DEPARTMENT OF OPERATION THEATRE AND ANESTHESIA TECHNOLOGY

Study scheme & syllabi

As Per Choice Based Credit System (CBCS)

For

M.Sc. in Operation Theatre and Anesthesia Technology

(M.Sc. OTAT)

(First to Fourth semester)

(Program Code: OTAT-401)

(FROM 2020-2021)

TABLE OF CONTENTS

Section 1

Vision and Mission of the University

VISION

To become one of the most preferred learning places a centre of excellence to promote and nurture future leaders who would facilitate in desired change in the society

MISSION

- **To impart teaching and learning through cutting edge technologies supported by the world class infrastructure**
- **To empower and transform young minds into capable leaders and responsible citizens of India instilled with high ethical and moral values**
- **To develop human potential to its fullest extent and make them emerge as world class leaders in their professions and enthuse them towards their social responsibilities**

Section 2

Vision and Mission of the Department

VISION

To provide the highest quality care and safety for patients undergoing surgery and other procedures that require anesthesia. This department plays a critical role in ensuring that patients receive optimal care during their surgical experience, from preoperative assessment and preparation to intraoperative management and postoperative recovery.

In order to achieve this vision, the operation theatre and anesthesia technology department must stay up-to-date with the latest technologies and techniques in surgical and anesthesia care. This includes maintaining state-of-the-art equipment and facilities, as well as investing in ongoing training and education for staff.

The department also has a responsibility to collaborate with other healthcare professionals, including surgeons, nurses, and other support staff, to ensure that all aspects of patient care are coordinated and integrated. This includes providing expert guidance and consultation to help optimize patient outcomes and ensure that all aspects of the surgical experience are managed effectively.

MISSION.

The mission of the Operation Theatre and Anesthesia Technology Department is to provide specialized support and expertise in the administration of anesthesia and the maintenance of equipment and supplies necessary for surgical procedures.

This department plays a critical role in ensuring that patients undergoing surgery are safe and comfortable throughout the surgical process. They work closely with the surgical team, including surgeons, nurses, and other healthcare professionals, to ensure that all necessary equipment and supplies are available and functioning properly.

The department is responsible for the preparation and maintenance of the operation theatre, including the sterilization of instruments and equipment, the preparation of medications and solutions, and the maintenance of a clean and sterile environment. Anesthesia technologists assist anesthesiologists in administering anesthesia to patients before, during, and after surgery.

Section 3

ABOUT THE PROGRAM

ABOUT THE PROGRAM

The duration of M.Sc. Operation Theatre and Anesthesia Technology is 2 years full-time Post Graduate course and to pursue this course every student must have passed B.Sc. OTAT/B.Sc. OTT/AT examination with at least 50% marks in aggregate from a recognized University, shall be eligible to join First year of M.Sc. OTAT. Course.

The job profiles that a student will get after completing this course are to assist the Surgeons and Doctors during the emergency and in the time of operation.

The average M.Sc. Operation Theatre and Anesthesia Technology salary in India that an operation theatre technician gets ranges between INR 5 lakhs to 20 lakhs.

After completing the M.Sc. Operation Theatre and Anesthesia Technology course, further students can opt for the course of Anesthetist Consultant. An Anesthetist Consultant is responsible to give the right amount of anesthesia dosage with accurate levels. Students can go for various P.hd. courses as well.

Section 4

Program Education Objectives (PEOs), Program Outcomes (Pos) and Program Specific Outcomes (PSOs)

Program Education Objectives

PEO1	Professional Competence: Graduates should possess the necessary knowledge and skills required to perform clinical procedures in operation theatre and anesthesia technology efficiently and effectively.
PEO2	Critical Thinking and Problem Solving: Graduates will be able to identify, analyze, and solve problems related to Operation Theatre and Anesthesia Technology using critical thinking skills and evidence-based practices.
PEO3	Leadership and Management: Graduates will be prepared to assume leadership and management roles in healthcare organizations and be able to effectively manage resources and personnel
PEO4	Ethical and Professional Behavior: Graduates will demonstrate ethical and professional behavior in their interactions with patients, colleagues, and other healthcare professionals.

PROGRAM OUTCOMES

PO 1	**Demonstration-** Demonstrate basic knowledge of pathophysiology of common conditions requiring surgical procedures
PO 2	**Preparation-** Prepare the operation theatre, load and label requested drugs, gather and assemble the surgical equipment for common surgical procedures as per the complexity and duration.
PO 3	**Recognize-** Recognize the anxiety of patients in peri-operative state and appropriately assist to shift, induce anaesthesia and position patient for surgical procedure
PO 4	**Identify**- Recognize the anxiety of patients in peri-operative state and appropriately assist to shift, induce anaesthesia and position patient for surgical procedure
PO 5	**Assistance-** Assist consultant in emergency department while receiving acutely ill patients, stabilize them and transport in or out of hospital as per the individual needs.
PO 6	**Work as a team member** – Function as a member of rescue / code blue team in recognizing cardiac arrest and participate in revival cum cardiopulmonary resuscitation inside and outside hospital.
PO 7	**Management-** Manage the overall upkeep of the equipment used in intensive care unit and transport of critically ill patients and assist the specialist in resuscitation, management and transfer of such patients with appropriate paraphernalia.
PO 8	**Contribution-** Contribute in planning, setting up, commissioning, maintaining and managing operation theater, emergency departments, and intensive care unit, cardiac catheterization lab and emergency response services as a team member
PO 9	**Self Assessment-** Engage oneself in self-assessment and structure their continuing professional education to refine existing skills and acquire new skills for patient care and professional advancement.
PO 10	**Apply-** Understand the fundamentals and applications of Anesthesia, Surgical & Critical Care Equipments.
PO 11	**Learning-** Learn and Understand different Anesthetic & Surgical Procedures & their benefits as well as complications.
PO 12	**Analyse-** Ability to analyse, Monitor & give care to a Surgical/Anaesthetized patient.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO 1	Knowledge of anatomy and physiology: Students should have a deep understanding of the human body and how it functions, particularly in relation to the respiratory and circulatory systems.
PSO 2	Knowledge of surgical and anesthesia equipment: Students should be familiar with the various instruments and machines used in the operation theatre, as well as the different types of anesthesia and how to administer them safely.
PSO 3	Patient care: Students should be able to provide appropriate care to patients before, during, and after surgery, including monitoring vital signs and administering medications as needed.

Section 5

Curriculum / Scheme with Examination Grading Scheme

SEMESTER WISE SUMMARY OF THE PROGRAM: M.Sc. OTAT

S. no.	Semester	No. of Contact hours	Marks	Credits
1	I	35	800	29
2	II	34	800	28
3	III	36	800	28
4	IV	23	700	19
	TOTAL	**128**	**3100**	**104**

EXAMINATION GRADING SCHEME

Percentage of marks obtained	Letter Grade	Grade Point	Performance
90.00 – 100	O	10	Outstanding
80.00 – 89.99	A	9	Excellent
70.00 – 79.99	B	8	Good
60.00 – 69.99	C	7	Fair
50.00 – 59.99	D	6	Average
Less Than 50	F	5	Fail
Absent	AB	0	Fail

Percentage Calculation: CGPA*10

1ST SEMESTER

Subject		Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
Code	**Title**	**L**	**T**	**P**		**CWA**	**LWA**	**MTE**	**ETE**	**Total**	
MOTAT-1101	Anatomy	4	1		5	16	---	24	60	100	
MOTAT-1102	Physiology and Biochemistry	4	1		5	16	---	24	60	100	
MOTAT-1103	Clinical Pharmacology	4	1		5	16	---	24	60	100	
MOTAT-1104	Clinical Pathology and Microbiology	3	1		4	16	---	24	60	100	
MOTAT-1105	Applied Physics and Basic Computer	3	1		4	16	---	24	60	100	
MOTAT-1106	Anatomy (Practical)			4	2		40		60	100	
MOTAT-1107	Physiology and Biochemistry (Practical)			4	2		40		60	100	
MOTAT-1108	Clinical Pathology and Microbiology (Practical)			4	2		40		60	100	
Total		**18**	**5**	**12**	**29**	**80**	**120**	**120**	**480**	**800**	

2ND SEMESTER

Subject		Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
Code	Title	L	T	P		CWA	LWA	MTE	ETE	Total	
Program Elective-1		3	1		4	16	---	24	60	100	
MOTAT-1202	Basics of Anesthesia	3	1		4	16	---	24	60	100	
MOTAT-1203	Basics of Surgeries	4	1		5	16	---	24	60	100	
MOTAT-1204	CSSD Procedure, Sterilization Procedure	4	1		5	16	---	24	60	100	
Program Elective-II		3	1		4	16	---	24	60	100	
MOTAT-1206	Basics of Anesthesia (Practical)			4	2	---	40		60	100	
MOTAT-1207	Basics of Surgeries (Practical)			4	2		40		60	100	
MOTAT-1208	CSSD Procedures, Sterilization Procedures (Practical)			4	2		40		60	100	
Total		**17**	**5**	**12**	**28**	**80**	**120**	**120**	**480**	**800**	

	Course Code	Course Title
Program Elective-I	MOTAT-1201	Basic Medicine and Medical Ethics
	MOTAT-1209	Human Values and Professional Ethics
Program Elective-II	MOTAT-1205	Research methodology, Biostatistics and Hospital Management
	MOTAT-1210	Indian Constitution

3RD SEMESTER

Subject		Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
Code	Title	L	T	P		CWA	LWA	MTE	ETE	Total	
MOTAT-2301	Anesthesia Delivery System and Equipments used in OT	4	1		5	16	---	24	60	100	
MOTAT-2302	Basic Procedures and Techniques	4	1		5	16	---	24	60	100	
MOTAT-2303	Pre-Op Anesthetic care and Preparation	4	1		5	16	---	24	60	100	
MOTAT-2304	Preparation of Various Surgeries	4	1		5	16	---	24	60	100	
MOTAT-2305	Anesthesia Delivery System and Equipments used in OT (Practical)			4	2		40		60	100	
MOTAT - 2306	Basic Procedures and Techniques (Practical)			4	2		40		60	100	
MOTAT - 2307	Pre-Op Anesthetic care and Preparation (Practical)			4	2		40		60	100	
MOTAT - 2308	Preparation of Various Surgeries (Practical)			4	2		40		60	100	
Total		**16**	**4**	**16**	**28**	**64**	**160**	**96**	**480**	**800**	

4TH SEMESTER

Subject		Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
Code	**Title**	**L**	**T**	**P**		**CWA**	**LWA**	**MTE**	**ETE**	**Total**	
MOTAT-2401	Anesthesia for Speciality Surgeries and Situations	4	1		5	16	---	24	60	100	
MOTAT-2402	Basic Intensive care	4	1		5	16	---	24	60	100	
MOTAT-2403	Anesthesia for Speciality Surgeries and Situations (practical)			4	2		40		60	100	
MOTAT-2404	Basic Intensive care (practical)			4	2		40		60	100	
MOTAT-2405	Research Project	4	1		5		---		300	300	
Total		**12**	**3**	**8**	**19**	**32**	**80**	**48**	**580**	**700**	

1ST SEMESTER

SUBJECT TITLE: ANATOMY
SUB JECT CODE: MOTAT-1101
SEMESTER: 1
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
4	1		5

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

COURSE OBJECTIVE: Students will be able to learn the terminology of the subject and basic knowledge of cells, tissues, blood and to understand anatomy and physiology of human body. This subject will develop an understanding of the structure and function of organs and organ systems in normal human body

