MGM INSTITUTE OF HEALTH SCIENCES

(Deemed to be University u/s 3 of UGC Act, 1956)
Grade 'A++' Accredited by NAAC
Sector-01, Kamothe, Navi Mumbai -410 209
Tel 022-27432471, 022-27432994, Fax 022 -27431094
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CHOICE BASED CREDIT SYSTEM

(CBCS)

(with effect from 2024-25 Batches)

Curriculum for

M.Sc. OPERATION THEATRE & ANESTHESIA TECHNOLOGY

Approved in AC-50/2024, Dated 27/11/2024

Amended History

1. Approved as per AC-49/2024 [Resolution No. 3.2], [Resolution No. 3.8]; [Resolution No. 3.10 (ii)] Dated 25/04/2024.
2. Approved in AC-50/2024 [Resolution No, 3.2], Dated 27/11/2024

Annexure-3 of AC-49/2024

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.: 022-27437631, 27437632, 27432890
Email. sbsnm@mgmuhs.com/Website: www.mgmsbsnm.edu.in

CHOICE BASED CREDIT SYSTEM (CBCS)

(Academic Year 2024 - 25)

Curriculum for

M.Sc. Allied Health Sciences

M.Sc. OPERATION THEATRE & ANESTHESIA TECHNOLOGY

First Year

Semester I & II

Resolution No. 3.2 of Academic Council (AC-49/2024):

Resolved to approve the syllabus of M.Sc. Operation Theatre and Anesthesia Technology (Semester I & II), to be effective from Academic Year 2024-25 onwards, with an intake of 02 students at both MGMIHS campuses (Navi Mumbai & Chhatrapati Sambhaji Nagar), with tuition fees of Rs. 1,05,000/- per annum [ANNEXURE-3].

DIRECTOR'S MESSAGE

Dear Students, Greetings!!!!!

I take this opportunity to welcome you on behalf of MGM family to the Masters Degree at MGM School of Biomedical Sciences.(MGMSBS)

MGM School of Biomedical Sciences (MGM SBS) established in the year 2007, the MGM School of Biomedical Sciences envisaged building a progressive learning community and is committed to pursuit of excellence in higher education, total development of personality and shaping the students into sensitive, self-reliant citizens of the country imbued with the ideals of secularism and a scientific aptitude. We setg lobal standards to make our students scientifically as well as ethically stronger. The college adopts the national qualification frame work for the post-graduate programs which has adopted Credit Base Choice System (CBCS) so that, we construct a value based system of education that encourages critical thinking and creativity, are search plat formas opposed to rote learning.

The P.G (M.Sc.) courses of fere dare; Biotechnology, Genetics, Molecular Biology, Masters in Hospital administration and Biostatistics, M.Sc. Cardiac Care Technology, M.Sc. Medical Radiology and Imaging Technology, M. Optometry, M.Sc. Medical Dialysis Technology. Over time, the program has evolved, to meet the challenges of the ever changing field of biomedical education system.

With Best Wishes,

Director

MGM School of Biomedical Sciences

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 21 courses each with its own distinct, specialized body of knowledge and skill. This includes 7 UG courses and 14 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 581at 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. Operation Theatre & Anesthesia Technology

Duration of Study:

The duration of the study for M.Sc. Operation Theatre & Anesthesia Technology will of 2 years.

Eligibility Criteria:

Graduate from any statutory university with B.Sc. Degree in Medical Technology with OT & Anesthesia as specialization from a recognized 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/www.mgmuhs.com

Program Outcome:

- Have a lifelong knowledge of Anesthesia, Surgery & all the Equipments used in it along with basic knowledge of applied science.
- Anesthesia & Surgical Technicians/Assistants will work in Operation Theatres, ICUs etc. along with Anesthetists and Surgeons & thus will be having a great & Important role in Health care.
- After completion students can go for Academics as well by joining different Colleges and Universities as Lecturers/Tutors.
- This Program will build technical knowledge in the student so that he/she will be able to assist an Anesthetist/Surgeon in every aspect of Anesthesia, Surgery & other related fields.
- Engage in lifelong learning and adapt to changing professional and societal needs.
- This Program can do an overall development of the student to be able to have all the technical aspects about Anesthesia, Surgery along with their advanced knowledge.

Program Specific Outcome:

- Students will be competent to work in Hospital Operation Theatres, Critical Care Units and Emergency sections.
- Students will be skilled in problem solving, critical thinking and will be able to assist the Surgeon or Anesthetist.
- The students will acquire in-depth knowledge of Anesthesia, Surgery, Critical care pain Management.
- Students will be able to have all the relevant knowledge of Anesthesia & Surgery and will be able to do various procedures required.
- This Program will create a great source of manpower which can aid in our health sector especially in Trauma, Emergency, ICU & Operation Theatres.
- Students will be able to explore new areas of research in both Anesthesia & Surgery and can also go for research as well.
- Students will be able to integrate knowledge of various types of Surgical Procedures & Anesthetic procedures along with their in-depth knowledge.

OUTLINE OF COURSE CURRICULUM

M.Sc. Operation Theatre and Anaesthesia 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 Assesment (IA)	Semester End Exam (SEE)	Total
Discipiline Specific Core Theory														
MOTAT 101 L	Applied Anatomy & Physiology	3	-	-	-	**3**	45	-	-	-	**45**	**20**	**80**	**100**
MOTAT 102 L	Pre-operative Assessment &Optimisation Strategies	3	-	-	-	**3**	45		-	-	**45**	**20**	**80**	**100**
MOTAT 103 L	Surgical Equipments & Technology	3	-	-	-	**3**	45	-	-	-	**45**	**20**	**80**	**100**
MOTAT 104 CP	MOTAT Directed Clinical Education-I	-	-	-	21	**7**	-	-	-	315	**315**	-	**50**	**50**
CC 001 L	Research Methodology & Biostatistics (Core Course)	3	-	-	-	**3**	45	-	-	-	**45**	**20**	**80**	**100**
Discipiline Specific Core Practical														
MOTAT 102 P	Pre-operative Assessment &Optimisation Strategies	-	-	2	-	**1**	-	-	30	-	**30**	**10**	**40**	**50**
MOTAT 103 P	Surgical Equipments & Technology	-	-	2	-	**1**	-	-	30	-	**30**	**10**	**40**	**50**
CC 001 P	Research Methodology & Biostatistics (Core Course)	-	-	4	-	**2**	-	-	60	-	**60**	**10**	**40**	**50**
Total		**12**	**0**	**8**	**21**	**23**	**180**	**0**	**120**	**315**	**615**	**110**	**490**	**600**

OUTLINE OF COURSE CURRICULUM

M.Sc. Operation Theatre and Anaesthesia 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 Assesment (IA)	Semester End Exam (SEE)	Total
Discipiline Specific Core Theory														
MOTAT 105 L	Anaesthetic Equipments & Procedures	3	-	-	-	**3**	45	-	-	-	**45**	**20**	**80**	**100**
MOTAT 106 L	Advance Anesthesia Techniques	3	-	-	-	**3**	45		-	-	**45**	**20**	**80**	**100**
MOTAT 107 L	Concept of Disease In Relation To Anesthesia And Critical Care	3	-	-	-	**3**	45	-	-	-	**45**	**20**	**80**	**100**
MOTAT 108 CP	MOTAT Directed Clinical Education-II	-	-	-	24	**8**	-	-	-	360	**360**	-	**50**	**50**
Discipiline Specific Core Practical														
MOTAT 105 P	Anaesthetic Equipments & Procedures	-	-	2	-	**1**	-	-	30	-	**30**	**10**	**40**	**50**
MOTAT 107 P	Concept of Disease In Relation To Anesthesia And Critical Care	-	-	2	-	**1**	-	-	30	-	**30**	**10**	**40**	**50**
Skill Ehancement Course														
SEC 001 L	Innovation and Enterprenuarship	3	-	-	-	**3**	45	-	-	-	**45**	**20**	**80**	**100**
SEC 002 L	One Health (NPTEL)													
Total		**12**	**0**	**4**	**24**	**22**	**180**	**0**	**60**	**360**	**600**	**100**	**450**	**550**

FIRST YEAR

M.Sc. OPERATION THEATRE & ANESTHESIA TECHNOLOGY

SEMESTER-I

Code No.	Core Subjects
Discipline Specific Core Theory	
MOTAT 101 L	Applied Anatomy & Physiology
MOTAT 102 L	Pre-operative Assessment & Optimisation Strategies
MOTAT 103 L	Surgical Equipments& Technology
MOTAT 104 CP	MATOT Directed Clinical Education - I
CC 001 L	Research Methodology & Biostatistics (Core Course)
Discipline Specific Core Practical	
MOTAT 102 P	Pre-operative Assessment & Optimisation Strategies
MOTAT 103 P	Surgical Equipments & Technology
CC 001 P	Research Methodology & Biostatistics (Core Course)

Name of the Programme	M.Sc. Operation Theatre & Anesthesia Technology
Name of the Course	Applied Anatomy & Physiology
Course Code	MOTAT 101 L

Teaching Objective	To know about anatomy relevant to operation theatre.
Learning Outcomes	Study the detailed structure of Respiratory, Cardiovascular &Nervous system & physiology of all associated structures.

