



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 2019-2020)**

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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	40	1000	30
2	II	40	1000	30
3	III	24	600	20
4	IV	18	600	16
	TOTAL	122	3200	96

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)
Category	Code	Title	L	T	P		CW	AL	WAM	TE	ETE	Total
	MOTAT-1101	Anatomy and physiology	3	1		4	16	---	24	60	100	
	MOTAT-1102	Anaesthetic Drugs	3	1		4	16	---	24	60	100	
	MOTAT-1103	Microbiology, Terminology, Pathology	3	1		4	16	---	24	60	100	
	MOTAT-1104	Biochemistry	3	1		4	16	---	24	60	100	
	MOTAT-1105	Operation Theatre Techniques	3	1		4	16	---	24	60	100	
	MOTAT-1106	Anatomy and physiology (Practical)			4	2	---	40		60	100	
	MOTAT-1107	Anaesthetic Drugs (Practical)			4	2	----	40		60	100	
	MOTAT-1108	Microbiology, Terminology, Pathology (Practical)			4	2	----	40		60	100	
	MOTAT-1109	Biochemistry (Practical)			4	2	----	40		60	100	
	MOTAT-1110	Operation Theatre Techniques (Practical)			4	2	----	40		60	100	
Total			15	5	20	30	80	200	120	600	1000	

M.Sc. OTAT- 2nd SEMESTER

Subject			Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
Category	Code	Title	L	T	P		CW A	LW	MT	ET	Total	
	MOTAT-1201	Anatomy and physiology	3	1		4	16	---	24	60	100	
	MOTAT-1202	Anesthesia drugs	3	1		4	16	---	24	60	100	
	MOTAT-1203	Biochemistry	3	1		4	16	---	24	60	100	
	MOTAT-1204	Microbiology, Terminology, Pathology	3	1		4	16	---	24	60	100	
	MOTAT-1205	Theatre Techniques	3	1		4	16	---	24	60	100	
	MOTAT-1206	Anatomy and Physiology (Practical)			4	2	---	40		60	100	
	MOTAT-1207	Anesthesia Drugs (Practical)			4	2		40		60	100	
	MOTAT-1208	Biochemistry			4	2		40		60	100	
	MOTAT-1209	Microbiology, Terminology, Pathology			4	2		40		60	100	
	MOTAT-1210	Theatre Techniques (Practical)			4	2	----	40		60	100	
Total			15	5	20	30	80	200	120	600	1000	

M.Sc. OTAT- 3rd SEMESTER

Subject			Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
Co de	Code	Title	L	T	P		CWA	LWA	MTE	ETE	Total	
	MOTAT-2301	Surgical Procedures	4	1		5	16	---	24	60	100	
	MOTAT-2302	Surgical Instruments	4	1		5	16	---	24	60	100	
	MOTAT-2303	Anatomy and Physiology	4	1		5	16	---	24	60	100	
	MOTAT-2304	Pharmacology of Anesthesia Drugs	4	1		5	16	---	24	60	100	
	MOTAT-2305	Surgical Instruments (practical)			4	2		40		60	100	
	MOTAT-2306	Surgical Procedures (Practical)			4	2	---	40		60	100	
Total			12	4	8	20	64	80	96	360	600	

M.Sc. OTAT- 4th SEMESTER

Subject			Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
Category	Code	Title	L	T	P		CWA	LW	MT	ETE	Total	
	Program Elective-I		3	1		4	16	---	24	60	100	
	MOTAT-2402	Basic Intensive care	4	1		5	16	---	24	60	100	
	MOTAT-2403	Basic Intensive care (Practical)			4	2		40		60	100	
	MOTAT-2404	Research Project/Thesis	4	1		5		---		300	300	
Total			11	3	4	16	32	40	48	480	600	

	Course Code	Course Title
Program Elective-I	MOTAT 2401	Research methodology, Biostatistics and Hospital Management
	MOTAT-2405	Human Values and Professional Ethics