Sr. No.	Contents	Contact Hours
UNIT-I	**Introduction** • Human body- Overview & Organization, Anatomical terminology.	2
UNIT-II	**Skeletal Muscles** • Major skeletal muscles of the Head, Neck, Thorax, Abdomen & upper and lower limbs.	5
UNIT-III	**Upper Limb** • Regional and surface anatomy of the shoulder, axilla, and upper limb	3
UNIT-IV	**Lower Limb** • Regional & surface anatomy of the hip, thigh, legs	3
UNIT-V	**Thorax Anatomy** • Regional & surface anatomy of Inter-costal space, Pleura, Bony thoracic cage, Rib, Sternum	5
UNIT-VI	**Respiratory system** • Regional & surface anatomy of Nose, Pharynx, Larynx, Trachea, Lungs • Bronchial tree	6
UNIT-VII	**Heart** • Regional & surface anatomy of heart, chambers of heart • Regional & surface anatomy of Valves of heart, major arteries and veins of heart, Pericardium.	6
UNIT-VIII	**Alimentary System** • Regional & surface anatomy of Esophagus, Stomach, Small Intestine, Large Intestine, Spleen, Liver, Gall Bladder, Pancreas	6
UNIT-IX	**Central Nervous System** • Regional & surface anatomy of Spinal Cord, Meningeal Covering • Regional & surface anatomy of brain	4

UNIT-X	**Sensory Organs** • Regional & surface anatomy of Eyes, Ear, Tongue, Nose	**6**
UNIT-XI	**Urinary System** • Regional & surface anatomy of Kidney, Ureters, Urinary bladder, Urethra	**3**
UNIT-XII	**Male Reproductive System** • Anatomy of the scrotum, Prostate gland, penis & testis, Epididymis, Ducts deferens, Inguinal canal, Seminal vesicles, Bulb, urethral gland	**6**
UNIT-XIII	**Female Reproductive System** • Anatomy of the ovaries, fallopian tubes, Uterus, Vagina and external genitalia; functions of ovary	**6**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1101. 1	Understand the basic fundamentals structural features of neurons, mechanism of neurotransmitters along with processes of Neuro-conduction and neurotransmission.
MOTAT-1101. 2	Describe the general structure and functions of the body as a whole.
MOTAT-1101. 3	Describe the general and microscopic structure and functions of each system of the body.
MOTAT-1101. 4	Explain the macroscopic and microscopic structure and functions of each organs of the body.

Suggested Readings:

1. Anatomy &Physiology- Ross and Wilson
2. Anatomy and Physiology: Understanding the Human Body by Clark
3. Anatomy and Physiology for nurses by Evelyn Pearce
4. Anatomy and Physiology for nurses by Sears
5. Anatomy and Physiology for nurses by Pearson
6. Anatomy and Physiology by N Murgesh

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: PHYSIOLOGY AND BIOCHEMISTRY
SUB JECT CODE: MOTAT-1102
SEMESTER: 1
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
4	1		5

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

COURSE OBJECTIVE: Students will be able to get glimpse of aims and scopes of physiology and biochemistry of structure and functions of nerve and muscle, mechanism of digestion, respiration and excretion, structure of heart, blood composition and cardiac cycle, and all other systems of body.

Sr. No.	Contents	Contact Hours
UNIT-I	**General Physiology** • Introduction to the structure and function of cell organelles • Transport across cell membrane	2
UNIT-II	**Blood** • Blood groups and Rh factor • Composition of blood- Functions of the blood,plasma proteins • Function of hemoglobin • Detailed description about WBC- total count(TC),differential count (DC) and functions. • Platelets – formation and normal level and functions • Erythrocyte sedimentation rate(ESR)	5
UNIT-III	**Cardio-Vascular System** • Structure & properties of cardiac muscle. • Cardiac cycle, Heart rate regulation-factors affecting Heart Rate • Blood Pressure: Definition, regulation, factors affecting BP • Cardiac output- Regulation & function affecting Cardiac output	3
UNIT-IV	**Respiratory System** • General organization • Mechanics of respiration, Exchange of Gases • Definitions and normal values of lung volumes and lung capacities. • Respiratory Failure	3
UNIT-V	**Excretory System** • Kidneys: structure & function • Normal urinary output	5

	• Maturation - neural control- neurogenic bladder • Temperature Regulation	
UNIT-VI	**Nervous System** • Brain and spinal cord • Conduction of nerve impulse • Autonomic Nerves system	**6**
UNIT-VII	**Endocrine System** • Physiology of Thyroid, • Parathyroid, Suprarenal glands, • Pineal gland and organs with a minor endocrine function, Thyroid gland, Bulbourethral glands	**6**
UNIT-VIII	**Digestive System** Physiology of the Mouth, Salivary glands, Pharynx, esophagus, stomach, intestine, liver pancreas, biliary system & peritoneal cavity, esophagus, stomach, small intestine, pancreas & liver.	**6**
UNIT-IX	**Fluids and Electrolyte, Acid Base Balance** Composition of body fluids. • Acid base balance • Disturbances of acid base balances (PH, alkalosis, acidosis)	**4**
UNIT-X	**Nutrients and Minerals** Cover to Carbohydrate • Protein • Lipid • Vitamin • Minerals	**6**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1102. 1	Understand the basis of normal human physiology with special emphasis on the functioning of the cardiovascular, musculo-skeletal and nervous systems
MOTAT-1102. 2	To know about detail anatomical knowledge of nervous system and outline of muscular anatomy system
MOTAT-1102. 3	Detail knowledge of different type and function of blood cells. Brief outline of cardiovascular and respiratory system
MOTAT-1102. 4	Demonstrate comprehensive understanding of biochemistry. Acquire the knowledge in biochemistry that is required to be practiced in community and at all levels of health care system. And To Understand the carbohydrate, protein and lipid metabolism.

Suggested Readings:

1. Anatomy &Physiology- Ross and Wilson
2. Anatomy and Physiology: Understanding the Human Body by Clark

3. Anatomy and Physiology for nurses by Evelyn Pearce
4. Biochemistry by Mary K. Campbell, Shawn O. Farrell
5. Biochemistry Illustrated: Biochemistry and Molecular Biology in the Post-Genomic Er
6. Biochemistry by Donald Voet, Judith G. Voet Brock Biology of Microorganisms, 14th Edition

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: CLINICAL PHARMACOLOGY
SUB JECT CODE: MOTAT-1103
SEMESTER: 1
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
4	1		5

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: The student will be able to report the clinical applications, side effects and toxicities of drugs used in medicine. The student will be able to explain the mechanisms of action and pathology of ethanol and drugs of abuse. The student will be able to translate pharmacological principles into clinical decision-making.

Sr. No.	Contents	Contact Hours
UNIT-I	**Anti sialagogues** Atropine, Glycopyrrolate	2
UNIT-II	**Sedatives-anxiolytics** Diazepam, Midazolam, Phenergan, Lorazepam, Chlorpromazine, Trichlophos	3
UNIT-III	**Narcotics** Morphine, Pethidine, Fentanyl, Pentazocine, Nalbuphine, Butorphanol, Buprenorphine, Tramadol	3
UNIT-IV	**NSAIDs** Diclofenac, Ketorolac, COX-2 inhibitors	2
UNIT-V	**Anti-emetics** Ondansetron, Dexamethasone, Metoclopramide	2
UNIT-VI	**Prokinetics** Metoclopramide, Domperidone, Itopride	3

UNIT-VII	**H_2 Blockers and Proton Pump Inhibitors** Ranitidine, Famotidine, Omeprazole, Pantoprazole	**3**
UNIT-VIII	**Induction agent** Thiopentone, Ketamine, Propofol, Etomidate	**3**
UNIT-IX	**Muscle relaxants** Depolarizing – Suxamethonium Non depolarizing -Pancuronium, Vecuronium, Atracurium, Rocuronium	**4**
UNIT-X	**Inhalational anaesthetics** N_2O, Ether, Halothane, Isoflurane, Sevoflurane, Desflurane, Enflurane	**3**
UNIT-XI	**Reversal agents** Neostigmine, Glycopyrrolate, Atropine, Nalorphine, Naloxone, Flumazenil	**3**
UNIT-XII	**Local anaesthetics** Lignocaine, Bupivacaine, Ropivacaine, Prilocaine-jelly	**3**
UNIT-XIII	**Emergency drugs** • Adrenaline • Dopamine • Dobutamine • Isoprenaline • Nor Adrenaline, Mephenteramine • Sodium Bicarbonate • Xylocard • Aminophylline, Deriphylline • Hydrocortisone • Antihistaminic • Antiarrhythmics • Vasodilators- Nitroglycerin, SNP • Bronchiolytic agents • Furosemide • Mannitol • Oxytocin • Methergine • Diclofenac Various Fluids- Crystalloids & colloids - NaCl, Ringer lactate, Haemaccel, Hetastarch	**8**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1103. 1	Describe and interpret drug-induced therapeutic and adverse effects on the various organs and systems
MOTAT-1103. 2	Assess the risk/benefit ratio of drugs under different conditions of therapeutic usage

MOTAT-1103. 3	Correctly select and use drugs for the treatment of major diseases.
MOTAT-1103. 4	Know the metabolism, adverse effects and therapeutic value of drugs

Suggested Readings:

1. Pharmacology: Lippincott's Illustrated Reviews.
2. USMLE Road Map - Pharmacology.
3. Katzung's Pharmacology: Examination and Board Review.
4. Kaplan Lecture Notes: Pharmacology.
5. Essential's of medical Pharmacology by K D Tripathy

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: CLINICAL PATHOLOGY AND MICROBIOLOGY
SUB JECT CODE: MOTAT-1104
SEMESTER: 1
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
3	1		4

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: The student will be able to properly order and interpret appropriate microbiology laboratory tests, including gram stain, culture and sensitivity, and serologic tests, for the proper diagnosis and effective treatment of patients with infectious diseases.

Sr. No.	Contents	Contact Hours
UNIT-I	**Cellular Adaptation** • Cellular adaptation • Cell injury & cell death • Cellular response to stress and noxious stimuli • Reversible and irreversible cell injury	6
UNIT-II	**Blood** • Blood Groups	6

	• Blood Transfusion • Blood components • BT, CT • Transfusion Reactions	
UNIT-III	**Infectious diseases** General principles of microbial pathogenesis • Viral infections • Bacterial infections • Rheumatic heart disease • Fungal infections • Parasitic infections	**6**
UNIT-IV	**Waste management** Hospital waste disposals	**4**
UNIT-V	**Hospital acquired infection and prevention** Hospital acquired infection and prevention,	**2**
UNIT-VI	**Hepatitis B, C, HIV/AIDS** Hepatitis B, C, HIV/AIDS Causes & prevention	**3**
UNIT-VII	**PPE, Universal Precautions** Cover PPE (Personal Protective Equipment-list) Universal Precautions-indications	**8**
UNIT-VIII	**Decontamination and Sterilization** Methods of cleaning, Decontamination and Sterilization	**8**
UNIT-IX	**Sample collection, Labeling and sending to Lab** Cover Sample collection, Labeling and sending to Lab	**8**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1104. 1	Know various Culture media and their applications and also understand various physical and chemical means of sterilization
MOTAT-1104. 2	Master aseptic techniques and be able to perform routine culture handling tasks safely and effectively
MOTAT-1104. 3	Recognizes the need to read a whole pathology report, including comments, when ascertaining the significance of the result.
MOTAT-1104. 4	Demonstrates understanding of infection control and application in clinical practice, including measures available for preventing the transmission of infection (hand hygiene, 'bare below elbows', aseptic techniques, use of personal protective equipment).