Sr. No	TOPICS	No. of Hrs
1	**RESPIRATORY SYSTEM** Nose - Role in humidification, Pharynx - Obstruction in airways. Larynx - Movement or vocal cords, Cord palsies. Trachea & Bronchial tree - vessels, nerve supply, respiratory tract, reflexes, bronchospasm. Alveoli - Layers, Surfactants Respiratory Physiology Control or breathing Respiratory muscles - diaphragm, intercostals.	9
2	**LUNG VOLUMES** Dead space, vital capacity, FRC , Pulmonary Function Tests Pleural cavity - intrapleural pressure, pneumothorax Work of breathing - airway resistance, compliance, Respiratory movements under anesthesia. Tracheal tug - signs, hiccup Pulmonary Gas Exchange and Acid Base Status Pulmonary circulation-Pulmonary oedema, pulmonary hypertension	9
3	**CARDIOVASCULAR SYSTEM** Anatomy - Chambers of the heart, major vasculature. Coronary supply Conduction system of Heart. Cardiac output - determinants, heart rate, preload, after load. Coronary blood flow & myocardial oxygen supply ECG – Arrhythmias-Tachycardia and Bradycardia. Blood Pressure & tissue perfusion, Pulse pressure Myocardial infarction	8
4	**NERVOUS SYSTEM** Organization of nervous system, Neuron, Classification and properties of nerve fiber, electrophysiology. Neuromuscular Junction: Action potential, nerve impulse, receptors, synapse, neurotransmitters. Action of Muscle Relaxants on Neuromuscular Junction. Autonomic Nervous System- Sympathetic and Parasympathetic Nervous system Brain, Spinal cord, CSF, Brain Stem Cranial Nerves	9
5	**Hepatic system** Anatomy of Liver, Lobes and Blood Supply Functions of Liver, Functional division of Liver Histology- Liver Lobules	6

	Pressure Flow Autoregulation	
6	**Renal System** Structure and Function of Kidney, Nephron, Juxtaglomerular Apparatus Renal Circulation	4
TOTAL		**45 hrs**

Reference:

- Anatomy and Physiology by Pears, JP Brothers
- Anatomy and Physiology by Sears, ELBS

Name of the Programme	M.Sc. Operation Theatre & Anesthesia Technology
Name of the Course	Pre-operative Assessment & Optimisation Strategies
Course Code	MOTAT 102 L

Teaching Objective	Capable of doing preoperative assessments and interpreting full spectrum of diagnostic tests and special procedures related to care of critically ill, under the supervision of a critical care specialist and evaluate the outcomes of intervention.
Learning Outcomes	Should be able to read and understand all laboratory reports. Basic knowledge on different investigations like blood chemistry, radiological tests etc.

Sr. No	TOPICS	No. of Hrs.
1	**Preoperative Preparation** History Taking - Chief complaints, present illness, Past history, Personal history, Family history, Birth history, immunization. Medications therapies, Allergy, Occupation, Social status, Previous Surgeries & Anesthesia. Deep breathing exercises- Exercises, physiotherapy, Chest physiopostural drainage. Weight reduction, Counseling soft surgical diet, Bowel preparation. Medications- Drugs to be discontinued/ stopped, Drugs to be continued. Oral & dental hygiene.	8
2	ASA grading, its interpretation and importance. Airway assessment - Mallampatti, Wilson, IDL, Cormack and Lehane, thyromental, interinusm gap, anterior mandibular protusion, cervical spine extension, sternomental distance.	4
3	Routine investigations- Routine tests & their importance. Hemogram, Urine routine and microscopic, Blood sugar, Hematocrit, Serum electrolytes.	4
4	Cardiac fitness indices- Goldman Parsonnet, cardiac risk factors, NYHA, METs, Charlson's comorbidity index. Patient with cardiac diseases- - 3D Echo, 12 Lead EKG, stress test Thallium, coronary angio, CT angio, transeosophageal echo, CT thorax, arterial blood gas, cardiac catheterization, cardiac markers, lipid profile.	4
5	Neurological Assessment - Glasgow coma scale. Patient with neurological diseases. X-Ray skull, CT/ MRI brain, CSF studies.	4
6	Respiratory predictors- smoking, increasing age, increasing BMI. Respiratory diseases- Chest X-Ray, CT/ MRI thorax, Spirometry, arterial blood gases, sputum studies, fluoroscopy, tracheobronchoscopy, flow volume loops.	4
7	Patient with liver diseases- Child's criteria, Puglis modification. Liver Function Test, USG abdomen, ascetic fluid studies INR	5

8	Patient with kidney diseases – Kidney Function Test, 5 stages of failure depending on GFR. Urine analysis, x-ray kidney, ureter, bladder, CT&MRI- kidney, ureter, bladder, USG kidney, ureter, bladder.	6
9	Trauma - Shock grades, RTS.	3
10	MEWS- Modified Early Warning Score Emergency Nature	3
11		**45 hrs**

MOTAT 102 P: Pre-operative Assessment & Optimisation Strategies

Sr. No.	Topics	No. of Hrs.
1	History Taking - Chief complaints, present illness, Past history, Personal history, Family history, Birth history, immunization. Medications therapies, Allergy, Occupation, Social status, Previous Surgeries & Anesthesia.	**30**
2	ASA grading, its interpretation and importance. Airway assessment - Mallampatti, Wilson, IDL, Cormack and lehane, thyromental, interinusm gap, anterior mandibular protusion, cervical spineextension, sternomental distance.	
3	Routine investigations- Routine tests & their importance. Hemogram, Urine routine and microscopic, Blood sugar, Hematocrit, Serum electrolytes.	
4	Cardiac Fitness Index - Goldman Parsonnet, cardiac risk factors, NYHA, METs, Charlson's comorbidity index. Patient with cardiac diseases - 3D Echo, 12 Lead EKG, stress test Thallium, coronaryangio, CT angio, transeosophageal echo, CT thorax, arterial blood gas, cardiac catheterization, cardiac markers, lipid profile	
5	Neurological Assessment - Glasgow coma scale. Patient with neurological diseases. X-Ray skull, CT/ MRI brain, CSF studies	
Total		**30 hrs**

Reference:

- **Lee's synopsis**
- **Short text book of anesthesia**

Name of the Programme	**M.Sc. Operation Theatre & Anesthesia Technology**
Name of the Course	**Surgical Equipments & Technology**
Course Code	**MOTAT 103 L**

Teaching Objective	In this course to study about the structure of the operation theater, how to prepare the surgical team, surgical instruments and surgical procedure. Moreover know about correct uses of different types of surgical instrument in surgery.
Learning Outcomes	Student should be able to se different types of surgical instruments. They should have a basic knowledge of surgical team, roles, various surgical procedures, surgical Equipments along with sterilization techniques

Sr. No.	TOPICS	No. of Hrs
1	Principle of Surgical equipments and their uses; Members of surgical team; Role of operation theatre technician; Various techniques of incisions; scrubbing technique; Preparation of O.T. room; cleaning and sterilization of operating room; Care and maintenance of surgical equipments.	8
2	General surgical procedures and instruments, preparation of operation theatre; care of surgical patients; transportation of surgical patient, size of operating room and ventilation, Cleaning of O.T., preparation of surgical instruments trolley	8
3	Preparation of laparoscopic instruments; cleaning and care of laparoscopic instruments; Incision and its types, instruments used for general surgery, orthopedic surgical instruments, Genecology procedure instruments major abdominal incision, minor surgical procedure instruments.	8
4	Operating tables; Suction machine; Diathermy machine; microscopes; Operating lights; Operating trolleys.	5
5	Cleaning and care of wound; Dressing materials; different types of Dressings; different types of disinfectants, dressing procedure, Positioning and its Types , various types of Suture Materials, Different types of Drains, Catheters, Drip Sets, Bags.	8
6	Types of Operation table and positions, use of Diathermy machine, use of Suction machine, Types of jars, Suction tubes, emergency lights, checking and arranging of instruments on the table, instrument trolleys	8
TOTAL		**45 hrs**

MOTAT 103 P: Surgical Equipments & Technology

Sr. No.	Topics	No. of Hrs.
1	Observation & Demonstration of Preparation of OT for surgery.	30
2	Methods of sterilization in OT- Autoclaving, Fumigation Uses of O.T equipments.	
3	Surgical Incision technique.	
4	Suture materials. Suturing Types- Simple, Mattress, Subcuticular etc.	
5	Dressing Procedure Drain Types & Uses. Handling of Instruments.	
Total		**30 hrs**

MOTAT 104 CP: MOTAT Directed Clinical Education – I

Students will observe the basic operations of the operation theatre while interacting with the multidisciplinary team members involved in providing optimal care to the patients. The students will be introduced to terminologies, equipment and techniques used for preparation and management of the OTAT. **(Total- 315 hrs.)**

Name of the Programme	M.Sc. Operation Theatre & Anesthesia Technology
Name of the Course	Research Methodology & Biostatistics (Core Course)
Course Code	CC 001 L

Teaching Objective	• The course is intended to give an overview of research and statistical models commonly used in medical and bio-medical sciences. The goal is to impart an intuitive, understanding and working knowledge of research designs and statistical analysis. The strategy would be to simplify, analyse the treatment of statistical inference and to focus primarily on how to specify and interpret the outcome of research.
Learning Outcomes	• Student will be able to understand develop statistical models, research designs with the understating of background theory of various commonly used statistical techniques as well as analysis, interpretation & reporting of results and use of statistical software.