1ST SEMESTER

SUBJECT TITLE: ANATOMY AND PHYSIOLOGY
SUBJECT CODE: MOTAT-1101
SEMESTER: 1
CONTACT HOURS/WEEK:

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

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 <ul style="list-style-type: none"> Human body- Overview & Organization, Anatomical terminology. 	2
UNIT-II	Skeletal Muscles <ul style="list-style-type: none"> Major skeletal muscles of the Head, Neck, Thorax, Abdomen & upper and lower limbs. 	5
UNIT-III	Upper Limb <ul style="list-style-type: none"> Regional and surface anatomy of the shoulder, axilla, and upper limb 	3
UNIT-IV	Lower Limb <ul style="list-style-type: none"> Regional & surface anatomy of the hip, thigh, legs 	3
UNIT-V	Thorax Anatomy <ul style="list-style-type: none"> Regional & surface anatomy of Inter-costal space, Pleura, Bony thoracic cage, Rib, Sternum 	5
UNIT-VI	Respiratory system <ul style="list-style-type: none"> Regional & surface anatomy of Nose, Pharynx, Larynx, Trachea, Lungs Bronchial tree 	6
UNIT-VII	Heart <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Regional & surface anatomy of Esophagus, Stomach, Small Intestine, Large Intestine, Spleen, Liver, Gall Bladder, Pancreas 	6

UNIT-IX	Central Nervous System <ul style="list-style-type: none"> Regional & surface anatomy of Spinal Cord, Meningeal Covering Regional & surface anatomy of brain 	4
UNIT-X	Sensory Organs <ul style="list-style-type: none"> Regional & surface anatomy of Eyes, Ear, Tongue, Nose 	6
UNIT-XI	Urinary System <ul style="list-style-type: none"> Regional & surface anatomy of Kidney, Ureters, Urinary bladder, Urethra 	3
UNIT-XII	Male Reproductive System <ul style="list-style-type: none"> Anatomy of the scrotum, Prostate gland, penis & testis, Epididymis, Ducts deferens, Inguinal canal, Seminal vesicles, Bulb, urethral gland 	6
UNIT-XIII	Female Reproductive System <ul style="list-style-type: none"> 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 1 Marks 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: ANESTHETIC DRUGS

SUBJECT CODE: MOTAT-1102

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 prepare instruments and supplies necessary for the continual function of the operating room and multifunction disciplines in the hospital and specialty settings. The student will learn effective communication skills with members of the healthcare team and develop a basic understanding of the disease process

Sr. No.	Contents	Contact Hours
UNIT-I	Medical Gas Supply <ul style="list-style-type: none"> Compressed gas Cylinders Colour coding Cylinders and Cylinder valves Cylinder storage Diameter index safety system Medical gas pipeline system and station outlets Air compressors Oxygen concentrators Alarms and safety devices 	5
UNIT-II	<ul style="list-style-type: none"> Gas Administration Devices Simple oxygen administration devices Methods of controlling gas flow Reducing valves Flow meters Regulators 	6

	<ul style="list-style-type: none"> Flow restrictors 	
UNIT-III	<ul style="list-style-type: none"> Oxygen Therapy Definition Causes and responses to hypoxemia Clinical signs of hypoxemia Goals of oxygen therapy Evaluation of patients receiving oxygen therapy Hazards of oxygen therap 	6
UNIT-IV	<ul style="list-style-type: none"> Anaesthesia Machine Hanger and yoke system Cylinder pressure gauge, pin index Pressure regulator Flow meter assembly Vaporizers – Types, hazards, maintenance, filling and draining 	5
UNIT-V	<ul style="list-style-type: none"> Breathing System General considerations Classification and breathing system Mapleson system Jackson Rees system of Bain circuit Non breathing valves – Ambu valves 	5
UNIT-VI	Gas Analyzers Pulse Oximeter CO₂ Monitor Pulse oximeters <ul style="list-style-type: none"> Capnographs 	4
UNIT-VII	Manual Resuscitators Types of resuscitator bags <ul style="list-style-type: none"> Methods of increasing oxygen delivery capabilities while using oxygen with resuscitator bags. 	5
UNIT-III	Artificial air ways (oral and Nasal endotracheal tubes, Tracheostomy tubes <ul style="list-style-type: none"> Parts of airway and features Types, sizes and methods of insertion Indications for use Care of long-term airways and complications Protocol for tracheostomy decannulation 	7