Suggested Readings:

1. Robbins and Cotran Review of Pathology, 5th Edition by Edward C. Klatt & Vinay Kumar
2. Crash Course Pathology, 5th Edition byOlivia Mckinney & Isabel Woodman & Hizbullah Shaikh & Shreelata T Datta & Philip Xiu
3. Pathology Illustrated, 8th Edition by Fiona Roberts & Elaine MacDuff

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: APPLIED PHYSICS AND BASIC COMPUTER
SUB JECT CODE: MOTAT-1105
SEMESTER: 1
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
3	1		4

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students will be able to identify and differentiate working principle, instrumentation, and applications of various bio-analytical instruments, effects of temperature, pH, metal ions on Enzyme activity & Kinetics, Demonstrate a basic understanding of computer hardware and software, demonstrate problem-solving skills, explain what a computer is, how it processes data, and its use to produce information in hospital

Sr. No.	Contents	Contact Hours
UNIT-I	**Applied Physics** • Basic principle of electricity applied in OT, ICU, and CSSD. • Concept of static electricity, charge, potential current power, resistance AC/DC • Basic principles of heat, concept of temperature its measurement, way of dispersion of heat. • Concept of volume, specific gravity, density, concentration of solute. • Gas laws and their practical implications in field. • Compressed gases, filling ratio, principles of pressure regulator, flow of gases, fluid viscosity, laminar flow, turbulent flow.	6
UNIT-II	**Introduction to Computer** • Computer basics, I/O devices • Different operating system: MSDOS • Basiccommands • MD, CD, DIR, TYPE and COPY CON commands	6

	• Networking • LAN, WAN, MAN (only basicideas) • Memories, RAM and ROM, Different kinds of ROM,kilobytes. • MB, GB their conversions	
UNIT-III	**Typing text in MS word** • Manipulating text, Formatting thetext • Usingdifferentfontsizes,bold,italics • Bullets and numbering • Pictures, fileinsertion • Aligning the text andjustify • Choosingpapersize,adjustingmargins • Header and footer, inserting page Nos in a document	**6**
UNIT-IV	**Printing a File** • Using spell check and grammaroption • Find andreplace • Mailmerge Inserting tables in adocument	**4**
UNIT-V	**Miscellaneous** • Creating table in MS, Excel • Celllediting • Drawing graphs and charts using datain excel • Autoformatting • Inserting data from otherworksheets • Using formulas andfunctions • Manipulating data withexcel • Usingshortfunctionstosortnumbersand alphabets	**6**
UNIT-VI	**Slides** • Preparing new slides using MS-PowerPoint • Inserting slides, slide transition and animation, Using templates, Different text and font sizes	**3**
UNIT-VII	**Slides with Special Features** • Slides with sounds • Inserting clip arts, pictures, tables andgraphs • Presentation usingwizards	**8**
UNIT-VIII	**Introduction to Internet** • Introduction to Internet • Using search engine – Googlesearch • Exploring the next using Internet Explorer and Navigator • Uploading and download of files andimages • E-mail ID creation – Sendingmessages • Attaching files inE-mail • Writingsmallprograms usingfunctionsand sub-functions. Introductionto“C”language–Different variables, declaration,usage	**8**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1105.1	Learner will understand basic theorems and concepts of Basic Physics & Basic Computer. And its applications in OT
MOTAT-1105.2	To understand basic theories related with properties of matter and its application to determine values of various physical quantities associated with matter.
MOTAT-1105.3	To develop basic skills to perform experiments to understand the concept from existing theories of Basic physics
MOTAT-1105.4	Understand how to use computer operated Equipments in OT

Suggested Readings:

1. Donald Knuth - Computer Fundamentals
2. Ellen Ullman - Close to the Machine.
3. Ellis Horowitz - Fundamentals of Computer Algorithms.
4. Concepts Of Physics By HC Verma
5. The Feynman Lectures on Physics by Richard P. Feynman

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: ANATOMY (Practical)
SUB JECT CODE: MOTAT-1106
SEMESTER: 1
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
		4	2

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students will be able to learn the terminology of the subject and basic knowledge of cells, tissues, blood and to understand anatomy and physiology of human body. This subject will develop an understanding of the structure and function of organs and organ systems in normal human body

Sr. No.	Contents	Contact Hours
	• Major skeletal muscles of the Head, Neck, Thorax, Abdomen & upper and lower limbs. • Regional and surface anatomy of the shoulder, axilla, and upper limb • Regional & surface anatomy of the hip, thigh, legs • Regional & surface anatomy of Inter-costal space, Pleura, Bony thoracic cage, Rib, Sternum • Regional & surface anatomy of Nose, Pharynx, Larynx, Trachea, Lungs • Bronchial tree • Regional & surface anatomy of heart, chambers of heart • Regional & surface anatomy of Valves of heart, major arteries and veins of heart, Pericardium. • Regional & surface anatomy of Esophagus, Stomach, Small Intestine, Large Intestine, Spleen, Liver, Gall Bladder, Pancreas • Regional & surface anatomy of Spinal Cord, Meningeal Covering • Regional & surface anatomy of brain • Regional & surface anatomy of Eyes, Ear, Tongue, Nose • Regional & surface anatomy of Kidney, Ureters, Urinary bladder, Urethra • Anatomy of the scrotum, Prostate gland, penis & testis, Epididymis, Ducts deferens, Inguinal canal, Seminal vesicles, Bulb, urethral gland	**30**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1106. 1	Understand the basic fundamentals structural features of neurons, mechanism of neurotransmitters along with processes of Neuro-conduction and neurotransmission.
MOTAT-1106. 2	Describe the general structure and functions of the body as a whole.

MOTAT-1106. 3	Describe the general and microscopic structure and functions of each system of the body.
MOTAT-1106. 4	Explain the macroscopic and microscopic structure and functions of each organs of the body.

SUBJECT TITLE: PHYSIOLOGY AND BIOCHEMISTRY (Practical)
SUB JECT CODE: MOTAT-1107
SEMESTER: 1
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
		4	2

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students will be able to get glimpse of aims and scopes of physiology and biochemistry of structure and functions of nerve and muscle, mechanism of digestion, respiration and excretion, structure of heart, blood composition and cardiac cycle, and all other systems of body.

Sr. No.	Contents	Contact Hours
	• Blood groups and Rh factor • Composition of blood- Functions of the blood,plasma proteins • Function of hemoglobin • Detailed description about WBC- total count(TC),differential count (DC) and functions. • Platelets – formation and normal level and functions • Erythrocyte sedimentation rate(ESR) • Kidneys: structure & function • Normal urinary output • Maturation - neural control- neurogenic bladder • Temperature Regulation	**30**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1107. 1	Understand the basis of normal human physiology with special emphasis on the functioning of the cardiovascular, musculo-skeletal and

	nervous systems
MOTAT-1107.2	To know about detail anatomical knowledge of nervous system and outline of muscular anatomy system
MOTAT-1107.3	Detail knowledge of different type and function of blood cells. Brief outline of cardiovascular and respiratory system
MOTAT-1107.4	Demonstrate comprehensive understanding of biochemistry. Acquire the knowledge in biochemistry that is required to be practiced in community and at all levels of health care system. And To Understand the carbohydrate, protein and lipid metabolism.

SUBJECT TITLE: CLINICAL PATHOLOGY AND MICROBIOLOGY (Practical)
SUB JECT CODE: MOTAT-1108
SEMESTER: 1
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
		4	2

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: The student will be able to properly order and interpret appropriate microbiology laboratory tests, including gram stain, culture and sensitivity, and serologic tests, for the proper diagnosis and effective treatment of patients with infectious diseases.

Sr. No.	Contents	Contact Hours
	• Blood Groups • Blood Transfusion • Blood components • BT, CT • Transfusion Reactions • Hospital waste disposals • Cover PPE (Personal Protective Equipment-list) Universal Precautions- indications • Methods of cleaning, Decontamination and Sterilization • Cover Sample collection, Labeling and sending to Lab	30

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1108. 1	Know various Culture media and their applications and also understand various physical and chemical means of sterilization
MOTAT-1108. 2	Master aseptic techniques and be able to perform routine culture handling tasks safely and effectively
MOTAT-1108. 3	Recognizes the need to read a whole pathology report, including comments, when ascertaining the significance of the result.
MOTAT-1108. 4	Demonstrates understanding of infection control and application in clinical practice, including measures available for preventing the transmission of infection (hand hygiene, 'bare below elbows', aseptic techniques, use of personal protective equipment).

2ND SEMESTER

SUBJECT TITLE: BASIC MEDICINE AND MEDICAL ETHICS
SUB JECT CODE: MOTAT-1201
SEMESTER: 2
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
3	1		4

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students will be able to identify ethical issues in medicine, health care and life sciences, Provide rational justification for ethical decisions, Recognize dominant moral theories as they relate to the medical context, Understand the cultural prospect of the medical ethics, decisions based on criteria of justification

Sr. No.	Contents	Contact Hours
UNIT-I	**Basic Disorder** • Disorder of hematopoiesis • Anemias • Iron deficiencyanemia	2
UNIT-II	**Infections and Diseases** • Sepsis and septic stock • Fever of unknown origin • Infective endocarditis • Infections of skin, muscle, soft tissue • Diseases caused by bacteria, viruses, mycobacterium, fungi, protozoa, and helminthiasis • Common secondary infection in HIV	3
UNIT-III	**Different Diseases of CVS** • CHF • Pulmonary Oedema • CAD • Peripheral vascular diseases (PVD)	3
UNIT-IV	**Disease of Respiratory system** • Asthma • Pneumonia • COPD • Restrictive Lungs Disease	2
UNIT-V	**Kidney & Urinary Tract Disease** • Acute renalfailure • Glomerulonephritis • Hemodialysis	2

	• Kidney transplant • Urinary Tract Infection	
UNIT-VI	**Liver and Biliary Tract Disease** • Viral hepatitis • Alcoholism • Liver failure • Hepatic Coma	**3**
UNIT-VII	**Endocrinology and Metabolism.** • Diabetes mellitus • Hyperthyroidism • Hypothyroidism	**3**
UNIT-VIII	**Medical Ethics** • Basic principles of medical ethics • Goal • Scope • Confidentiality	**3**
UNIT-IX	**Malpractice and Negligence** • Malpractice, Types of medical malpractice • Negligence	**4**
UNIT-X	**Rational and Irrational drug therapy** • Introduction to Rational and irrational drug therapy • Clinical implication of rational drugtherapy • ReasonandImpact ofIrrationaluseofdrug therapy	**3**
UNIT-XI	**Different type of Consent** • Different types of consents • Right of patients	**3**
UNIT-XII	**Care of terminally ill-Euthanasia** • What is terminally ill • Care of terminally ill patients	**3**
UNIT-XIII	**Organ transplantation** • What is Organ transplantation • Successfully transplanted organs • Policies and procedures of organ transplantation • Organ donor option	**4**
UNIT-XIV	**Medical Legal Aspects of Medical Records** • Medico-legal case andtype • Records and documents related toMLC • ownership of medicalrecords • Confidentiality Privilegecommunication • Release of medicalinformation • Unauthorizeddisclosure • retention of medicalrecords • Other variousaspects	**4**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1201. 1	Demonstrate knowledge of the various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic) of maladies and the ways in which they operate on the body (pathogenesis).
MOTAT-1201. 2	Demonstrate knowledge of the altered structure and function (pathology and pathophysiology) of the body and its major organ systems that are seen in various diseases and conditions.
MOTAT-1201. 3	Demonstrate understanding of the power of the scientific method in establishing the causation of disease and efficacy of traditional and non-traditional therapies
MOTAT-1201. 4	Understand the role and responsibility of an OT/AT Assistant/ Technician