Sr. No	Topic	No. of Hrs.
A	**Research Methodology:**	**23**
1	Scientific Methods of Research: Definition of Research, Assumptions, Operations and Aims of Scientific Research. Research Process, Significance and Criteria of Good Research, Research Methods versus Methodology	4
2	Research Designs: Observational Studies: Descriptive, explanatory, and exploratory, Experimental Studies: Pre-test design, post-test design, Follow-up or longitudinal design, Cohort Studies, Case – Control Studies, Cross-sectional studies, Intervention studies, Panel Studies.	5
3	Sampling Designs: Census and Sample Survey, Need and importance for Sampling, Implications of a Sample Design, Different Types of Sample Designs (Probability sampling and non probability sampling), How to Select a Random Sample?, Systematic sampling, Stratified sampling, Cluster sampling, Area sampling, Multi-stage sampling, Sampling with probability proportional to size, Sequential sampling.	5
4	Measurement in research: Measurement Scales, Sources of Error in Measurement, Tests of Sound Measurement	3
5	Methods of Data Collection: Types of data, Collection of Primary Data, Observation Method, Interview Method, Collection of Primary Data	4
6	Ethics and Ethical practice in research and plagiarism	2
B	**Biostatistics**	**22**
7	Data Presentation: Types of numerical data: Nominal, Ordinal, Ranked, Discrete and continuous. Tables: Frequency distributions, Relative frequency, Graph: Bar charts, Histograms, Frequency polygons, one way scatter plots, Box plots, two way scatter plots, line graphs	3
8	Measures of Central Tendency and Dispersion: Mean, Median, Mode, Range, Inter quartile range, variance and Standard Deviation, Coefficient of variation, grouped mean and grouped standard deviation (including merits and demerits).	3

9	Testing of Hypotheses: Definition, Basic Concepts, Procedure for Hypothesis Testing, Measuring the Power of a Hypothesis Test, Normal distribution, Important Parametric Tests including Z-test, t-test, and ANOVA	4
10	Chi-squareTest: Chi-square as a Non parametric Test, Conditions for the Application Chi-square test, Steps Involved in Applying Chi-square Test, Alternative Formula, Yates' Correction, and Coefficient by Contingency.	2
11	Measures of Relationship: Need and meaning, Correlation and Simple Regression Analysis	3
12	Non parametric or Distribution free Tests: Important Non parametric or Distribution-free Test Sign test, Wilcoxon signed-Rank Test, Wilcoxon Rank Sum Test: Mann-Whitney U test, Kruskal Walli's test, Friedman's test, and Spearman Correlation test.	3
13	Vital Health Statistics: Measurement of Population: rate, crude rate, specific rate, Measurement of fertility: specific fertility rate, Total fertility rate, Reproduction rate, Gross Reproduction Rate, Net Reproduction Rate, Measures related to mortality: Crude Death Rate (CDR), Age-specific death Rate, Infant and child mortality rate, Measures related to morbidity.	4
Total		**45 hrs**

CC 001 P–Research Methodology & Biostatistics

Sr.No.	Topics	No. of Hrs
A	**Research Methodology**	
1	Research Article Presentation (Seminar)	5
B	**Biostatistics**	
2	Data Presentation	4
3	Measures of Central Tendency and Dispersion	6
4	Testing of Hypotheses	16
5	Chi-square Test	4
6	Measures of Relationship	6
7	Analysis of Variance	5
8	Non parametricor Distribution-free Tests	8
9	Computer Application Using Statistical Software including SPSS	6
Total		**60 hrs**

FIRST YEAR

M.Sc. OPERATION THEATRE & ANESTHESIA TECHNOLOGY

SEMESTER-II

Code No.	Core Subjects
Discipline Specific Core Theory	
MOTAT 105 L	Anaesthetic Equipments & Procedures
MOTAT 106 L	Advanced Anaesthesia Techniques
MOTAT 107 L	Concept of Disease In Relation To Anesthesia & Critical Care
MOTAT 108 CP	MOTAT Directed Clinical Education - II
Discipline Specific Core Practical	
MOTAT 105 P	Anaesthetic Equipments & Procedures
MOTAT 107 P	Concept of Disease In Relation To Anesthesia & Critical Care
Skill Enhancement Course	
SEC 001 L	Innovation and Entrepreneurship
SEC 002 L	One Health (NPTEL)

Name of the Programme	**M.Sc. Operation Theatre & Anesthesia Technology**
Name of the Course	**Anaesthetic Equipments & Procedures**
Course Code	**MOTAT 105 L**

Teaching Objective	• To know about introduction of basic anesthetic equipments & procedures.
Learning Outcomes	• Knowledge about modern integrated anaesthesia workstation • Describe and operate the anaesthetic monitoring devices. • Prepare for management of difficult airway under the leadership of anaesthesiologists. • Set up for the haemodynamic monitoring and troubleshoot its errors. • Practice the maintenance of anaesthetic gadgets.

Sr. No.	Topics	No. of Hrs.
1	□ Medical Gases and Distribution System ▪ Medical gas supply, storage and safety □ The modern integrated Anaesthesia workstation ▪ Anaesthesia machine & its components ▪ Fail safe system ▪ Safety check of anaesthesia machine Scavenger system	**10**
2	□ Monitoring Equipment ▪ Respiratory gas monitoring and minimum alveolar concentration ▪ Equipments to measure depth of anaesthesia • Bispectral index • Entropy ▪ Neuromuscular block monitoring equipments ▪ Cardiac output monitors ▪ Equipment for central neuraxial and regional blocks ▪ Needles ▪ Catheters ▪ Nerve locators ▪ Ultrasound device ▪ Anesthesia equipment for magnetic resonance imaging ▪ How to Interpret X-rays, CT Scan, and MRI in clinical anaesthesia practice	**15**
3	Airway equipments and their accessories • Surgical airway equipments • Percutaneous airway equipments • Optical laryngoscopes	**10**

	• Airway introducers • Alternative to intubation Equipments for difficult airway	
4	Hemodynamic monitoring ▪ Pressure transducers: resonance ▪ Damping ▪ Invasive & non-invasive blood pressure measurement ▪ Oscillometry Pre-use check of anaesthesia equipments Sterilization and maintenance of anaesthesia equipments	**10**
TOTAL		**45 hrs**

MOTAT 105 P: ANAESTHETIC EQUIPMENTS & PROCEDURES

Sr. No.	Topics	No. of Hrs.
1	The modern integrated Anaesthesia workstation ▪ Anaesthesia machine & its components ▪ Fail safe system ▪ Safety check of anaesthesia machine ▪ Scavenger system	**30**
2	Equipment for central neuraxial and regional blocks ▪ Needles ▪ Catheters ▪ Nerve locators ▪ Ultrasound device	
3	Airway equipments and their accessories ▪ Surgical airway equipments ▪ Percutaneous airway equipments ▪ Optical laryngoscopes ▪ Airway introducers ▪ Alternative to intubation	
4	.Hemodynamic monitoring ▪ Pressure transducers: resonance ▪ Damping ▪ Invasive & non-invasive blood pressure measurement ▪ Oscillometry	
Total		**30 hrs**

Reference:

- A practical approach to anaesthesia equipment- Jerry A Dorsch & Susan E Dorsch
- Anaesthesia equipment simplified- Gregory Rose & J Thomas Mclarney
- Understanding anaesthetic equipments and procedures A practical approach Dwarakadas K Baheti& Vandana V Laher

Name of the Programme	M.Sc. Operation Theatre & Anesthesia Technology
Name of the Course	ADVANCED ANAESTHESIA TECHNIQUES
Course Code	MOTAT 106 L

Teaching Objective	• Common procedures performed in anesthesia, intensive care unit, and emergency department. • Physics and technology involved in the functioning of special equipment used to aid the procedures
Learning Outcomes	• Explain the different techniques of regional anaesthesia. • Describe the technique of general anaesthesia and management of its complications. • Discuss the anaesthetic emergencies and their management. • Understand the delivery of anaesthesia for emergency surgery.

Sr. No.	Topics	No. of Hrs.
1	Vascular cannulation Central neuraxial blockade ▪ Potential benefits of central neuraxial block ▪ Mechanism of action, spread, uptake &elimination ▪ Ultrasound for central neuraxial blockade Peripheral nerve blocks Post anaesthesia care Ultrasound in ICU ▪ FAST ▪ Volume assessment ▪ Thoracic ultrasound	10
2	Review of modern technology in anaesthesia ▪ Ultrasound ▪ Fiberoptics ▪ X-ray	**7**
3	General anaesthesia ▪ Types and techniques ▪ Awareness during anaesthesia ▪ Complications ▪ The long term effects of general anaesthesia ▪ Management of general anaesthesia ▪ Anesthesia and children	8
4	Emergency anaesthesia guidelines	20

	▪ Incidence and risk factor Anaesthetic emergencies ▪ Airway emergencies ▪ Anaphylaxis ▪ Local anaesthetic toxicity ▪ Malignant hyperthermia The principles and conduct of anaesthesia for emergency surgery ▪ Choice of anaesthetic technique ▪ Management and protection of the airway including pulmonary aspiration ▪ The rapid sequence induction: evolution over time ▪ Management of ventilation ▪ Maintenance of anaesthesia	
TOTAL		**45 hrs**

Reference:

- Anaesthesiology updates for postgraduates- Sampa Dutta Gupta
- Text book of anaesthesia for post graduates- T.K. Agasthi
- Step by step practical aspects of emergency anaesthesia- Arun Kumar Paul

Name of the Programme	**M.Sc. Operation Theatre & Anesthesia Technology**
Name of the Course	**Concept of Disease In Relation To Anesthesia & Critical Care**
Course Code	**MOTAT 107 L**

Teaching Objective	• Should be able integrate knowledge with practice in handling and maintaining various of anesthesia, monitoring and equipments.
Learning Outcomes	• Should be able to manage advanced patient care procedures during anesthesia and critical care.