	<ul style="list-style-type: none"> • Face masks – Types, sizes and its usage 	
UNIT-III	Methods of Cleaning and Sterilization of Anesthetic Equipments	5
UNIT-IX	Minimum Standards for Anesthesia <ul style="list-style-type: none"> • Patient assessment and preparation • Ten golden rules of anesthesia • Checking the drugs and equipment • Keeping the airway clear • Be ready to control ventilation • Monitor pulse and BP 	6

Course Outcomes:

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

MOTAT-1102.1	Demonstrate ability to prepare and maintain Operation Theatre
MOTAT-1102.2	Demonstrate ability to maintain equipment support in an acute care environment
MOTAT-1102.3	Identify and inspire to maintain a sterile field
MOTAT-1102.4	Manage hazardous waste and follow biomedical waste disposal protocols

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

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: MICROBIOLOGY TERMINOLOGY AND PATHOLOGY
SUBJECT CODE: MOTAT-1103
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

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 <ul style="list-style-type: none"> Cellular adaptation Cell injury & cell death Cellular response to stress and noxious stimuli Reversible and irreversible cell injury 	6
UNIT-II	Blood <ul style="list-style-type: none"> Blood Groups Blood Transfusion Blood components BT, CT Transfusion Reactions 	6
UNIT-III	Infectious diseases General principles of microbial pathogenesis <ul style="list-style-type: none"> 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	8

	Cover PPE (Personal Protective Equipment-list) Universal Precautions-indications	
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-1103. 1	Know various Culture media and their applications and also understand various physical and chemical means of sterilization
MOTAT-1103. 2	Master aseptic techniques and be able to perform routine culture handling tasks safely and effectively
MOTAT-1103. 3	Recognizes the need to read a whole pathology report, including comments, when ascertaining the significance of the result.
MOTAT-1103. 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 by Olivia 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 1 Marks 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 consist of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: BIOCHEMISTRY
SUBJECT 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 Hr

COURSE OBJECTIVE: In the present scenario study of Biochemistry is highly relevant, biochemistry students can aspire for bigger roles in industry as well as academia. Some of its scope in medical sciences

Sr. No.	Contents	Contact Hours
UNIT-I	Important definitions & scope of biochemistry	2
UNIT-II	Biomolecules <i>Brief description & importance of various biomolecules:</i> Carbohydrates, Proteins, Lipids, Nucleic Acid, Enzyme: <i>Electrolytes:</i> Source, function & deficiency symptoms of Sodium, Potassium, Calcium, phosphorus, Iron, Zinc & Chloride in human body.	12
UNIT-III	Analytical Chemistry <i>Normal Values & Interpretations:</i> <i>Electrolytes:</i> Sodium, Potassium, Calcium, Iron, Chloride <i>Renal Function Test:</i> Urea, Creatinine, Uric Acid, Glucose <i>Urine Analysis:</i> Composition, Colour, Volume, pH, Specific Gravity, Turbidity <i>Liver Function Test:</i> SGOT, SGPT, Bilirubin, Albumin, Globulin & Alkaline Phosphatase <i>Carbohydrates:</i> Fasting, Random, GTT <i>Lipid Profile:</i> Cholesterol, Triglycerides, HDL, LDL, VLD	12
UNIT-IV	Acids & Bases Acid & Base, pH, Buffer Solutions	5
UNIT-V	Common Laboratory Apparatus & Instruments <i>General description & uses of common Laboratory</i>	10