Suggested Readings:

- R. R. Gaur, R Sangal, G P Bagaria, 2009, A Foundation Course in Human Values and Professional Ethics.
- Manipal Manual of Surgery 5Ed
- Sabiston Textbook of Surgery International Edition.
- Zollinger's Atlas of Surgical Operations, 11e
- Acute Care Surgery: Imaging Essentials for Rapid Diagnosis

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: BASICS OF ANAESTHESIA
SUBJECT CODE: MOTAT-1202
SEMESTER: 1
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
3	1		4

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students will be able to demonstrate basic knowledge of pathophysiology of common conditions requiring surgical procedures, Prepare the operation theatre, load and label requested drugs, gather and assemble the surgical equipment for common surgical procedures as per the complexity and duration, Organise drugs, equipment and monitors for procedures outside operation theater including endoscopies, imaging, electroconvulsive therapy and transport etc. and monitor

Sr. No.	Contents	Contact Hours
UNIT-I	**Technical terms / Documentation** • Technical terms used in anaesthesia /OT • Importance of Record keeping in OT / ICU • Various registers and statistics • PAC and Anaesthesia record	2
UNIT-II	**Phase of GA** • Induction • Intubation • Maintenance • Reversal • Recovery / Emergence	3
UNIT-III	**Premedication** • Different drugs used for Premedication their doses, effects and side effects	3
UNIT-IV	**I.V. Induction agent/ Inhalational Anesthetic agents** • I.V. Induction agent their doses, indication, contra indication and management • Properties of Inhalational anaesthetic agents, their role in GA • Different volatile anaesthetic agents: Advantages and disadvantages	2
UNIT-V	**Neuromuscular Blockers** • Types of drugs used for Neuromuscular blocks their doses, indication and contra indications, complications	2
UNIT-VI	**Reversal Agents**	3

	• Drugs used for Reversal Agents: their doses, indication and contra indication	
UNIT-VII	**Steroids** • Role of steroids in periop period their doses, indication and contra indication	**3**
UNIT-VIII	**Analgesics** • Drugs used as Analgesics: their doses, indication and contraindication • Opioids / Non-opioidsAnalgesics • Infusions,PCA	**3**
UNIT-IX	**Emergency Drugs** • Emergency drug used in OT and ICU Their uses, doses, indication and contra indication • Vasopressors, inotropic agents, Vasodilators, Anticholinergics, Anticoagulants, Antiarrhythmics • Syringe pumps and infusion pumps	**4**
UNIT-X	**Different Airways / Endotracheal tubes** • Types, parts, sizes of ETT • Specialized ETT and uses • Oropharyngeal / Nasopharyngeal airways: Sizes, colour coding, insertion techniques • Airways Adjuvants • Stylette, GEB, Lightedwand • Supraglottic Airway Devices(SADs) • Difficult intubation trolley • Tracheostomy, Decannulationprotocol	**3**
UNIT-XI	**Suction Catheters** • Suction Catheters – types, sizes, colour coding, techniques of suction • Suction pressure	**3**
UNIT-XII	**Laryngoscope** • Laryngoscope – Types, Size of blades • Fiberoptic intubation / video laryngoscopy • Laryngoscopic view of larynx	**3**
UNIT-XIII	**Spinal and Epidural needle** • Spinal and Epidural needle – sizes, colour coding, features, differences • Epidural Catheters	**4**
UNIT-XIV	**Asepsis in OT** • Importance of OT Asepsis • Aseptic techniques, OT sterilization procedures • How to handle HIV, HCV, HBsAg positive cases in OT • PPE	**4**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1202. 1	Able to help the anesthesiologist in administering anesthesia, assist in various procedures and also help in continuous monitoring of patients during surgery.
MOTAT-1202. 2	Able to assist anesthesiologists in developing and plummeting patient anesthesia care plans, including pre-operative, surgical theater, recovery room, and post-operative intensive care procedures.
MOTAT-1202. 3	Able to train and develop an individual to independently handle the latest technology and high end biomedical equipment in Operation Theatre
MOTAT-1202. 4	Demonstrate comprehensive understanding of Anaesthesia. Acquire the knowledge of Anesthetics that are required to be practiced in operation theatre and at all levels of health care system.

Suggested Readings:

1. Essentials of Anaesthetic Equipment, Baha Al-Shaikh Simon Stacey, 4th Edition
2. Principles of Anaesthesia Equipment, Areti Yasodananda K, 1st Edition
3. Anaesthetic Equipment Made Easy, S. Ahanatha Pillai, 1st Edition

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: BASICS OF SURGERY
SUB JECT CODE: MOTAT-1203
SEMESTER: 2
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
4	1		5

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students will be able to demonstrate an understanding of scientific concepts and the knowledge necessary for: history taking, physical exam, diagnostic studies, differential diagnosis, clinical intervention and therapeutics, and health maintenance of medical conditions seen in an adult patient in the surgical setting, Perform common technical skills in the surgical setting, Discuss post operative care of patients while performing post operative wound checks and discriminating common post-operative complications in the inpatient setting.

Sr. No.	Contents	Contact Hours

UNIT-I	**Basic Procedures Techniques** • ScrubbingTechnique • GowningTechnique • Gloving techniques	**2**
UNIT-II	**Surgical terminology and Incision** • Surgical terminology • Types of incision • Indications for the use of particular incision	**3**
UNIT-III	**Haemorrhage** • Signs and symptoms of internal and external haemorrhage • Classification ofhaemorrhage • Management ofhaemorrhage	**4**
UNIT-IV	**Tourniquets** • Types of tourniquets • Uses oftourniquet • Duration of tourniquet application- Pneumatic tourniquet,application • Complication of tourniquet application	**4**
UNIT-V	**Wounds and Abscess** • Types of wounds, Wound healing • Treatment and complications of wound • Inflammation • Wound infections: Causes and treatment • Incision and drainage of abscesses • Importance of personal cleanliness and aseptic techniques	**7**
UNIT-VI	**Skin Preparation** • Skin preparation for invasive procedures • Surgical asepsis	**5**
UNIT-VII	**Surgical Instruments** • Classification of surgical instruments and their uses	**5**
UNIT-VIII	**Suture Material** • Suture Material: Types and uses • Different Suturing Techniques • Instruments used for suturing	**5**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1203, 1	Able to train and develop an individual to independently handle the latest technology and high end biomedical equipment in Operation Theatre
MOTAT-1203. 2	Demonstrate knowledge and understanding of common surgical problems
MOTAT-1203. 3	Demonstrate an understanding of surgical treatments, and alternatives to surgical treatment

MOTAT-1203. 4	To become familiar with various surgical procedures and know their expected outcomes and complications

Suggested Readings:

1. Manipal Manual of Surgery 5Ed
2. Sabiston Textbook of Surgery International Edition.
3. Zollinger's Atlas of Surgical Operations, 11e
4. Acute Care Surgery: Imaging Essentials for Rapid Diagnosis
5. Introduction to the Operating Room

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: CSSD PROCEDURES, STERILIZATION PROCEDURES
SUBJECT CODE: MOTAT-1204
SEMESTER: 2
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
4	1		5

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students will b e able to enhance their skill and capacities to facilitate effective cleaning functions, Facilitate effective steam steriliser function, Enhance their skill and capacities to manage availability, effectiveness and reprocessing of reusable medical devices, Develop their skills and capacities to sterilize loads, Perform certain administrative task such as maintenance of records, paperwork, coordination, administrative and basic management, Enhance their knowledge in resource management, advocacy as a CSSD Assistant

Sr. No.	Contents	Contact Hours
UNIT-I	**Introduction of CSSD** • Layout and location of CSSD and its role in hospital Functioning	2

UNIT-II	**Functions of CSSD** • Collection of used items from user area • Use of disinfectants • Sorting and classification of equipment for cleaning purposes, sharps, blunt lighted et • Contaminated high risk items, delicate instruments or hot labile instruments • Documentation, staff, dress protocol	**5**
UNIT-III	**Cleaning process in CSSD** • Various methods of cleaning • Use of detergents- Mechanical cleaning apparatus • Cleaning instruments, cleaning jars, receivers bowl etc. trays, basins and similar hand ware utensils • Cleaning of catheters and tubing • Cleaning glass ware, cleaning syringes and needles	**4**
UNIT-IV	**Packing in CSSD** • Materials used for wrapping and packing-Assembling pack contents • Types of packs prepared • Method of wrapping • Labeling: Date, contents, initials • Use of indications to show that a pack of container has been through a sterilization process	**6**
UNIT-V	**Different Methods of Sterilization** • Principles of sterilization and disinfection • Methods of decontaminations • Moist heat sterilization • Dry heat sterilization • EO gas sterilization • H202 gas plasma sterilization • Irradiation: Gamma sterilization • Sterilization control: Indicator agents	**7**
UNIT-VI	**Autoclaving Machine.** • Uses and maintenance of autoclaving machine • Mechanism of Autoclaving Machine	**5**
UNIT-VII	**CSSD Technician** • Duties of CSSD Technician	**5**
UNIT-VIII	**Disinfection and sterilization of OT and equipments / Waste management** Sterilization of OT: • Fumigation method, Fogging machine and agents • Carbolization • Decontamination of spillage of infected material • Monitoring protocols for sterilization of OT • Critical, semi critical, noncritical equipments • Methods of disinfection: High level and Low-level disinfection	**10**

	• Various techniques of sterilization and disinfections of items, Decontamination procedure • Antiseptics, sterilant, sanitization • Segregation and disposal of hospital waste	

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1204. 1	Know various Culture media and their applications and also understand various physical and chemical means of sterilization
MOTAT-1204. 2	Master aseptic techniques and be able to perform routine culture handling tasks safely and effectively
MOTAT-1204. 3	Understand and the plan, the structural framework of the operation theatre zones.
MOTAT-1204. 4	Describe measures to prevent and control sepsis in operation theatre.

Suggested Readings:

1. Manual of Anesthesia for Operation Theater Technicians by S Ahanatha Pillai
2. Textbook for Operation Theater Technicians - Jaypee Digital
3. Berry, Edna Carnelia & MarieLoius Kohn introduction to OR Techniques 4th edition
4. Dixon, Elleen-Theatre techniques-5th edition
5.