Sr. No.	Topics	No. of Hrs.
1	Mechanical Ventilation	5
2	Respiratory diseases- Asthma, pneumonia, COPD, Restrictive Lungs Disease, respiratory failure.	5
3	Kidney and urinary tract diseases- acute kidney injury, chronic kidney disease, UTI, Dialysis, glomerulonephritis	5
4	Liver and biliary disorders- Viral hepatitis, Alcoholic liver disease, liver failure, Hepatic coma, jaundice, cholecystitis	5
5	Endocrine and Metabolic disorders- diabetes mellitus, thyroid, adrenal, parathyroid disorders. Acid base and electrolytes imbalance	5
6	Neurological Disorders- diagnosis and management of unconscious , coma, head injuries, CVA, critical care and monitoring of patient with neurological illnesses Sepsis and Multi-organ failures –causes, diagnosis and management	7
7	ACID - BASE DISORDERS AND FLUID BALANCE- ABG analysis, Normal ABG value, Crystalloid and colloids: Differences, indications, Monitoring drip rate, Fluid balance: Intake/output chart	6
8	BLOOD TRANSFUSION- Blood Grouping and cross matching, Whole blood, packed RBC, Blood components and indications, Technique of blood transfusion, Complications of Blood Transfusion, Anaphylactic reaction.	7
	TOTAL	**45 hrs**

Reference:

1. Short textbook of anaesthesia
2. Anaesthesia for operation theatre technician.

MOTAT 107 P: Concept of Disease In Relation To Anesthesia & Critical Care

Sr. No.	Topics	No. of Hrs.
1	Mechanical Ventilation	**30**
2	MONITORING AND DIAGNOSTIC PROCEDURES IN I.C.U. - Clinical Monitoring, ECG monitoring. NIBP Cuff sizes and application Multi parameter monitor – Normal values	
3	GENERAL CARE OF PATIENT IN I.C.U. - Care of unconscious patient Syringe pump / Infusion Pump uses, infusion rate. Physiotherapy - chest physiotherapy, Oxygen Therapy Sources of oxygen, Oxygen Delivery devices, Oxygen Toxicity, Monitoring Hypoxia	
4	ACID - BASE DISORDERS AND FLUID BALANCE- ABG analysis, Normal ABG value, Crystalloid and colloids: Differences, indications, Monitoring drip rate, Fluid balance: Intake/output chart	
Total		**30 hrs**

Reference:

- Lee's synopsis
- Short text book of anesthesia

MOTAT 108 CP: MOTAT Directed Clinical Education – II

Students will observe the basic operations of the operation theatre while interacting with the multidisciplinary team members involved in providing optimal care to the patients. The students will be introduced to terminologies, equipment and techniques used for preparation and management of the OT. **(Total-360 hrs)**

SKILL ENHANCEMENT COURSES

Name of the Programme	**M.Sc. Operation Theatre & Anesthesia Technology**
Name of the Course	**Innovation and Entrepreneurship**
Course Code	**SEC 001 L**

Course Outcome	• Students will grasp the concepts of innovation, its ecosystem, and the role of various stakeholders such as government policies, startups, and innovation hubs. • Cultivating an entrepreneurial mindset and leadership qualities necessary for driving innovation and leading ventures. • Understanding the intersection of technology and innovation and leveraging emerging technologies for entrepreneurial ventures.

Sr. No.	Topics	No. of Hrs.
1	Innovation and Innovation Eco-System, The Policy Framework, Startup Landscape and Innovation Hubs, - Digital India and Make in India, - Linking Innovation with Intellectual Property Rights, Raising Finance for Startups in India, Innovation in Indian Context, Writing a business plan	15
2	Creativity and Research, Converting Researches to Innovation: Innovation Types and Models, Product Development, IPR and its Commercialisation, Support System to Develop Culture of Research and Innovation, Commercialisation of research and innovation, Fund raising – Research and Innovation, Envisioning Innovation and Scenario Building	15
3	Introduction to Innovation in Entrepreneurship, Idea Generation and Validation, Design Thinking in Entrepreneurship, Business Model Innovation, Technology and Innovation, Funding Innovation, Entrepreneurial Mindset, Leadership & amp; Intellectual Property, Scaling and Growth Strategies, sustainability & amp; Social Innovation	15
Total		**45 hrs**

Name of the Programme	M.Sc. Operation Theatre & Anesthesia Technology
Name of the Course	One Health (NPTEL)
Course Code	SEC 002 L

Course Outcomes	• A comprehensive understanding of One Health's role in global health challenges, emphasizing interconnectedness among human, animal, and environmental health. • Topics include research ethics, disease surveillance, and successes in controlling emerging infectious diseases. • Students explore disease emergence, transmission, antimicrobial resistance, and food safety, gaining insights into effective public health strategies.

Sr. No.	Topics	No. of Hrs.
1	**Introduction to One Health :** • Introduction to the One Health One Medicine Concept and National & International health/public health agencies • Global Health vs One Health • Basics of Research Ethics • Integrated human and animal disease surveillance systems • Recent success of One Health in control of emerging infectious diseases and the application of One Health in the control of endemic zoonoses in resource-poor communities	5
2	**Emerging Infectious Diseases and Antimicrobial Resistance:** • Emerging infectious diseases • Process of disease emergence and assessment of the risk factors • Mechanisms of pathogen cross over across species boundaries and emerging infectious disease transmission, and its relevance in the 21st century • Importance of disease detection, Identification and monitoring in public health and the gaps in current health systems approaches and importance of Genome Sequencing • Introduction to disease vectors and basics of Medical Entomology • The factors influencing an emerging disease (whether is controlled or becomes endemic/epidemic as illustrated by different emerging diseases -STDs, HIV/AIDS, avian influenza, SARS, Ebola) • Antimicrobial resistance a global threat and Importance of antibiotic stewardship program • Introduction of Food Safety and Food Borne Diseases	10
3	**One Health Application in Management of Zoonotic Diseases:** • What are zoonotic diseases & its role in our changing world • Understanding of bacterial, viral and parasitic zoonotic diseases; critical evaluation of its control measures, awareness of local, national and global factors and Influences • Biogeography of zoonosis	10

	• The integration of human, animal and ecosystem health in the control and prevention of these diseases • Community engagement for zoonotic disease control in humans and animals through One Health	
4	**Applied Epidemiology & Public Health in One Health Research:** • Basics of Epidemiological Studies • Rapid Response system, Disaster Management and Outbreak Investigation Plans • Basic statistical methods and their application and the measurement of disease frequency • Principles of survey design and the concepts of sampling • Mixed method research	5
5	**One Health and Health Policy:** • Introduction to health policy • Political and institutional challenges in implementing One Health and the importance of a unified policy to address the shared health threats of humans and animals	5
6	**Media & Community engagement for One Health**: • Risk Communication and Pandemic Preparedness • How ICMR and other Public Health Institutes tackled and managed pandemic situation in the country • Role of community in disease control & ways for community engagement • Uses of different types of media for communication and impact of the media on public attitudes to disease	10
Total		**45 hrs**

Scheme of University Examination Theory for PG Program:

General structure / patterns for setting up question papers for Theory / Practical courses, their evaluation weightages for PG programs of MGMSBS are given in the following tables

2.2 a Marks scheme for the University exam:

Final theory marks will be 10**0 marks (80 marks University Theory exam + 20 Marks Internal assessment).**

Question		Marks distribution	Marks allotted per section	Marks
Sec: A	MCQ	10 x 1 M = 10	10	10
Sec: B	SAQ	3/4x 5 M = 15	15	35
Sec: B	LAQ	2/3 x 10 M = 10	20	
Sec: C	SAQ	3/4x 5 M = 15	15	35
Sec: C	LAQ	2/3x 10 M = 10	20	
				Total = 80 M

2.2 b Practical exam pattern: Total 40 marks with following breakup :

Exercise	Description	Marks
Q No 1	Practical exercise - 1	1 x20=20 M
Q No 2	Station exercise	2x5M=10 M
Q No 3	VIVA	10 M
QNo 4	Journal	NIL
		Total = 40 M

2.2 c Practical to be conducted at respective departments and marks submitted jointly by the parent department to the university.

2.2 d Breakup of theory IA calculation for 20 marks

Internal exam (at department)	15 marks
Seminar	5 marks
	Total = 20 M

Breakup of practical IA calculation:

Internal exam (at department)	10 marks
Viva	5 marks
Journal	5 marks
	Total = 20 M

Note –20 marks to be converted to 10 marks weightage for submission to the university.

Model Checklist for Evaluation of the Clinical Directed Posting (PG)

Name of the student: _____Date:_____

Program:_____

Semester: _____ Name of the Internal faculty/Observer:_____

Name of the External Faculty/Observer:_____

Core Competencies	Marks allotted	arks obtained
1. Students will begin to develop critical thinking abilities utilizing the allied health personnel roles of communicator and caregiver. Students will learn principles of professional allied health personnel practice and provide direct care to individuals within a medical surgical setting while recognizing the diverse uniqueness of individuals with health alterations.		
Clinical Teaching		
2. Demonstrate beginning competency in technical skills.	10	
3. **Independent Work by Student guided by faculty**		
4. Develop effective communication skills (verbally and through charting) with patients, team members, and family	2.5	
5. Identify intra and inter-professional team member roles and scopes of practice. Establish appropriate relationships with team members.	2.5	
6. **Hands on practical work by students**		
7. Protect confidentiality of electronic/manual health records data, information, and knowledge of technology in an ethical manner	05	
8. **Independent work by student**		
9. Demonstrate expected behaviors and complete tasks in a timely manner. Arrive to clinical experiences at assigned times. Maintain professional behavior and appearance.	05	
10. **Log book**	10	
11. Viva	10	
12. Attendance	05	
Total	**50 Marks**	

Sign of Internal Examiner:_____

Sign of External Examiner:_____

Resolution No. 3.8 of Academic Council (AC-49/2024):

Resolved to approve the proposal to initiate MOOC programs as an elective in M.Sc. Clinical Nutrition, M.Sc. OT&AT and M.Sc. Emergency & Trauma Care as a pilot study (for including in the marksheet) from batch admitted in Academic Year 2024-25 onwards.

Resolution No. 3.10 of Academic Council (AC-49/2024):

(ii) Resolved and approved to collect the Dissertations/Projects 60 days before the University examination for all 2-year M.Sc. programs under MGM School of Biomedical Sciences to fulfil the credit allotted for project work, to be effective from batch 2023-24 onwards.