	<i>apparatus:</i> Pipettes- Burettes, Beakers, Petri dishes, Depression plates, Flasks, Funnels Bottles, Measuring cylinders, Porcelain dish, Test tubes, Centrifuge tubes, <i>Working & uses of:</i> Spectrophotometer, Water bath, Centrifuges, Analytical Balances, pH meter, Colorimeter.	
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Course Outcomes:

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

MOTAT-1104.1	Understand biochemistry at the atomic level, draw molecules and reaction mechanisms perfectly.
MOTAT-1104.2	Understand in detail about amino acid structures, types of amino acids, classifications, structure of proteins and types of proteins.
MOTAT-1104.3	Learn the molecular structures of 20 amino acids, differentiating essential and non-essential amino acids, biologically important modified amino acids and their functions.
MOTAT-1104.4	Learn how amino acids and proteins are metabolized, emphasizing the role of few intermediates of their metabolism, monitoring the deficiency and abundance disorders of amino acid metabolisms and the role of enzymes in the regulation of the pathways

Suggested Readings:

- Biochemistry by Mary K. Campbell, Shawn O. Farrell
- Biochemistry Illustrated: Biochemistry and Molecular Biology in the Post-Genomic Era
- 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 1 Marks 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 consist of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: OPERATION THEATRE TECHNIQUES
SUBJECT 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: Provide safe and quality patient care by incorporating technical and critical thinking and clinical reasoning in assisting the anesthesia provider with patients of all types, ages, and physical conditions for a variety of surgical and medical related procedures. Assist the anesthesia provider in a variety of current anesthesia techniques and use of equipment for providing anesthesia.

Sr. No.	Contents	Contact Hours
UNIT-I	<ul style="list-style-type: none"> Study the indications, instruments, technique, precautions & complications of various method of anesthesia & the anaesthetic agents in details 	5
UNIT-II	<ul style="list-style-type: none"> General Anaesthesia Short review about stages of anaesthesia Old G/A Sp. Ether Anaesthesia (old anaesthesia technique) Modern Anaesthesia Balanced G/A Induced hypotensive GA Induced Hypothermic GA 	12
UNIT-III	<ul style="list-style-type: none"> Local anesthesia Regional anesthesia 	8
UNIT-IV	<ul style="list-style-type: none"> Bier's block N. blocks Field block Topical Surface Tumicent Anaesthesia (Liposuction) Hypotensive indural Hypothermic indural 	10
UNIT-V	<ul style="list-style-type: none"> General principles- Pharmacological classification of drugs, route of administration, precautions in administration, drug 	15

	<p>toxicity, adverse drug reaction.</p> <ul style="list-style-type: none"> • Inhalational agents: General principles and individual agents. • Pre-anaesthetic medication. • Gases used in Anaesthesia- Sedatives and hypnotics, barbiturates. • Intravenous Anaesthetics. • Muscle relaxants. • Difficult Airway, LMA, • Post Operative care after anesthesia. • Complication of various types of anesthesia • Tracheal Intubation – Oral / Nasotracheal /LMA • Malignant Hyperpyrexia & its management resuscitation. 	
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Course Outcomes:

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

MOTAT-1105.1	To knowledge about general Anaesthesia, indication and complications during use.
MOTAT-1105.2	To know about management of patients throughout General Anaesthesia.
MOTAT-1105.3	To knowledge about general Anesthesia, indication and complications during use.
MOTAT-1105.4	To know about management of patients throughout General Anaesthesia.

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 AND PHYSIOLOGY (Practical)
SUBJECT 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
	<ul style="list-style-type: none"> 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 	30

	<ul style="list-style-type: none"> • 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 	
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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: ANAESTHETIC DRUGS (Practical)
SUBJECT 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: The student will be able prepare instruments and supplies necessary for the continual function of the operating room and multifunction disciplines in the hospital and specialty settings. The student will learn effective communication skills with members of the healthcare team and develop a basic understanding of the disease process