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choic

SUBJECT TITLE: RESEARCH METHODOLOGY, BIOSTATISTICS AND HOSPITAL MANAGEMENT
SUBJECT CODE: MOTAT-1205
SEMESTER: 2
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
3	1		4

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students will be able to develop the ability to apply the methods while working on a research project work, Describe the appropriate statistical methods required for a particular research design, Choose the appropriate research design and develop appropriate research hypothesis for a research project, Develop a appropriate framework for research studies

Sr. No.	Contents	Contact Hours
UNIT-I	**Introduction research methodology** • Introduction to research methods, Variable in research • Reliability and validity in research • Conducting a literature review • Formulation of research problems and writing research questions • Hypothesis, Null and research Hypothesis Type I and type II errors in Hypothesis testing	2
UNIT-II	**Data collection** • Experimental and non-experimental research designs • Sampling methods, datacollection, observation method • Interview method, questionnaires and schedules construction	5
UNIT-III	**Research Framework** • Ethical issues in research • Principles and concepts in research ethics-confidentiality and privacy informed consent, Writing research proposals • Development of conceptual framework in research	4
UNIT-IV	**Introduction to statistics** • Introduction to statistics • Classification of data, source of data • Method of scaling-nominal, ordinal, ratioand interval scale • Measuring reliability and validity of scales	6
UNIT-V	**Data sampling** • Measures of central tendency • Measures of dispersion, skewness and kurtosis, sampling, sample size determination • Concept of probability and probability distributions-binomial probability distribution, poison probability distribution and normal probability distribution	7
UNIT-VI	**Data correlation** • Correlation-Karl person, spearman's rank correlation methods regression analysis, testing hypothesis-chi square test, ANOVA	5
UNIT-VII	**Health care – an overview** • Functions of Hospital administration Modern techniques in Hospital management • Challenges and strategies of Hospital management Administrative Functions– Planning, Organizing, Staffing, Leading and Controlling Organizational Structure, Motivation and leadership • Designing health care organization	5

UNIT-VIII	**Hospital Management** • Medical record, House-keeping services • Management of biomedical waste • Total patient care – indoor and outdoor • Nursing and ambulance resources • Evaluation of hospital services • Quality assurance • Record reviews and medical audit	**10**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1205. 1	Learner will understand basic theorems and concepts of Biostatics & Basic Computer. And its applications in research
MOTAT-1205. 2	Student will get insight of research tools
MOTAT-1205. 3	The student will gain knowledge of basic statistical approaches
MOTAT-1205. 4	Enhance knowledge of databases in research

Suggested Readings:

1. Absolute Beginners Guide To Computing By Wallace Wang
2. Computer Basics Absolute Beginner's Guide By Michael Miller.

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: BASICS OF ANAESTHESIA (Practical)
SUB JECT CODE: MOTAT-1206
SEMESTER: 1
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
		4	2

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students will be able to demonstrate basic knowledge of pathophysiology of common conditions requiring surgical procedures, Prepare the operation theatre, load and label requested drugs, gather and assemble the surgical equipment for common surgical procedures as per the complexity and duration, Organise drugs, equipment and monitors for procedures outside operation theater including endoscopies, imaging, electroconvulsive therapy and transport etc. and monitor

Sr. No.	Contents	Contact Hours
	• I.V. Induction agent their doses, indication, contra indication and management • Properties of Inhalational anaesthetic agents, their role in GA • Different volatile anaesthetic agents: Advantages and disadvantages • Spinal and Epidural needle – sizes, colour coding, features, differences • Epidural Catheters • Importance of OT Asepsis • Aseptic techniques, OT sterilization procedures • How to handle HIV, HCV, HBsAg positive cases in OT • PPE	**30**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1206. 1	Able to help the anesthesiologist in administering anesthesia, assist in various procedures and also help in continuous monitoring of patients during surgery.
MOTAT-1206. 2	Able to assist anesthesiologists in developing and plummeting patient anesthesia care plans, including pre-operative, surgical theater, recovery room, and post-operative intensive care procedures.
MOTAT-1206. 3	Able to train and develop an individual to independently handle the latest technology and high end biomedical equipment in Operation Theatre
MOTAT-1206. 4	Demonstrate comprehensive understanding of Anaesthesia. Acquire the knowledge of Anesthetics that are required to be practiced in operation theatre and at all levels of health care system.

SUBJECT TITLE: BASICS OF SURGERY (Practical)
SUB JECT CODE: MOTAT-1207
SEMESTER: 2
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
		4	2

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objectives: Students will be able to demonstrate an understanding of scientific concepts and the knowledge necessary for: history taking, physical exam, diagnostic studies, differential diagnosis, clinical intervention and therapeutics, and health maintenance of medical conditions seen in an adult patient in the surgical setting, Perform common technical skills in the surgical setting, Discuss post operative care of patients while performing post operative wound checks and discriminating common post-operative complications in the inpatient setting.

Sr. No.	Contents	Contact Hours
	• ScrubbingTechnique • GowningTechnique • Gloving techniques • Types of tourniquets • Uses oftourniquet • Duration of tourniquet application- Pneumatic tourniquet,application • Complication of tourniquet application • Skin preparation for invasive procedures • Surgical asepsis • Suture Material: Types and uses • Different Suturing Techniques • Instruments used for suturing	30

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1207.1	Able to train and develop an individual to independently handle the latest technology and high end biomedical equipment in Operation Theatre
MOTAT-1207.2	Demonstrate knowledge and understanding of common surgical problems
MOTAT-1207.3	Demonstrate an understanding of surgical treatments, and alternatives to surgical treatment
MOTAT-1207.4	To become familiar with various surgical procedures and know their expected outcomes and complications

SUBJECT TITLE: CSSD PROCEDURES, STERILIZATION PROCEDURES (Practical)
SUBJECT CODE: MOTAT-1208
SEMESTER: 1
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
		4	2

I
nternal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students will b e able to enhance their skill and capacities to facilitate effective cleaning functions, Facilitate effective steam steriliser function, Enhance their skill and capacities to manage availability, effectiveness and reprocessing of reusable medical devices, Develop their skills and capacities to sterilize loads, Perform certain administrative task such as maintenance of records, paperwork, coordination, administrative and basic management, Enhance their knowledge in resource management, advocacy as a CSSD Assistant

Sr. No.	Contents	Contact Hours
	• Various methods of cleaning • Use of detergents- Mechanical cleaning apparatus • Cleaning instruments, cleaning jars, receivers bowl etc. trays, basins and similar hand ware utensils • Cleaning of catheters and tubing • Cleaning glass ware, cleaning syringes and needles • Materials used for wrapping and packing-Assembling pack contents • Types of packs prepared • Method of wrapping • Labeling: Date, contents, initials • Use of indications to show that a pack of container has been through a sterilization process • Principles of sterilization and disinfection • Methods of decontaminations • Moist heat sterilization • Dry heat sterilization • EO gas sterilization • H202 gas plasma sterilization • Irradiation: Gamma sterilization • Sterilization control: Indicator agents • Uses and maintenance of autoclaving machine • Mechanism of Autoclaving Machine	**30**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1208. 1	Know various Culture media and their applications and also understand various physical and chemical means of sterilization
MOTAT-1208. 2	Master aseptic techniques and be able to perform routine culture handling tasks safely and effectively
MOTAT-1208. 3	Understand and the plan, the structural framework of the operation theatre zones.
MOTAT-1208. 4	Describe measures to prevent and control sepsis in operation theatre.

SUBJECT TITLE: HUMAN VALUES AND PROFESSIONAL ETHICS

SUBJECT CODE: MOTAT-1209
SEMESTER: 2
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
4			4

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: To make the students learn to discriminate between valuable and superficial in the life. To help develop the critical ability to distinguish between essence and form, or between what is of value and what is superficial, in life - this ability is to be developed not for a narrow area or field of study, but for everyday situations in life, covering the widest possible canvas. To help students develop sensitivity and awareness; leading to commitment and courage to act on their own belief. It is not sufficient to develop the discrimination ability, it is important to act on such discrimination in a given situation. Knowingly or unknowingly, our education system has focused on the skill aspects (learning and doing) - it concentrates on providing to its students the skills to do things. In other words, it concentrates on providing "How to do" things. The aspects of understanding "What to do" or "Why something should be done" is assumed. No significant cogent material on understanding is included as a part of the curriculum. A result of this is the production of graduates who tend to join into a blind race for wealth, position and jobs. Often it leads to misuse of the skills; and confusion and wealth that breeds chaos in family, problems in society, and imbalance in nature. This course is an effort to fulfill our responsibility to provide our students this significant input about understanding. This course encourages students to discover what they consider valuable. Accordingly, they should be able to discriminate between valuable and the superficial in real situations in their life.

Sr. No.	Contents	Contact Hours
UNIT-I	**Course Introduction - Need, Basic Guidelines, Content and Process for Value Education** • Understanding the need, basic guidelines, content and process	**10**

	for Value Education. • Self-Exploration–what is it?- its content and process; 'Natural Acceptance' and Experiential Validation- as the mechanism for self-exploration. • Continuous Happiness and Prosperity- A look at basic Human Aspirant • Right understanding, Relationship and Physical Facilities- the basic requirements for fulfillment of aspirations of every human being with their correct priority. • Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario • Method to fulfill the above human aspirations: understanding and living	
UNIT-II	**Harmony at various levels** • Understanding Harmony in the Human Being - Harmony in Myself! • Programs to ensure Sanyam and Swasthya • Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship • Understanding harmony in the Family- the basic unit of human interaction • Understanding values in human-human relationship • Understanding the harmony in the society (society being an extension of family)	**10**
UNIT-III	**Implications of the above Holistic Understanding of Harmony on Professional Ethics** • Definitiveness of Ethical Human Conduct • Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order • Competence in professional ethics	**10**
UNIT-IV	• Introduction to Professional ethics • Professional Ethics and Right Understanding • Ethical Concept: Code of conduct, Confidentiality, Autonomy and informed consent, Beneficence, Non-maleficence, Veracity, Fidelity • Ethical issues: Malpractice and negligence, Abortion, End of life issue • Ethical practice: Barrier of ethical practice, Organ transplantation, Care of the terminally ill, Medico legal aspects of medical records • Ethical decision making: Dilemma ,Euthanasia.	**10**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1209. 1	To develop the ability to distinguish between what is of value and what is superficial in life.
MOTAT-1209. 2	To develop the ability to face difficult situations in life boldly and resolve them confidently.
MOTAT-1209. 3	To enable students to progress from discrimination to commitment.
MOTAT-1209. 4	To understand commitment and responsibility. They gain the ability to bring harmony to the society they live.

Suggested Readings:

1. R. R. Gaur, R Sangal, G P Bagaria, 2009, A Foundation Course in Human Values and Professional Ethics.
2. Success Secrets for Engineering Students, Smart Student Publications, 3rd Edition.
3. Ivan IIIc, 1974, Energy & Equity, The Trinity Press, Worcester, and HarperCollins, USA.
4. E. F. Schumacher, 1973, Small is Beautiful: a study of economics as if people mattered. Blond &Briggs, Britain.
5. A Nagraj, 1998 Jeevan Vidya ek Parichay, Divya Path Sansthan, Amarkantak.
6. Sussan George, 1976, How the Other Half Dies, Penguin Press, Reprinted 1986,

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: INDIAN CONSTITUTION
SUBJECT CODE: MOTAT-1210
SEMESTER: 2
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
3	1		4

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: The course will develop understanding of the concepts related to constitution law of India

Sr. No.	Contents	Contact Hours
UNIT-I	Meaning of the term 'Constitution Making of the Indian Constitution 1946-1950.The democratic institutions created by the constitution, Bicameral system of Legislature at the Centre and in the States.	**10**
UNIT-II	Fundamental rights and duties their content and significance. Directive principles of States, policies the need to balance fundamental rights with directive principles.	**10**
UNIT-III	Special rights created in the Constitution for dalits, backwards, women and children and the religious and linguistic minorities. Doctrine of Separation of Powers, legislative, executive and judicial and their functioning in India.	**12**
UNIT-IV	The Election Commission and State Public Service commissions.Method of amending the Constitution. Enforcing rights through writs.Constitution and sustainable development in India	**10**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-1210. 1	**Understand the meaning and importance of constitution**
MOTAT-1210. 2	**Explain about making of Indian constitution – Contribution of constituent assembly on it**
MOTAT-1210. 3	**Describe the salient (outstanding) features of Indian constitution**
MOTAT-1210. 4	**Describe the importance of preamble of the Indian constitution and its significance**

Suggested Readings:

1. MP.JAIN:Indian constitution law,2018
2. D.D Basu: Introduction of the constitution of india.

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

3RD SEMESTER

SUBJECT TITLE: ANAESTHESIA DELIVERY SYSTEM AND EQUIPMENTS USED IN OT
SUBJECT CODE: MOTAT-2301
SEMESTER: 3
CONTACT HOURS/WEEK

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
4	1		5

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objectives: Students will be able to explore the major components, internal and external, of the anesthesia system, Analyze the components part in failure scenarios, Explain the steps of isolating, troubleshooting and solving the failures.