Annexure-4 of AC-50/2024

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.: 022-27437631, 27437632, 27432890
Email. sbsnm@mgmuhs.com/Website: www.mgmsbsnm.edu.in

CHOICE BASED CREDIT SYSTEM (CBCS)

(Academic Year 2024 - 25)

Curriculum for

M.Sc. Allied Health Sciences

M.Sc. OPERATION THEATRE & ANESTHESIA TECHNOLOGY

Semester III & IV

Resolution No. 3.2 of Academic Council (AC-50/2024): Resolved to approve the CBCS syllabus of M.Sc. Operation Theatre and Anesthesia Technology (III & IV Semester) for Batch admitted in Academic Year 2024-25 onwards. [ANNEXURE-4]

OUTLINE OF COURSE CURRICULUM

M.Sc. Operation Theatre and Anaesthesia Technology

Semester III

Code No.	Core Course	Credits/Week					Hrs/Semester					Marks		
		Lecture (L)	Tutorial (T)	Practical (P)/Dissertation	Clinical Posing/ Rotation (CP)	Total Credits (C)	Lecture (L)	Tutorial (T)	Practical (P)/Dissertation	Clinical Posing/ Rotation (CP)	Total (hrs.)	Internal Assesment (IA)	Semester End Exam (SEE)	Total
Discipiline Specific Core Theory														
MOTAT 109 L	Clinical Surgery-I	2	-	-	-	**2**	30	-	-	-	**30**	20	80	**100**
MOTAT 110 L	Clinical Surgery-II	2	-	-	-	**2**	30	-	-	-	**30**	20	80	**100**
MOTAT 111 L	Fundamental Concepts and Procedures Related to Operation Theatre	3	-	-	-	**3**	45	-	-	-	**45**	20	80	**100**
MOTAT 112 CP	MOTAT Directed Clinical Education - III	-	-	-	18	**6**	-	-	-	315	**315**	-	50	**50**
MOTAT 113	Disserration/ Project	-	-	10	-	**5**	-	-	150	-	**150**	50	-	**50**
Discipiline Specific Core Practical														
MOTAT 109 P	Clinical Surgery-I	-	-	2	-	**1**	-	-	30	-	**30**	10	40	**50**
MOTAT 110 P	Clinical Surgery-II	-	-	2	-	**1**	-	-	30	-	**30**	10	40	**50**
Total		**7**	**0**	**14**	**18**	**20**	**105**	**0**	**210**	**315**	**630**	**130**	**370**	**500**

OUTLINE OF COURSE CURRICULUM

M.Sc. Operation Theatre and Anaesthesia Technology

Semester IV

Code No.	Core Course	Credits/Week					Hrs/Semester					Marks		
		Lecture (L)	Tutorial (T)	Practical (P)/Dissertation	Clinical Posing/ Rotation (CP)	Total Credits (C)	Lecture (L)	Tutorial (T)	Practical (P)/Dissertation	Clinical Posing/ Rotation (CP)	Total (hrs.)	Internal Assesment (IA)	Semester End Exam (SEE)	Total
Discipiline Specific Core Theory														
MOTAT 114 L	Procedures in Abdomen, Obstretic, Gynaecology & Urology (OBGY & URO) OT	2	-	-	-	**2**	30	-	-	-	**30**	20	80	**100**
MOTAT 115 L	Procedures in Ear, Nose, Throat (ENT), Ophthalmic & Neuro OT	2	-	-	-	**2**	30	-	-	-	**30**			
MOTAT 116 CP	MOTAT Directed Clinical Education - IV	-	-	-	6	**2**	-	-	-	90	**90**	-	50	**50**
General Elective (Any one)														
GE 001 L	Pursuit of Inner Self Excellence(POISE)	4	-	-	-	4	60	-	-	-	**60**	20	80	**100**
GE 002 L	Bioethics, Biosafety, IPR and Technology Transfer													
GE 003 L	Disaster Management and Mitigation Resources													
GE 004 L	Human Rights													
Discipiline Specific Core Practical														
MOTAT 114 P	Procedures in Abdomen, Obstretic, Gynaecology & Urology (OBGY & URO) OT	-	-	2	-	**1**	-	-	30	-	**30**	10	40	**50**
MOTAT 115 P	Procedures in Ear, Nose, Throat (ENT), Ophthalmic & Neuro OT	-	-	2	-	**1**	-	-	30	-	**30**	-	-	-
MOTAT 117	Disserration/ Project	-	-	22	-	**11**	-	-	330	-	**330**	-	200	**200**
Total		**8**	**0**	**26**	**6**	**23**	**120**	**0**	**390**	**90**	**600**	**50**	**450**	**500**

Learning Objective / Program Outcome:

At the end of completion of M.Sc. OTAT student shall achieve following skills

1. Students shall learn and work as a link between OT Sisters and Doctor in OT.
2. Learn to prepare the OT prior to surgery, including anaesthesia preparation and Surgical Preparation.
3. Shall be trained in sterilization of OT and instruments.
4. Assist the Anaesthetist in delivering General anaesthesia and Regional anaesthesia.
5. Assist in common Surgeries as second SOS first assistant in emergency.
6. Shall be trained in performing basic nursing procedures like IV Catheterization, RT insertion, Nebulisation, Oxygen therapy, Injections.
7. Shall be trained in monitoring of the patient in pre-op and post-op room.
8. Shall be trained in Cardio-pulmonary resuscitation.
9. Shall be trained in use a defibrillator correctly during Cardio-pulmonary resuscitation.
10. Shall be trained in use of basic monitors, equipment's and C-arm in OT.
11. Shall be informed regarding maintenance of basic monitors, equipment's and C-arm in OT including sterilization of endoscopes.
12. Shall be trained in maintenance of all OT records in a proper way.
13. Shall be trained in Blood transfusion therapy.
14. Shall be trained in monitoring of the patient during Blood transfusion.
15. Shall be trained in monitoring of parameters as per check list before & after surgery.
16. Shall be trained in communication skills to provide psychological support to the patient.
17. Shall be trained in counselling patients' relatives.
18. Shall be trained in management of common accidents and untoward incidences in OT.
19. Shall be trained in managing the Arthroscopy unit.
20. Shall be trained in performing different injection techniques commonly used in OT.
21. Shall be trained in checking availability of emergency drugs in emergency tray in the OT.
22. Shall be trained in taking BP and Pulse of patients.
23. Shall be trained in verifying IPD papers for Preoperative preparation NBM status and consent for surgical procedure.
24. Shall be trained in preparation of dressing pads, swabs and packs.

25. Shall be trained in packing of drums for sterilization.
26. Shall be trained in observation of patient during surgery and postoperative period.
27. Shall be trained in segregation of biomedical waste.
28. Shall be trained in preparation of electric gadgets such as Laparoscope, cautery etc.
29. Shall be trained in monitoring of Central suction, electric suction machines and foot suction machines.
30. Shall be trained in Checking whether OT lists are signed by authorities.
31. Shall be trained in ensuring availability of anaesthesia disposables such as ETT, Tracheostomy tray, airways, laryngoscopes with all blades, connectors, styles, spinal and epidural tray, defibrillators, ventilators etc.
32. Shall be trained in ensuring availability of IV anaesthetics such as Thiopentone, propofol, ketamine and muscle Relaxants such as suxamethonium, pancuronium, atracurium, vecuronium. Local anaesthetics such as lignocaine, Bupivacaine etc.
33. Shall be trained in colour coding of various types of cylinders.
34. Shall be trained in monitoring of central oxygen system, manifolds, liquid oxygen, and measurement of pressures in Oxygen cylinders.
35. Shall be trained in use of fire extinguishers.
36. Shall be trained in various positions of operation table and their indications.
37. Shall be trained in inventories of various OT equipment’s, instruments, consumables and disposables including indents, opening and closing balances.
38. Shall be trained in technical work as well as paper work equally.

SECOND YEAR

M.Sc. OPERATION THEATRE & ANESTHESIA TECHNOLOGY

SEMESTER-III

Code No.	Core Subjects
Discipline Specific Core Theory	
MOTAT 109 L	Clinical Surgery-I
MOTAT 110 L	Clinical Surgery-II
MOTAT 111 L	Fundamental Concepts and Procedures Related to Operation Theatre
MOTAT 112 CP	MOTAT Directed Clinical Education - III
MOTAT 113	Dissertation/ Project
Discipline Specific Core Practical	
MOTAT 109 P	Clinical Surgery-I
MOTAT 110 P	Clinical Surgery-II

Name of the Programme	**M.Sc. Operation Theatre & Anesthesia Technology**
Name of the Course	**Clinical Surgery I**
Course Code	**MOTAT 109 L**

Teaching Objective	**Students should understand:** • Various sub-specialty surgical procedures • Different requirements for each of these procedures • Preparation of patient, equipment, and operation theatre for these surgical procedures
Learning Outcomes	• The students will be able to assist with different surgeries

Sr. No.	Title	No. of Hrs.
1.	**Laparoscopic Surgery** ▪ Principles of laparoscopic surgery ▪ Advantages and disadvantages ▪ Safety issues and indications ▪ Postoperative care ▪ Laparoscopic Cholecystectomy ▪ Laparoscopic Appendectomy ▪ Advanced Laparoscopic Surgeries ▪ Diagnostic Laparoscopy	7
2.	**Robotic surgery** • Principles of robotic surgery • Advantages and disadvantages • Safety issues and indications • Postoperative care	4
3.	**Neck and spine** • The accurate assessment of spinal cord injuries • The basic management of spinal trauma and major pitfalls	3
4.	**Trauma to the face and mouth** • Classification of facial fractures • Diagnosis and management of fractures	2
5.	**Elective orthopaedics** Pathology, assessment and management of • Upper limb • Hip and knee • Foot and ankle • Paediatric orthopaedics	3
6.	**Ophthalmic surgeries** • Cataract extraction • Corneal transplant/ keratoplasty • Correction of stabismus	2

