmic & Neuro OT(T)	CO1	Describe procedures in ENT, ophthalmic, and neurosurgeries.	1	1	2	1	1	1	3	2	1.5
		CO2	Assist in specialized surgeries in these domains.	1	3	2	1	2	2	3	3	2.1
		CO3	Understand and apply patient positioning and preparation techniques.	2	1	3	2	3	2	3	3	2.4
		Average		1.3	1.7	2.3	1.3	2.0	1.7	3.0	2.7	2.0
	MOTAT Directed Clinical Education - IV (CP)	CO1	Manage OT workflow efficiently.	1	2	2	1	3	1	3	1	1.8
		CO2	Apply advanced surgical assisting techniques.	1	2	2	2	1	3	3	1	1.9
		CO3	Evaluate clinical situations and suggest appropriate interventions.	2	1	1	3	3	1	2	3	2.0
		Average		1.3	1.7	1.7	2.0	2.3	1.7	2.7	1.7	1.9
	Dissertation/Project	CO1	Formulate a research hypothesis relevant to OT and anesthesia.	3	1	3	3	3	1	1	3	2.3
		CO2	Analyze clinical data and present findings.	3	1	3	1	2	3	1	1	1.9
		CO3	Demonstrate academic writing and presentation skills.	3	1	1	3	1	1	3	2	1.9
		Average		3.0	1.0	2.3	2.3	2.0	1.7	1.7	2.0	2.0
	Procedures in Abdomen, Obstetrics, Gynaecology & Urology OT(P)	CO1	Explain surgical procedures in abdominal and obstetric surgeries.	2	1	2	3	3	2	3	2	2.3
		CO2	Assist in gynecological and urology-related surgeries.	1	2	1	2	1	1	1	2	1.4
		CO3	Demonstrate proficiency in instrument handling during these surgeries.	2	2	1	1	1	1	3	3	1.8
		Average		1.7	1.7	1.3	2.0	1.7	1.3	2.3	2.3	1.8
	Procedures in Ear, Nose, Throat (ENT), Ophthalmic & Neuro OT(P)	CO1	Describe procedures in ENT, ophthalmic, and neurosurgeries.	1	1	2	1	1	1	3	2	1.5
		CO2	Assist in specialized surgeries in these domains.	1	3	2	1	2	2	3	3	2.1
		CO3	Understand and apply patient positioning and preparation techniques.	2	1	3	2	3	2	3	3	2.4
		Average		1.3	1.7	2.3	1.3	2.0	1.7	3.0	2.7	2.0