Sr. No.	Contents	Contact Hours
UNIT-I	**Medical Gas Supply** • Compressed gas cylinders ,colour coding,Types of cylinders (E&H),handling and storing of cylinders • Cylinder valves; pin index safety system (PISS), pressure regulator, safe handling of cylinders • Gas piping system / Manifold Room /DISS • Recommendations for pipin gsystem • Alarms &safety devices • Oxygen Concentrator: Mechanism ,functioning, maintenance • Liquid Oxygen	2
UNIT-II	**Modern Anaesthesia machine** • Functioning of Anaesthesia WorkStation • Checklist of Modern Anaesthesia machine before use • Safety features in Modern Anaesthesia machine vs Basic Boyles Apparatus • Scavenging system: Role in modern anaesthesia • Practice Anaesthesia Ventilator: • Modes of ventilator • Working principles • Alarms and settings	5
UNIT-III	**Breathing Systems** • General considerations: humidity & heat • Common components - connectors, adaptors, reservoir bag, expiratory valve • Methods of humidification • Classification of breathing system • Mapleson system – A, B, C, D, E, F • Jackson Rees system • Bains circuit • Non rebreathing valves - Ambu valves	3

	• The circle system- Components, advantages, disadvantages	
UNIT-IV	**Diathermy / Cautery** • Diathermy /Cautery machine • Types, Uses • Precautions	**3**
UNIT-V	**Defibrillators** • Uses of Defibrillators / AED • Types of defibrillators • Selection of charge for defibrillation, Position of Pads • Precaution during defibrillation • Care and handling • Functioning of AED	**5**
UNIT-VI	**Monitors** • Multi-parameter monitors • ECG, Temperature • IBP / NIBP, CVP • Pulse oximeter: Types of probes, precautions • $ETCO_2$ monitor • FIO_2, inhalational gas analyzer • ABG machine, sampling of arterial blood • Care of monitoring equipment	**6**
UNIT-VII	**OT Table, OT lights, C Arm, HVAC system** • Types of OT tables, positions, care and handling • Types of OT lights, specifications • Functioning and handling of C arm • Humidification, ventilation, Air conditioning system (HVAC)	**6**
UNIT-VIII	**Suction machine** • Types of Suction machine • Pressure setting for various requirements • Suction Catheter – Sizes, Colour coding	**6**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-2301. 1	Able to help the anesthesiologist in administering anesthesia, assist in various procedures and also help in continuous monitoring of patients during surgery
MOTAT-2301. 2	Able to train and develop an individual to independently handle the latest technology and high end biomedical equipment in Operation Theatre
MOTAT-2301. 3	Able to assist anesthesiologists in developing and plummeting patient anesthesia care plans, including pre-operative, surgical theater, recovery room, and post-operative intensive care procedures.
MOTAT-2301. 4	Understand the role and responsibility of an Anaesthesia Assistant/ Technician during Anaesthesia Induction

Suggested Readings:

1. Manual of Anesthesia for Operation Theater Technicians by S Ahanatha Pillai
2. Textbook for Operation Theater Technicians - Jaypee Digital
3. Berry, Edna Carnelia & MarieLoius Kohn introduction to OR Techniques 4th edition
4. Dixon, Elleen-Theatre techniques-5th edition
5. Operation Theatre manual by M M Kapoor
6.

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: BASIC PROCEDURES AND TECHNIQUES
SUBJECT CODE: MOTAT-2302
SEMESTER: 3
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
4	1		5

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course: Students will be able to Feel familiar with basic clinical procedures in a laboratory setting and with utilizing universal precautions prior to attempting the procedures on actual patients with appropriate supervision, Assist in performing basic clinical procedures with appropriate supervision on patients during clinical rotations and postgraduate training, Describe the indications, complications, and interpretations associated with the various clinical procedures that have been learned.

Sr. No.	Contents	Contact Hours
UNIT-I	**I.V. Cannulation** • Sizes, Colour Coding, Technique of I.V. cannulation • Preparation of I.V. drip • Types of fluids • Precaution during IV cannulation	2
UNIT-II	**Central Venous Catheterization and CVP** • Role, Types, sizes, Locations • Positions, Technique, Precautions	5

	• Complications	
UNIT-III	**Arterial Cannulation** • Significance, Locations, types, sizes • Techniques • Complications	**3**
UNIT-IV	**Intubation** • Technique of endotracheal intubation Insertion of SGADs (LMA, I -Gel etc.) Cuff inflation and pressure • Difficult intubation kit Sellick maneuver, BURP Technique	**3**
UNIT-V	**Bandaging and Splinting** • Types of bandages and various techniques • Scalp bandage, Figure of 8, Bandages of Eye / Ear • Splinting Techniques, Use of Splints / Crape Bandage • Pressure Points, Emergency Torniquet	**5**
UNIT-VI	**Drainage of Abscess** • Cleaning Incision • Drainage • Bandaging	**6**
UNIT-VII	**Foley Catheter** • Types,sizes • InsertionTechnique • Sterile precautions	**6**
UNIT-VIII	**Nasogastric Tube** • Size, uses • Techniques of Insertion	**6**
UNIT-IX	**Face Masks & Airways, ETT, Laryngoscopes, CPR** • Types of masks: Open andclosed • Technique of holding Anaesthesia mask • Airways- Types, Sizes, insertion technique • Laryngoscopes- Types, Parts • Endotracheal tubes - Types, sizes, Specialized ETT, Double lumen tubes (DLT), bronchial blockers • Supraglottic Airway Device (SGADs): Types, sizes • Checking tube position, complications • Difficult Intubation Trolley / Tray • Types of Oxygen masks • Basic CPR Protocol: CAB	**6**
UNIT-X	**Making of Various Dilution of Drugs** • Meaning of %, 1:1000, 1:200000etc. • Macro drip / Micro drip / mcg /ml • Drop Factor • Drops per min, infusion rate calculation • Mcg / mg / gm Conversion Making 2.5 % solution from 1 gm / 0.5 gm of Thiopentone powder.	**4**
UNIT-XI	**Baby Resuscitation Trolley**	**2**

	• Contents of baby resuscitation trolley • Uses • Check list	

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-2302. 1	To knowledge about general Anaesthesia, indication and complications during use.
MOTAT-2302. 2	To know about management of patients throughout General Anaesthesia.
MOTAT-2302. 3	To knowledge about general Anesthesia, indication and complications during use.
MOTAT-2302. 4	To know about management of patients throughout General Anaesthesia.

Suggested Readings:

1. Manipal Manual of Surgery 5Ed
2. Sabiston Textbook of Surgery International Edition.
3. Zollinger's Atlas of Surgical Operations, 11e
4. Acute Care Surgery: Imaging Essentials for Rapid Diagnosis
5. Introduction to the Operating Room

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: PERI-OP ANAESTHETIC CARE & PREPARATION
SUBJECT CODE: MOTAT-2303
SEMESTER: 3
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
4	1		5

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students will be able to diagnose common surgical conditions both acute and chronic, in adult and children. Describe common malignancies in the country and their management including prevention, Plan various laboratory tests for surgical conditions and interpret the results, Identify and manage patients of hemorrhagic; septicemia and other types of shock. Define indications and methods for fluid and electrolyte replacement therapy including blood transfusion

Sr. No.	Contents	Contact Hours
UNIT-I	**Types of Anaesthesia** • General Anaesthesia Techniques • Phases ofGA • Balanced anaesthesia,TIVA • Regional Anaesthesia Techniques • IVRA, CNB, Plexus Block,Topical • Sedation /MAC • Complications of GA /RA	8
UNIT-II	**Pre-Op Check (PAC)** • Pre anaesthetic assessment • History – past history - disease / Surgery/ and personal history - Smoking / alcohol / drugs /medication • General physical assessment, systemic examination – CVS, RS,CNS • Investigations – Haematological, Urine, ECG, Chest X- ray, Endocrine, Hormonal assays Echocardiography, angiography, Liver function test, renal function test • ASA grading - I, II, III, IV,V	8
UNIT-III	**Duties of OT Technician in Pre-Operative Room** • Patient check List:Protocol • Part preparation • Consent, PAC,Investigations • NPO Status, OTDress, Lipstick/Nail polish • Premedication • Basal parameters • I.V. Line	8
UNIT-IV	**Pre-Operative Checklist /Cockpit Drill** • Anaesthesia Machine / Gas Supply • SuctionMachine • Monitors anaesthesia • Airway Devices – Laryngoscope, Airways, ETT, Stylette, tape jelly • I.V. Cannula,I.V. fluids • Drugs– Anaesthesia related and Emergency • Special preparation – As perspecific patient need • Difficult intubation tray: Contents	10
UNIT-V	**Post-Operative Care** • PACU, Discharge Criteria • Modified Aldrete Score • Five Vital Signs • Bladder Distension • Pain management	10

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-2303. 1	Able to assist anesthesiologists in developing and plummeting patient anesthesia care plans, including pre-operative, care
MOTAT-2303. 2	To knowledge about general Anaesthesia, indication and to collect pre operative Assessment
MOTAT-2303. 3	Management of patients stress Anxiety NPO and to provide pre anesthetic drugs
MOTAT-2303. 4	To knowledge about general Anesthesia, indication and complications during use.