7.	**ENT surgeries** • Typmanoplasty • Mastoidectomy • FESS • Rhinoplasty • Tonsillectomy & Adenoidectomy • Tracheostomy • Laryngectomy • Radical Neck Dissection	5
8.	**Obstetrics & Gynaecological Procedures** • D&C • Hysterectomy • Salphingo oophorectomy • Tubal Sterilization • LSCS • Ectopic pregnancy	4
Total		**30 hrs.**

MOTAT 109 P: Clinical Surgery I

Sr. No.	Topics	No. of Hrs.
1.	**Setting up of Equipment's and preparation of patient for** • Laparoscopic surgery • Robotic surgery • Neck and spine surgery • Trauma to the face and mouth • Elective Orthopaedic surgery • Ophthalmic surgery • ENT surgeries • Obstetrics and gynaecological procedures	30
Total		**30 hrs.**

Name of the Programme	**M.Sc. Operation Theatre & Anesthesia Technology**
Name of the Course	**Clinical Surgery II**
Course Code	**MOTAT 110 L**

Teaching Objective	**Students should understand:** • Various sub-specialty surgical procedures • Different requirements for each of these procedures • Preparation of patient, equipment, and operation theatre for these surgical procedures
Learning Outcomes	• The students will be able to assist with different surgeries

Sr. No.	Title	No. of Hrs.
1.	**Elective neurosurgery** • Head injury • Investigation and treatment for intracranial infection • Treatment for hydrocephalus • Management of intracranial hemorrhage • Management of epilepsy • Understanding the principals involved in brain death	8
2.	**Plastic and reconstructive surgery** • The spectrum of plastic surgical techniques • The various skin grafts • The principles and use of flaps • Plastic surgery to manage difficult and complex tissue loss	4
3.	**The thorax** • Investigation of chest pathology • Surgical oncology as applied to chest surgery	3
4.	**Vascular surgery** • Investigation for vascular surgery • Management technique of vascular surgery • Direct repair by stunting • Endarterectomy • Bypass	5
5.	**Cardiac surgery** • The role of investigation in planning of surgery • The management of coronary heart disease • The role of surgery in valvular heart disease • Special role of surgery in congenital heart disease • The management of aortic vascular and pericardial disease	6

6.	**Organ Transplantation** • What is organ transplantation • The transplant process • Timeline of medical and legal advances in organ transplantation • Cadaveric organ donation • Living organ donation • Alternative organs • The impact of transplantation	4
Total		**30 hrs.**

MOTAT 110 P: Clinical Surgery II

Sr. No.	Topics	No. of Hrs.
1.	**Setting up of Equipment's and preparation of patient for** • Elective neurosurgery • Plastic and reconstructive surgery • The thoracic surgery • Vascular surgery • Cardiac surgery • Organ Transplantation	30
Total		**30 hrs.**

Name of the Programme	**M.Sc. Operation Theatre & Anesthesia Technology**
Name of the Course	**Fundamental Concepts and Procedures Related to Operation Theatre**
Course Code	**MOTAT 111 L**

Teaching Objective	• To teach students transfer procedures for patients along with the different drug administration • To teach students regarding operative record
Learning Outcomes	• Should be able to take care of patient from the preoperative period till his recovery from anesthesia in all aspects • Students will be understanding the importance of psychological preparation before the surgeries

Sr. No.	Title	No. of Hrs.
1	**Admission procedure/ Patient Data:** Patient name, age, sex, address, registration no, relatives income, blood group, patient history, examination, provisional diagnosis, investigation, final diagnosis, treatment plan.	**4**
2	**Psychological support of surgical patients:** Preoperative patient preparation, orientation, information and psychological support about surgery, postoperative psychological support, recovery period, pain management	**4**
3	**Transfer procedure:** Transfer from ward to pre anesthesia room, transferring techniques to operating table, positioning on operating table, special attachments of operation table, pressure points, prevention of injuries	**4**
4	**Environmental controls:** Cleaning and disinfection of operation room, corridor, storage room, traffic pattern in O.R, use of barriers, scrubbing techniques, sterilization of instruments, disposal of waste and removal of laundry, protective covering, hand washing procedure, change of clothes, cap, mask, gloves, footwear.	**5**
5	**Operative record:** Diagnosis, procedure, specimens, Documentation of illness, catheters etc., vital sign record, Instrument and swab counting procedure, X-ray detectable sponges.	**4**
6	**Safety for operating room personnel:** Safety measure policy, body mechanics, proper lifting of patients, instruments, fatigue factors, Radiation safety, intraoperative X-ray, radioactive implant, hospital policy, Radiation exposure, hospital protective measures, chemical hazards, safe levels of anaesthetic gases and their removal, air conditioning system, gas leak detectors, infection control, protective covering.	**14**
7	**Drug administration:** Topical administration, skin medication, transdermal and eye medication, instillation of ear drops, external administration, oral and nasogastric tubes, buccal and sublingual drugs, rectal suppositories, parenteral administration	**10**
Total		**45 hrs.**

Course code- MOTAT 112 CP: OTAT Directed Clinical Education – III

Students will observe the basic operations of the operation theatre while interacting with the multidisciplinary team members involved in providing optimal care to the patients. The student will be introduced to terminologies, equipment, and techniques used for preparation and management of the OT. **(Total- 315 hrs.)**

Name of the Program	M.Sc. Operation Theatre & Anesthesia Technology
Name of the Subject	Dissertation / Project*
Subject Code	MOTAT 113

*The Dissertation work will begin from 3rd Semester, and will continue through the 4th Semester.

SECOND YEAR

M.Sc. OPERATION THEATRE & ANESTHESIA TECHNOLOGY

SEMESTER- IV

Code No	Core Subject
Discipline Specific Core Theory	
MOTAT 114 L	Procedures in Abdomen, Obstretic, Gynaecology & Urology (OBGY & URO) OT
MOTAT 115 L	Procedures in Ear, Nose, Throat (ENT), Ophthalmic & Neuro OT
MOTAT 116 CP	MOTAT Directed Clinical Education - IV
General Elective (Any one)	
GE 001 L	Pursuit of Inner Self Excellence (POISE)
GE 002 L	Bioethics, Biosafety, IPR, and Technology Transfer
GE 003 L	Disaster Management and Mitigation Resources
GE 004 L	Human Rights
Discipline Specific Core Practical	
MOTAT 114 P	Procedures in Abdomen, Obstretic, Gynaecology & Urology (OBGY & URO) OT
MOTAT 115 P	Procedures in Ear, Nose, Throat (ENT), Ophthalmic & Neuro OT
MOTAT 117	Disserration / Project

*(a) **Dissertation / Project Course** commences in III Semester

(Elective): Any one subject is to be chosen from the following (Subjects offered may change from time to time depending on the availability of expertise)
**Elective courses may or may not have practical and/or field work.

▲Multidisciplinary/ Interdisciplinary

Name of the Programme	**M.Sc. Operation Theatre & Anesthesia Technology**
Name of the Course	**Procedures in Abdomen, Obstretic, Gynaecology & Urology (OBGY & URO) OT**
Course Code	**MOTAT 114 L**

Teaching Objective	• To train students in areas like passing nasogastric tubes, changing intravenous fluids, giving different positions on OT table in operative procedures on abdomen, pelvis & obstetrics-gynecology OT. • To train the students on pre-operative procedures, anaesthesia techniques & post-operative patient management in abdominal, obs-gynecology & Urology procedures
Learning Outcomes	• Students will acquire adequate practical skills to work as technician and be able to assist anesthesiologist. Female technologist will emerge as promising and helpful person to ob-gyn patients.

Sr. No.	Topics	No. of Hrs.
1	**Type of patients & presentation:** Pain, distension, bleeding, vomiting, GI disturbances, oliguria, anuria, oedema, respiratory insufficiency	4
2	**Patient preparation:** Bowel preparation, antibiotics Hydration therapy, diuretic, prokinetics, RT feeds, TPN Correct electrolyte imbalance	4
3	**Investigations:** Routine-Hb, CBC, sugar, electro, Specific- X-Ray, CT, MRI Renal function tests Bld grouping- X matching Usg abdomen-ECG, X-Ray chest	4
4	**Operative procedures:** Exploratory laparotomy Appendicectomy, colectomy resections, nephrectomy, uretero-pyelolitiotomy, renal transplant, Hysterectomy, Myomectomy, PCNL, gastroctomy, GJ vagotomy, nephrolithotomy, TURP, open prostatectomy	4
5	**Anaesthesia Techniques:** Sedations, spinal, epidural , general anesthesia	5
6	**Anaesthesia Management:** Premedicant sanesthetic Agents positioning, i/v fluids, Transfusions, Monitoring Management of complications	5
7	**Post-operative:** Pain relief measures IV fluids	4
Total		**30 hrs.**

MOTAT 114 P: Procedures in Abdomen, Obstetrics, Gynecology & Urology (OBGY & URO) OT

Sr. No.	Topics	No. of Hrs.
1	History taking of patients related to surgeries i.e. abdomen, obstetrics**,** Gynecology & Urology	**30**
2	Pre-Anesthetic Evaluation done for abdomen, obstetrics**,** Gynecology & Urology surgeries	
3	Preparation for different operative procedures i.e. laparotomy, PCNL, TURP, Hysterectomy	
4	Preparation of Anesthesia for patient posted for abdomen, obstetrics**,** Gynecology & Urology surgeries	
5	Identification & assessment of Post-operative Complications related to major surgeries done in general OT	
Total		**30 hrs.**

Name of the Programme	**M.Sc. Operation Theatre & Anesthesia Technology**
Name of the Course	**Procedures in Ear, Nose, Throat (ENT), Ophthalmic & Paediatric OT**
Course Code	**MOTAT 115 L**

Teaching Objective	• To keep pace with scientific advances in surgical procedures and anesthesia techniques in ENT, ophthalmic & pediatric OT. • To introduce different types of endotracheal instrumentations
Learning Outcomes	• Students will learn skills to deal with difficult airway. It is also expected to offer vast experience in anesthesia management of lengthy operative procedures needing reconstruction, plastic repairs etc.

Sr. No.	Topics	No. of Hrs.
1	**ENT** • **Presentation:** Cough, URTI, LRTI, hearing loss, nasal discharge, ear discharge, airway obstruction, headache, cancer & its spread • **Steps in patient preparation**: Optimize infections, optimize airway patency, antibiotics, bronchodilators, mucolytics • **Investigations**: X-Ray, CT, MRI, coagulation profile, xeroradiograms, endoscopies • **Anesthesia Management**: Premedicants, antisialogogues, antiemetic, Indication agents, special ETTs, throat packs, positioning I/v fluids monitoring	12
2	**Ophthalmology** • **Pt presentation:** Diminished acuity of vision, Blurred/Double vision Discharge, pain, swelling. Ptosis, squinting • **Preparation:** Lowering of lop, antibiotics, pupillary dilatation Correction of co-morbidities (IHD, DH, HT), investigation • **Anesthetic Management:** Mostly local analgesia Peritubular /Tenon block Technique & precautions for general anesthesia -Agents causing rise in IOP -Smooth induction -Role of monitoring -Smooth extubation	8
3	**Neuro OT** • **Patient presentation:** Evidence of high ICP Headache, vomiting, blurred vision, diplopia, seizures, bradycardia, hypertension neurological deficit • **Patient preparation:** Cerebral resuscitation, diuretics, mannitol, corticosteroids, I/V fluids, hyperventilation, anticonvulsants • **Investigations:** x- rays, CT, MRI, electrolytes, EKG, sugar, urea, coagulation profile, blood group and crossmatching • **Surgical procedures:** Head injury, intracranial hematoma, pituitary, posterior fossa tumors, aneurysms, meningiomas. • **Anesthesia management:** Premedicants, induction, special endotracheal tubes, positioning, monitoring, transfusion maintaining ICP postoperative care	10
Total		**30 Hrs.**

MOTAT 115 P: Procedures in Ear, Nose, Throat (ENT), Ophthalmic & Neuro OT

Sr. No.	Topics	No. of Hrs.
1	History taking of patients related to surgeries i.e. ENT, ophthalmic & Neurology	**30**
2	Pre-Anesthetic Evaluation done for ENT, ophthalmic & Neurology surgeries	
3	Preparation for different operative procedures done in ENT, Ophthalmology and Neuro OT	
4	Preparation of Anesthesia for patient posted for ENT, ophthalmic & Neurology surgeries	
5	Identification & assessment of Post-operative Complications related to major surgeries done in Neuro OT	
Total		**30 hrs.**

Course code- MOTAT 116 CP: OTAT Directed Clinical Education – IV

Students will observe the basic operations of the operation theatre while interacting with the multidisciplinary team members involved in providing optimal care to the patients. The student will be introduced to terminologies, equipment, and techniques used for preparation and management of the OT. **(Total- 90 hrs.)**

General Elective

Name of the Program	**M. Sc. Operation Theater & Anesthesia Technology**
Name of the subject	**Pursuit of Inner Self Excellence (POISE)**
Subject Code	**GE 001 L**

Teaching Objectives	• To identify the self-excellence from the student and encourage him/her for betterment.
Learning Objectives	• Able to perform in a better way in the society

Course outcomes	• Students will become self-dependent, more decisive and develop intuitive ability for their study and career related matter. • Student's ability to present their ideas will be developed. • Enhanced communication skills, public speaking & improved Presentation ability. • Students will be able to explore their inner potential and inner ability to become a successful researcher or technician & hence become more focused. • Students will observe significant reduction in stress level. • With the development of personal attributes like Empathy, Compassion, Service, Love & brotherhood, students will serve the society and industry in better way with teamwork and thus grow professionally.

Sr. No.	Topics	No. of hrs.
1	**Spiritual Values for human excellence :**The value of human integration; Compassion, universal love and brotherhood (Universal Prayer) ;Heart based living ; Silence and its values, Peace and non-violence in thought, word and deed ; Ancient treasure of values - Shatsampatti, Patanjali's Ashtanga Yoga, Vedic education-The role of the Acharya, valuesdrawn from various cultures and religious practices- Ubuntu, Buddism, etc.: Why spirituality? Concept–significance: Thought culture	15
2	**Ways and Means :**Correlation between the values and the subjects ;Different teaching techniques to impart value education; Introduction to Brighter Minds initiative; Principles of Communication; Inspiration from the lives of Masters for spiritual values- Role of the living Master	15
3	**Integrating spiritual values and life:** Relevance of VBSE (Value Based Spiritual Education) in contemporary life; Significant spiritual values; Spiritual destiny; Principles of Self-management; Designing destiny	15
4	**Experiencing through the heart for self-transformation (Heartfulness Meditation):** Whoam I? ; Introduction to Relaxation; Why, what and how HFN Meditation?; Journal writingfor Self-Observation; Why, what and how HFN Rejuvenation(Cleaning)?; Why, what andhow HFN connect to Self (Prayer)?; Pursuit of inner self excellence; Collective Consciousness – concept of *egregore effect;*	15
Total		**60 hrs.**

Reference Books:

1. www.pdfdrive.net
2. www.khanacademy.org
3. www.acadeicearths.org
4. www.edx.org
5. www.open2study.com
6. www.academicjournals.org

Name of the Program	**M. Sc. Operation Theater & Anesthesia Technology**
Name of the subject	**Bioethics, Biosafety, IPR, and Technology Transfer**
Subject Code	**GE 002 L**

Teaching Objectives	• To make aware the student about bioethics, biosafety and other aspects related to technology transfer and encourage him/her for betterment.
Learning Objectives	• Able to understand the ethics for healthcare

Course Outcomes	**Students will learn to:** 1. Effectively manage the health and safety aspects of a biological laboratory. 2. Give reliable, professional and informed advice and information to colleagues and managers. 3. Help to ensure that their institution complies with relevant legislation, liaise effectively with enforcing authorities and beware of the penalties for failing to comply. 4. Build a context of understanding through communication. 5. Mediate between other conflicting parties. 6. Exhibit de – escalatory behaviours in situations of conflict. 7. Demonstrate acknowledgment and validation of the feelings, opinions, and contributions of others.

Sr. No.	Topics	No. of hrs.
1	**Ethics**: Benefits of Allied Health Sciences, ELSI of Bioscience, recombinant the rapeutic products for human healthcare, genetic modifications and food consumption, release of genetically engineered organisms, applications of human genetic r DNA research, human embryonic stem cell research.	15
2	**Patenting:** Patent and Trademark, Bio science products and processes, Intellectual property rights, Plant breeders rights, trade marks, industrial designs, copyright biotechnology in developing countries. Biosafety and its implementation, Quality control in Biotechnology.	15
3	**Introduction to quality assurance, accreditation & SOP writing :**Concept of ISO standards and certification, National regulatory body for accreditation, Quality parameters, GMP& GLP, Standard operating procedures, Application of QA in field of genetics, Data management of clonical and testing laboratory.	15
4	**Funding Agencies** (Financing alternatives, VC funding, funding for Bioscience in India, Exit strategy, licensing strategies, valuation), support mechanisms for entrepreneurship (Bioentrepreneurship efforts in India, difficulties in India experienced, organizations supporting gro with, areas of scope, funding agencies in India, policy initiatives), Role of knowledge centers and R&D (knowledge centers like universities and research institutions, role of technology and up gradation)	15
Total		**60 hrs.**

Reference Books:

1. www.pdfdrive.net
2. www.khanacademy.org
3. www.acadeicearths.org
4. www.edx.org
5. www.open2study.com
6. www.academicjournals.org

Name of the Program	**M. Sc. Operation Theater & Anesthesia Technology**
Name of the Subject	**Disaster management and mitigation resources**
Subject Code	**GE 003 L**

Teaching Objectives	• To make aware the student for Disaster management and mitigation resources for betterment.
Learning Objectives	• Able to tackle the situation in difficult situations for healthcare.

Course Outcomes	At the successful completion of course the student will gain: 1. Knowledge and understanding of the disaster phenomenon, its different contextual aspects, impacts and public health consequences. 2. Knowledge and understanding of the International Strategy for Disaster Reduction (UNISDR) and to increase skills and abilities for implementing the Disaster Risk Reduction (DRR) Strategy. 3. Ensure skills and abilities to analyze potential effects of disasters and of the strategies and methods to deliver public health response to avert these effects.