Suggested Readings:

1. Essentials of Anaesthetic Equipment, Baha Al-Shaikh Simon Stacey, 4th Edition
2. Principles of Anaesthesia Equipment, Areti Yasodananda K, 1st Edition
3. Anaesthetic Equipment Made Easy, S. Ahanatha Pillai, 1st Edition

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: PREPARATION FOR VARIOUS SURGERIES
SUBJECT CODE: MOTAT-2304
SEMESTER: 3
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
4	1		5

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Student will be able to identify the components of a focused history and physical that includes all relevant data needed to develop an anesthetic plan, Correctly determine ASA status, Describe the current NPO guidelines, and their relation to co-morbidities, Explain the correct assessment and optimization needed for patients with common comorbidities, including hypertension, COPD, diabetes, coronary artery disease, asthma, List and describe the various components of a cardiovascular evaluation, Discuss basic principles of risk assessment, Discuss the components of an airway evaluation, Have an understanding of appropriate use of pre-operative lab tests, Have an understanding of the appropriate need for consultants and further evaluations

Sr. No.	Contents	Contact Hours
UNIT-I	**Preparation of OT** • Preparation of OT before surgery	2
UNIT-II	**Positions of patient** • Positions of patient for different surgeries	2
UNIT-III	**Maintenance of Instruments.** • Handling of instruments • Cleaning of instruments • Maintenance of instruments	3
UNIT-IV	**Instrument Requirement for Common Surgical Procedures** Instrument requirement for common surgical procedures such as: • Herniorrhaphy • Appendicectomy • Laparotomy • Mastectomy • I&D • Hydrocele • Intestinal Obstruction	4
UNIT-V	**Instruments for Obstetric and Gynecological surgeries** • Instruments required for different obstetric surgeries • Instruments required for different Gynecological Surgeries • Types of obstetrics and Gynaecology surgeries	4
UNIT-VI	**Preparation and Position for Urological Surgeries** Brief description of different Urological Surgeries • Preparation for different Urological Surgeries • Position for different Urological surgeries	3
UNIT-VII	**Orthopedics surgeries** Brief description of different orthopedics Surgeries • Preparation for different orthopedics Surgeries • Position for different orthopedics surgeries • Instruments required for different orthopedics surgeries	4
UNIT-VIII	**Neurological Surgeries** Brief description of different Neurological Surgeries • Preparation for different Neurological Surgeries • Position for different Neurological surgeries • Instruments required for different Neurological surgeries	4
UNIT-IX	**Ophthalmology Surgeries** Brief description of different Ophthalmology Surgeries • Preparation for different Ophthalmology Surgeries • Position for different Ophthalmology surgeries	4

	• Instruments required for different Ophthalmology surgeries	
UNIT-X	**Otorhinolaryngologic Surgeries** Various Otorhinolaryngologic Surgeries and Instruments required for them • Preparation of trolleys for ENT surgeries • Preparation of different dilutions of adrenaline: 1: 50,000, 1: 100,000, 1: 200,000, etc.	**4**
UNIT-XI	**Reconstructive Surgeries.** Brief description of different Reconstructive Surgeries • Preparation for different Reconstructive Surgeries • Position for different Reconstructive surgeries • Instruments required for different Reconstructive surgeries	**3**
UNIT-XII	**Thoracic, Cardiac, Vascular surgeries.** Brief description of different Thoracic, Cardiac, Vascular Surgeries • Preparation for different Thoracic, Cardiac, Vascular Surgeries • Position for different Thoracic, Cardiac, Vascular surgeries • Instruments required for different Thoracic, Cardiac, Vascular surgeries	**4**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-2304. 1	Demonstrate knowledge and understanding of common surgical problems
MOTAT-2304. 2	Demonstrate an understanding of surgical treatments, and alternatives to surgical treatment
MOTAT-2304. 3	To become familiar with various surgical procedures and know their expected outcomes and complications
MOTAT-2304. 4	Be familiar with action, dosage and use of common pharmacologic agents used in surgery (analgesics, antibiotics, anticoagulants, sedatives)

Suggested Readings:

1. Manipal Manual of Surgery 5Ed
2. Sabiston Textbook of Surgery International Edition.
3. Zollinger's Atlas of Surgical Operations, 11e
4. Acute Care Surgery: Imaging Essentials for Rapid Diagnosis
5. Introduction to the Operating Room

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: ANAESTHESIA DELIVERY SYSTEM AND EQUIPMENTS USED IN OT (Practical)
SUBJECT CODE: MOTAT-2305
SEMESTER: 3
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
		4	2

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students will be able to explore the major components, internal and external, of the anesthesia system, Analyze the components part in failure scenarios, Explain the steps of isolating, troubleshooting and solving the failures.

Sr. No.	Contents	Contact Hours
	• Compressed gas cylinders, colour coding, Types of cylinders (E&H),handling and storing of cylinders • Cylinder valves ;pin index safety system(PISS), pressure regulator safe handling of cylinders • Gas piping system / Manifold Room /DISS • Recommendations for piping system • Alarms &safety devices • Oxygen Concentrator: Mechanism, functioning, maintenance • Liquid Oxygen • Different parts of Modern Anaesthesia machine • Functioning of Anaesthesia WorkStation • Checklist of Modern Anaesthesia machine before use • Safety features in Modern Anaesthesia machine vs Basic Boyles Apparatus • Scavenging system: Role in modern anaesthesia • Practice Anaesthesia Ventilator: • Modes of ventilator • Working principles • Alarms and settings • General considerations: humidity & heat • Common components - connectors, adaptors, reservoir bag, expiratory valve	**30**

	• Methods of humidification • Classification of breathing system • Mapleson system – A, B, C, D, E, F • Jackson Rees system • Bains circuit • Non rebreathing valves - Ambu valves • The circle system- Components, advantages, disadvantages	

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-2305. 1	Able to help the anesthesiologist in administering anesthesia, assist in various procedures and also help in continuous monitoring of patients during surgery
MOTAT-2305. 2	Able to train and develop an individual to independently handle the latest technology and high end biomedical equipment in Operation Theatre
MOTAT-2305. 3	Able to assist anesthesiologists in developing and plummeting patient anesthesia care plans, including pre-operative, surgical theater, recovery room, and post-operative intensive care procedures.
MOTAT-2305. 4	Understand the role and responsibility of an Anaesthesia Assistant/ Technician during Anaesthesia Induction

SUBJECT TITLE: BASIC PROCEDURES AND TECHNIQUES (Practical)
SUBJECT CODE: MOTAT-2306
SEMESTER: 3
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
		4	2

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objectives: Students will be able to Feel familiar with basic clinical procedures in a laboratory setting and with utilizing universal precautions prior to attempting the procedures on actual patients with appropriate supervision, Assist in performing basic clinical procedures with appropriate supervision on patients during clinical rotations and postgraduate training, Describe the indications, complications, and interpretations associated with the various clinical procedures that have been learned.

Sr. No.	Contents	Contact Hours
	• Sizes, Colour Coding, Technique of I.V. cannulation • Preparation of I.V. drip • Types of fluids • Precaution during IV cannulation • Role, Types, sizes, Locations • Positions, Technique, Precautions • Complications • Significance, Locations, types, sizes • Techniques • Complications • Cleaning Incision • Drainage • Bandaging • Types,sizes • InsertionTechnique • Sterile precautions • Size, uses • Techniques of Insertion	30

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-2306. 1	To knowledge about general Anaesthesia, indication and complications during use.
MOTAT-2306. 2	To know about management of patients throughout General Anaesthesia.
MOTAT-2306. 3	To knowledge about general Anesthesia, indication and complications during use.
MOTAT-2306. 4	To know about management of patients throughout General Anaesthesia.

SUBJECT TITLE: PERI-OP ANAESTHETIC CARE & PREPARATION (Practical)
SUBJECT CODE: MOTAT-2307
SEMESTER: 3
CONTACT HOURS/WEEK

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
		4	2

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students will be able to diagnose common surgical conditions both acute and chronic, in adult and children. Describe common malignancies in the country and their management including prevention, Plan various laboratory tests for surgical conditions and interpret the results, Identify and manage patients of hemorrhagic; septicemia and other types of shock. Define indications and methods for fluid and electrolyte replacement therapy including blood transfusion

Sr. No.	Contents	Contact Hours
	• Anaesthesia Machine / Gas Supply • Suction Machine • Monitors anaesthesia • Airway Devices – Laryngoscope, Airways, ETT, Stylette, tape jelly • I.V. Cannula, I.V. fluids • Drugs– Anaesthesia related and Emergency • Special preparation – As perspecific patient need Difficult intubation tray: Contents • PACU, Discharge Criteria • Modified Aldrete Score	**30**

	• Five Vital Signs • Bladder Distension • Pain management	

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-2307.1	Able to assist anesthesiologists in developing and plummeting patient anesthesia care plans, including pre-operative, care
MOTAT-2307.2	To knowledge about general Anaesthesia, indication and to collect pre operative Assessment
MOTAT-2307.3	Management of patients stress Anxiety NPO and to provide pre anesthetic drugs
MOTAT-2307.4	To knowledge about general Anesthesia, indication and complications during use.

SUBJECT TITLE: PREPARATION FOR VARIOUS SURGERIES (Practical)
SUBJECT CODE: MOTAT-2308
SEMESTER: 3
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
		4	2

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Student will be able to identify the components of a focused history and physical that includes all relevant data needed to develop an anesthetic plan, Correctly determine ASA status, Describe the current NPO guidelines, and their relation to co-morbidities, Explain the correct assessment and optimization needed for patients with common co-morbidities, including hypertension, COPD, diabetes, coronary artery disease, asthma, List and describe the various components of a cardiovascular evaluation, Discuss basic principles of risk assessment, Discuss the components of an airway evaluation, Have an understanding of appropriate use of pre-operative lab tests, Have an understanding of the appropriate need for consultants and further evaluations

Sr. No.	Contents	Contact Hours
	• Preparation of OT before surgery • Positions of patient for different surgeries • Handling of instruments • Cleaning of instruments • Maintenance of instruments • Instruments required for different obstetric surgeries • Instruments required for different Gynecological Surgeries • Types of obstetrics and Gynaecology surgeries	**30**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-2308. 1	Demonstrate knowledge and understanding of common surgical problems
MOTAT-2308. 2	Demonstrate an understanding of surgical treatments, and alternatives to surgical treatment
MOTAT-2308. 3	To become familiar with various surgical procedures and know their expected outcomes and complications
MOTAT-2308. 4	Be familiar with action, dosage and use of common pharmacologic agents used in surgery (analgesics, antibiotics, anticoagulants, sedatives)

4TH SEMESTER

SUBJECT TITLE: ANAESTHESIA FOR SPECIALITY SURGERIES & SITUATIONS
SUBJECT CODE: MOTAT-2401
SEMESTER: 4
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
4	1		5

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students become familiar with main common coexisting diseases, anesthesia methods in children, pregnant women and the elderly, and the necessary instruments and equipment. They also learn about the measures and arrangements necessary for patient care in different stages of general anesthesia (i.e., before, during and after anesthesia) and local anesthesia, especially in the event of possible complications

Sr. No.	Contents	Contact Hours
UNIT-I	**Neuro Anaesthesia** • Glasgow coma scale • Special investigation- CT, Angiography and MRI • Anaesthesia Techniques for Neuro surgeries • Reinforced Endotracheal tubes • Positioning in neuro surgery • I.C.P. • Air embolism	2
UNIT-II	**Obstetric Anaesthesia** • Differences between a pregnant and a normal lady • Risks for anaesthesia • Precautions to be taken • Regional vs General anaesthesia • Resuscitation of the new born, APGAR score • Preparation for emergency LSCS • Emergencies • Manualremovalof placenta • A.P.H. • P.P.H. • Ruptured uterus • Ectopic pregnancy	2

UNIT-III	**Paediatric Anaesthesia** • Check list for pediatric Anaesthesia • Premedication- modes, drugs, doses • Pediatric circuit • Pain management	**3**
UNIT-IV	**Ent Anaesthesia** • Anaesthesiaforadenotonsillectomy • Anaesthesia for mastoidectomy • AnaesthesiaBronchoscopyandesophagoscopy • Nasal Intubation- Preparation andTechnique • RAE endotracheal tubes: Indications	**4**
UNIT-V	**Cardiac Anaesthesia** • Arrhythmias, Angina, Dyspnea • Special investigations • ECHO cardiography/ TEE • Angiography • Setting up of monitoring system • Monitoring - invasive and non-invasive • Transferring the patient toICU • Chest tubemanagement • NYHA classification • Cardiopulmonarybypass • Weaning of CPB	**4**
UNIT-VI	**Anaesthesia Outside O.T.** • CathLab • Radiology • E.C.T. • Risk and preventivemeasures	**3**
UNIT-VII	**Day Care Anaesthesia** • Specialfeatures • Patientselection • Advantages • Disadvantages • AnaesthesiaTechniques	**4**
UNIT-VIII	**Geriatric Anaesthesia** • Physiological changes • Diseases ofaging & Nervoussystem • Geriatric pharmacodynamics / pharmacokinetics • Postoperative cognitive dysfunction	**4**
UNIT-IX	**Anaesthesia For Trauma & Shock** • Resuscitation	**4**