Sr. No.	Topics	No. of hrs.
1	**Introduction:** Definition of Disaster, hazard, global and Indian scenario, general perspective, importance of study in human life, Direct and indirect effects of disasters, long term effects of disasters. Introduction to global warming and climate change.	8
2	**Natural Disaster and Manmade disasters:** Natural Disaster: Meaning and nature of natural disaster, Flood, Flash flood, drought, cloud burst, Earthquake, Landslides, Avalanches, Volcanic eruptions, Mudflow, Cyclone, Storm, Storm Surge, climate change, global warming, sea level rise, ozone depletion Manmade Disasters: Chemical, Industrial, Nuclear and Fire Hazards. Role of growing population and subsequent industrialization, urbanization and changing life style of human beings in frequent occurrences of manmade disasters.	15
3	**Disaster Management, Policy and Administration:** Disaster management: meaning, concept, importance, objective of disaster management policy, disaster risks in India, Paradigm shift in disaster management. Policy and administration: Importance and principles of disaster management policies, command and co-ordination of in disaster management, rescue operations-how to start with and how to proceed in due course of time, study of flow charts howing the entire process.	12
4	**Financing Relief Measures:** Ways to raise finance for relief expenditure, role of government agencies and NGO's in this process, Legal aspects related to finance raising as well as overall management of disasters. Various NGO's and the works they have carried out in the past on the occurrence of various disasters, Ways to approach these teams. International relief aid agencies and their role in extreme events.	13
5	**Preventive and Mitigation Measures:** Pre-disaster, during disaster and post disaster measures in some events in general structural mapping: Risk mapping, assessment and analysis, sea walls and embankments, Bio shield, shelters, early warning and communication Non Structural Mitigation: Community based disaster preparedness, risk transfer and risk financing, capacity development and training, awareness and education, contingency plans. Do's and don'ts in case of disasters and effective implementation of relief aids.	12
Total		**60 hrs.**

Reference Books:

1. Shailendra K. Singh: Safety & Risk Management, Mittal Publishers
2. J. H. Diwan :Safety, Security & Risk Management, APH
3. Stephen Ayers &Garmvik: Text Book of Critical Care, Holbook and Shoemaker
4. www.pdfdrive.net
5. www.khanacademy.org
6. www.acadeicearths.org
7. www.edx.org
8. www.open2study.com
9. www.academicjournals.org

Name of the Program	**M. Sc. Operation Theater & Anesthesia Technology**
Name of the Subject	**Human Rights**
Subject Code	**GE 004 L**

Teaching Objectives	• To make aware the student about Human Rights for betterment.
Learning Objectives	• Able to understand the Human Rights and tackle the situation in the healthcare.

Course Outcomes	Student will be able to virtue: 1. identify, contextualize and use information about the human rights situation in a given country 2. critically appraise source material, including cases from human rights committees and tribunals and reports and summary records from treaty bodies 3. analyze a country's situation or an international situation in terms of human rights and formulate human rights-based initiatives and policies 4. Promote human rights through legal as well as non-legal means. 5. Participate in legal, political and other debates involving human rights in acknowledge able and constructive way

Sr. No.	Topics	No. of hrs.
1	**Background:** Introduction, Meaning, Nature and Scope, Development of Human Rights, Theories of Rights, Types of Rights	8
2	**Human rights at various level:** Human Rights at Global Level UNO, Human Rights – UDHR 1948– UN Conventions on Human Rights: International Covenant on civil and Political Rights 1966, International Convent on Economic, Social and Cultural Right, Racial Discrimination -1966 International, Instruments: U.N. Commission for Human Rights, European Convention on Human Rights.	15
3	**Human rights in India**: Development of Human Rights in India, Human Rights and the Constitution of India, Protection of Human Rights Act 1993- National Human Rights Commission, State Human Rights Commission, Composition Powers and Functions, National Commission for Minorities, SC/ST and Woman	12
4	**Human Rights Violations:** Human Rights Violations against Women, Human Rights Violations against Children, 35 Human Rights Violations against Minorities SC/ST and Trans-genders, Preventive Measures	13
5	**Political issues**: Political Economic and Health Issues, Poverty, Unemployment, Corruption and Human Rights, Terrorism and Human Rights, Environment and Human Rights, Health and Human Rights	12
Total		**60 hrs.**

Reference Books:

1. Jagannath Mohanty Teachingof Humans Rights New Trends and Innovations Deep & Deep PublicationsPvt. Ltd. New Delhi 2009
2. Ram Ahuja: Violence Against Women Rawat Publications Jewahar Nager Jaipur. 1998.
3. SivagamiParmasivam Human Rights Salem 2008
4. Hingorani R. C. : Human Rights in India: Oxford and IBA New Delhi.

Name of the Program	**M. Sc. Operation Theater & Anesthesia Technology**
Name of the Subject	**Dissertation / Project**
Subject Code	**MOTAT 117**

Teaching Objectives	• To introduce basic concepts of project and hands-on with Quality Assurance in healthcare and university and to train the students.
Learning Objectives	• Able to perform the short project with defined objectives with Quality Assurance of the RT equipment under supervision.

The Dissertation work will begin from 3rdSemester and will continue through the 4thSemester. (330 hrs.)

1. Dissertation/Project work should be carried out as an individual Dissertation and actual bench work.

2. The students will carry independent project work under the supervision of the staff of Department on an advanced topic assigned to him/her. In house projects are encouraged. Students may be allowed to carry out the project work in other Departmental laboratories/ Research institutes / Industries as per the availability of Infrastructure.

3. Co guides from the other institutions maybe allowed.

4. The Dissertation/ Project work will begin from 3rd Semester, and will continue through the 4th Semester.

5. The Dissertation/ Project report (also work book shall be presented at the time of presentation and viva voce) will be submitted at the end of the 4th Semester and evaluated.

6. Five copies of the project report shall be submitted to the Director, SBS.

7. For the conduct of the End Semester Examination and evaluation of Dissertation/ Project work the University will appoint External Examiners.

8. Since the dissertation is by research, Dissertation/ Project work carries a total of 250 marks and evaluation will be carried out by both internal and external evaluators.

9. The student has to defend his/her Dissertation/Project Work in a seminar which will be evaluated by an internal and external experts appointed by the University.

10. The assignment of marks for Project/ Dissertation is as follows:
    Part I -
    Topic Selection, Review of Literature, Novelty of works-50 marks

    Part II
    a. Continuous Internal Assessment, Novelty, Overall Lab Work Culture- 100Marks
    b. Dissertation/ Project work book: 50 Marks
    c. Viva- Voce: 50 Marks
    d. However, a student in 4th semester will have to opt for general elective course from other related disciplines in addition to his Dissertation/ Project work in the parent department.

Scheme of University Examination Theory for PG Program:

General structure/patterns for setting up question papers for Theory / Practical courses, their evaluation weights for PG programs of MGMSBS are given in the following tables

2.2 a: Marks scheme for the University exam:

Final theory marks will be **100 marks (80 marks University Theory exam + 20 Marks for Internal assessment).**

Question	Type	Marks distribution	Marks allotted per section	Marks
Sec: A	MCQ	10 x 1 M = 10	10	10
Sec: B	SAQ	3/4x 5 M = 15	15	35
Sec: B	LAQ	2/3 x 10 M = 10	20	
Sec: C	SAQ	2/3 x 10 M = 10	15	35
Sec: C	LAQ	2/3x 10 M = 10	20	
				Total = 80 M

2.2 b: Practical exam pattern: Total 40 marks with following breakup :

Exercise	Description	Marks
Q No 1	Practical exercise - 1	1 x20=20 M
Q No 2	Station exercise	2x5M=10 M
Q No 3	VIVA	10 M
Q No 4	Journal	NIL
		Total = 40 M

2.2 c: Practical to be conducted at respective departments and marks submitted jointly by the parent department to the university.

2.2 d: Breakup of theory IA calculation for 20 marks

Internal exam (at department)	15 marks
Seminar	5 marks
	Total = 20 M

Breakup of practical IA calculation:

Internal exam (at department)	10 marks
Viva	5 marks
Journal	5 marks
	Total = 20 M

Note –20 marks to be converted to 10 marks weightage for submission to the university.

Model Checklist for Evaluation of the Clinical Directed Posting (PG)
Name of the student: _____Date:_____
Program:_____
Semester: _____ Name of the Internal faculty/Observer:_____
Name of the External Faculty/Observer:_____

Core Competencies	Marks allotted	Marks obtained
Students will begin to develop critical thinking abilities utilizing the allied health personnel roles of communicator and caregiver. Students will learn principles of professional allied health personnel practice and provide direct care to individuals within a medical surgical setting while recognizing the diverse uniqueness of individuals with health alterations.		
Clinical Teaching		
a. Demonstrate beginning competency in technical skills.	10	
Independent Work by Student guided by faculty		
a. Develop effective communication skills (verbally and through charting) with patients, team members, and family	2.5	
b. Identify intra and inter-professional team member roles and scopes of practice. Establish appropriate relationships with team members.	2.5	
Hands on practical work by students		
a. Protect confidentiality of electronic/manual health records data, information, and knowledge of technology in an ethical manner	05	
Independent work by student		
a. Demonstrate expected behaviors and complete tasks in a timely manner. Arrive to clinical experiences at assigned times. Maintain professional behavior and appearance.	05	
Log book	10	
Viva	10	
Attendance	05	
Total	**50 Marks**	

Sign of Internal Examiner:_____
Sign of External Examiner:_____

Semester III – Dissertation (PG) (Internal Assessment)

Dissertation/Project Proposal : overall performance of the student	**Marks allotted**	**Marks Obtained**
Open mindedness/ Receptivity to feedback Integrates feedback	5 Marks	
Meets deadlines / Regularity in meeting / Consistency in communication	10 Marks	
Continuous Internal evaluation (CIE)		
Interest shown in selecting topic	5 marks	
Appropriate review	10 marks	
Discussion with guide and other faculty	10 marks	
Quality of protocol	5marks	
Preparation of proforma / log book / daily reports	5marks	
TOTAL	**Out of 50**	

Semester IV - Evaluation parameter (Dissertation / Project)

Evaluation parameter(Semester IV)	Continuous Internal Evaluation (CIE)	Semester End Evaluation (SEE)	
	Guide	Internal examiner	External examiner
Thesis preparation, Novelty, Overall Lab Work Culture	25	-	-
Dissertation/Project work book	25	25	25
Evaluation of thesis including Viva Voce	-	50	50
Total	50	75	75
Overall Total = 200			

MGM INSTITUTE OF HEALTH SCIENCES

(Deemed to be University u/s 3 of UGC Act, 1956)

Grade 'A' Accredited by NAAC

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