	• Pre-op investigation / assessment • Circulatory management • Management of anaesthesia • Rapid sequence induction – Cricoid pressure	
UNIT-X	**Thoracic Anaesthesia** • Pulmonary function tests and lung volume • Bed sidetests • Vitallograph • One lungAnaesthesia • Double lumen tubes, Bronchial blockers	**4**
UNIT-XI	**Postoperative Problems** • Nausea & Vomiting • Sore throat, Laryngeal granuloma • Neurological complications, Awareness • Vascular complications • Trauma to teeth • Headache, Backache • Ocular complications • Auditory complications	**3**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-2401. 1	Know anesthetic implications in different medical conditions
MOTAT-2401. 2	Assist in anesthetic management of different surgical procedures
MOTAT-2401. 3	Understand the anesthetic implications in Obstetrics Gynecological and Pediatric Surgeries
MOTAT-2401. 4	Learn special considerations and postoperative care in thoracic surgeries

Suggested Readings:

1. Obstetric and Gynecologic Anesthesia 1st Edition
2. Essentials of Neurosurgical Anesthesia & Critical Care
3. Principles and Practice of Anesthesia for Thoracic Surgery by Peter Slinger
4. Handbook of Pediatric Anesthesia (ANESTHESIA/PAIN MEDICINE) by McGraw-Hill Education / Medical;1st edition
5. Kaplan's Cardiac Anesthesia: In Cardiac and Noncardiac Surgery 7th Edition by Elsevier; 7th edition

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each

Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: BASIC INTENSIVE CARE
SUBJECT CODE: MOTAT-2402
SEMESTER: 4
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
4	1		5

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students become familiar with the organization, standards, rules, and management method of an ICU. They also learn about the use and maintenance of equipment and instruments, methods of diagnosis and treatment, rehabilitation and respiratory care, infection control, and the way to take care of critically ill patients suffering from the disorders of different body systems and needing special attention.

Sr. No.	Contents	Contact Hours
UNIT-I	**Monitoring and Diagnostic Procedures in I.C.U.** • ClinicalMonitoring • Central Venousaccess • ECG monitoring • NIBP – Cuff sizes andapplication • Multiparameter monitor- Normalvalues • PCT, Surgical Tracheostomy • ICD • USG • Invasive hemodynamic monitoring, CardiacOutput	2
UNIT-II	**General Care of Patient in ICU** • Care of unconscious patient • Syringe pump / Infusion Pump uses, infusion rate • Vascular lines - arterial, venous line • Radiography / USG • Physiotherapy - chest physiotherapy • Oxygen Therapy: Sources of oxygen, Oxygen Delivery devices • Oxygen Toxicity, Monitoring Hypoxia	2

UNIT-III	**Infections in ICU** • Ventilator Associated Pneumonia (VAP) • Prevention of infection in ICU	**3**
UNIT-IV	**Acid-Base Disorders and Fluid Balance** • ABG analysis, Normal ABG value • Arterial cannulation • Crystalloid and colloids: Differences, indications • Monitoring drip rate • Fluid balance: Intake/output chart	**4**
UNIT-V	**Common Drugs Used in ICU** • Inotropic support • Vasodilator drugs • Vasopressor • Antiarrhythmic drugs • Bronchodilators • Sedatives & Hypnotics • Anticoagulant drugs • Anticonvulsants • Neuromuscular blockers	**4**
UNIT-VI	**Trauma** • Head Injury, Glasgow coma score (GCS) • Fluid Resuscitation in Trauma • Polytrauma	**3**
UNIT-VII	**Blood Transfusion** • Blood Grouping and cross matching • Whole blood, packed RBC • Blood components and indications • Technique of blood transfusion • Complication of Blood Transfusion • Anaphylactic reaction	**4**
UNIT-VIII	**ICU Ventilators** • Basic respiratory parameters • Basic ventilators settings and modes • Monitoring and alarms • Weaning process • Complications of ventilator • Care of patient on ventilator • Suctioning of ETT / Tracheotomy tube • NIV: CPAP, BIPAP • Handling and disinfection of ventilators • Tracheotomy – Indications, Technique, care • DecannulationProcedure	**4**

UNIT-IX	**Nutrition ICU Patient** • NG tube insertion • Parenteral Nutrition • Types, Techniques, complications • Enteral Nutrition	**4**
UNIT-X	**Cardiopulmonary Resuscitation** • Causes of cardiac arrest andtypes • Basic life support outsidehospital • Triple Airway Maneuver • AMBU Bag • BLS Protocol for adult / children • BLS Protocol for infants • Chest compression technique • Use of AED / Defibrillator • Drugs used in Cardiac Arrest	**4**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-2402. 1	Perform resuscitation and management of the acutely ill adult and pediatric patients
MOTAT-2402. 2	Understand functions and safe application of medical devices in the area.
MOTAT-2402. 3	Perform basic life support (BLS) and advanced cardiac life support (ACLS)
MOTAT-2402. 4	Independently evaluate and apply hygienic and aseptic technique for safe care in the intensive care unit/post-operative unit.

Suggested Readings:

1. Marino's The ICU Book: eBook with Updates (ICU Book (Marino))
2. Textbook of Neonatal Resuscitation (NRP)
3. Critical Care Nursing Made Incredibly Easy (Incredibly Easy Series)
4. Adult CCRN Exam (With 3 Practice Tests (Barron's Test Prep))
5. Advanced Cardiovascular Life Support (ACLS) Provider Manual

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.
Part A shall consist of 12 MCQ's of 1Marks each
Part B shall consist of 6 short Questions of 4 Marks each out of which 3 Questions shall have internal choice
Part C shall consists of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: ANAESTHESIA FOR SPECIALITY SURGERIES & SITUATIONS (Practical)
SUBJECT CODE: MOTAT-2403
SEMESTER: 4
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
		4	2

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students become familiar with main common coexisting diseases, anesthesia methods in children, pregnant women and the elderly, and the necessary instruments and equipment. They also learn about the measures and arrangements necessary for patient care in different stages of general anesthesia (i.e., before, during and after anesthesia) and local anesthesia, especially in the event of possible complications.

Sr. No.	Contents	Contact Hours
	• Glasgow coma scale • Special investigation- CT, Angiography and MRI • Anaesthesia Techniques for Neuro surgeries • Reinforced Endotracheal tubes • Positioning in neuro surgery • Resuscitation of the new born, APGAR score • Preparation for emergency LSCS • Emergencies • Manual removal of placenta • Check list for pediatric Anaesthesia • Premedication- modes, drugs, doses • Pediatric circuit • Pain management • Nausea & Vomiting • Sore throat, Laryngeal granuloma • Neurological complications, Awareness • Vascular complications • Trauma to teeth • Headache, Backache	30

	• Ocular complications • Auditory complications	

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-2403. 1	Know anesthetic implications in different medical conditions
MOTAT-2403. 2	Assist in anesthetic management of different surgical procedures
MOTAT-2403. 3	Understand the anesthetic implications in Obstetrics Gynecological and Pediatric Surgeries
MOTAT-2403. 4	Learn special considerations and postoperative care in thoracic surgeries

SUBJECT TITLE: BASIC INTENSIVE CARE (Practical)
SUBJECT CODE: MOTAT-2404
SEMESTER: 4
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
		4	2

Internal Assessment: 40
End Term Exam: 60
Duration of Exam: 3 Hrs

Course Objective: Students become familiar with the organization, standards, rules, and management method of an ICU. They also learn about the use and maintenance of equipment and instruments, methods of diagnosis and treatment, rehabilitation and respiratory care, infection control, and the way to take care of critically ill patients suffering from the disorders of different body systems and needing special attention.

Sr. No.	Contents	Contact Hours
	• Clinical Monitoring • Central Venous access • ECG monitoring • NIBP – Cuff sizes and application • Multi-parameter monitor- Normal values • PCT, Surgical Tracheostomy • ICD • USG • Invasive hemodynamic monitoring, Cardiac Output	30

	• Care of unconscious patient • Syringe pump / Infusion Pump uses, infusion rate • Vascular lines - arterial, venous line • Radiography / USG • Physiotherapy - chest physiotherapy • Oxygen Therapy: Sources of oxygen, Oxygen Delivery devices • Oxygen Toxicity, Monitoring Hypoxia • Ventilator Associated Pneumonia (VAP) • Prevention of infection in ICU • ABG analysis, Normal ABG value • Arterial cannulation • Crystalloid and colloids: Differences, indications • Monitoring drip rate • Fluid balance: Intake/output chart • Causes of cardiac arrest andtypes • Basic life support outsidehospital • Triple Airway Maneuver • AMBU Bag • BLS Protocol for adult / children • BLS Protocol for infants • Chest compression technique • Use of AED / Defibrillator • Drugs used in Cardiac Arrest	

On successful completion of this course, the learner will be able to

MOTAT-2404. 1	Perform resuscitation and management of the acutely ill adult and pediatric patients
MOTAT-2404. 2	Understand functions and safe application of medical devices in the area.
MOTAT-2404. 3	Perform basic life support (BLS) and advanced cardiac life support (ACLS)
MOTAT-2404. 4	Independently evaluate and apply hygienic and aseptic technique for safe care in the intensive care unit/post-operative unit.

SUBJECT TITLE: RESEARCH PROJECT
SUBJECT CODE: MOTAT-2405
SEMESTER: 4
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
4	1		5

Internal Assessment: ---
End Term Exam: 300
Duration of Exam: ---

Course objective: The research project is to be carried out over a period of approximately 6 months and will be carried out in the hospitals, subject to approval by all concerned. Each student will select research project with their respective supervisors. The projects will be selected such that a student can reasonably be expected to make an original contribution to the chosen area of research within the time period allotted. The purpose of the project is to provide the student with training in academic research and acquisition of practical skills, including the design of a research project, planning of experiments, dealing with practical problems, recording of, presenting and analyzing data.

Sr. No.	Guidelines	Contact Hours
UNIT-I	Research Project Proposal Development is an independent tutorial conducted by the student's advisor, and involves a comprehensive literature survey of the chosen research area. Through regular meetings, the student and advisor discuss this literature in detail and the topic for research project will be finalized in the third semester.	25
UNIT-II	Research Project: Each student must submit to the university with the signed approval of the advisor, a research project proposal defining the research project, the	25

	methods and design of the experiments needed for completion, the progress to date and plans for completion in the third semester.	
UNIT-III	Research Project preparation: This is involving preparation of the research project. The research project must include a cover page, abstract, table of contents, introduction of the thesis topic with a comprehensive review of literature, appropriately organized methods, results and discussion section for the experiment performed and final conclusions section summarizing the outcome of the project. The student should submit a draft of the research project to the advisor by the end of the fourth semester.	**25**

Course Outcomes:

On successful completion of this course, the learner will be able to

MOTAT-2405. 1	Identify and discuss the role and importance of research in Medical science.
MOTAT-2405. 2	Identify and discuss the issues and concepts salient to the research process.
MOTAT-2405. 3	Identify and discuss the complex issues inherent in selecting a research problem, selecting an appropriate research design, and implementing a research project.
MOTAT-2405. 4	Identify and discuss the concepts and procedures of sampling, data collection, analysis and reporting.