Sr. No.	Contents	Contact Hours
UNIT-I	Medical Gas Supply <ul style="list-style-type: none"> Compressed gas Cylinders Colour coding Cylinders and Cylinder valves Cylinder storage Diameter index safety system Medical gas pipeline system and station outlets Air compressors Oxygen concentrators Alarms and safety devices Parts of airway and features Types, sizes and methods of insertion Indications for use Care of long-term airways and complications Protocol for tracheostomy decannulation Face masks – Types, sizes and its usage Patient assessment and preparation Ten golden rules of anesthesia Checking the drugs and equipment Keeping the airway clear Be ready to control ventilation Monitor pulse and BP 	30

Course Outcomes:

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

MOTAT-1107.1	Understand the preoperative evaluation, premedication and different Anaesthesia techniques, in general
MOTAT-1107.2	Understand intraoperative fluid management and pain management
MOTAT-1107.3	Operate the monitoring devices and record the vital signs
MOTAT-1107.4	Explain technique of general anaesthesia and regional anaesthesia

SUBJECT TITLE: MICROBIOLOGY TERMINOLOGY PATHOLOGY (Practical)
SUBJECT 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
	<ul style="list-style-type: none"> 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	Demonstrate theory and practical skills in microscopy and their handling techniques and staining procedures
MOTAT-1108. 2	Understand the basic microbial structure and function and study the comparative characteristics of prokaryotes and eukaryotes and also Understand the structural similarities and differences among various physiological groups of bacteria/archaea

MOTAT-1108. 3	Demonstrates understanding of legal and practical framework in handling human tissue and embryos
MOTAT-1108. 4	Understands the importance of sample labelling and how incorrect labelling may contribute to diagnostic errors.

SUBJECT TITLE: BIOCHEMISTRY (Practical)
SUBJECT CODE: MOTAT-1109
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: In the present scenario study of Biochemistry is highly relevant, biochemistry students can aspire for bigger roles in industry as well as academia. Some of its scope in medical sciences

Sr. No.	Contents	Contact Hours
	Bio-molecules <i>Brief description & importance of various bio-molecules:</i> Carbohydrates, Proteins, Lipids, Nucleic Acid, Enzyme: <i>Electrolytes:</i> Source, function & deficiency symptoms of Sodium, Potassium, Calcium, phosphorus, Iron, Zinc & Chloride in human body. Normal Values & Interpretations: <i>Electrolytes:</i> Sodium, Potassium, Calcium, Iron, Chloride <i>Renal Function Test:</i> Urea, Creatinine, Uric Acid, Glucose <i>Urine Analysis:</i> Composition, Colour, Volume, pH, Specific Gravity, Turbidity <i>Liver Function Test:</i> SGOT, SGPT, Bilirubin, Albumin, Globulin & Alkaline Phosphatase <i>Carbohydrates:</i> Fasting, Random, GTT <i>Lipid Profile:</i> Cholesterol, Triglycerides, HDL, LDL, VLD	30

	Common Laboratory Apparatus & Instruments <i>General description & uses of common Laboratory apparatus:</i> Pipettes- Burettes, Beakers, Petri dishes, Depression plates, Flasks, Funnels Bottles, Measuring cylinders, Porcelain dish, Test tubes, Centrifuge tubes, <i>Working &uses of:</i> Spectrophotometer, Water bath, Centrifuges, Analytical Balances, pH meter, Colorimeter	
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Course Outcomes:

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

MOTAT-1109.1	Understand biochemistry at the atomic level, draw molecules and reaction mechanisms perfectly.
MOTAT-1109.2	Understand in detail about amino acid structures, types of amino acids, classifications, structure of proteins and types of proteins.
MOTAT-1109.3	Learn the molecular structures of 20 amino acids, differentiating essential and non-essential amino acids, biologically important modified amino acids and their functions.
MOTAT-1109.4	Learn how amino acids and proteins are metabolized, emphasizing the role of few intermediates of their metabolism, monitoring the deficiency and abundance disorders of amino acid metabolisms and the role of enzymes in the regulation of the pathways

Suggested Readings:

- Biochemistry by Mary K. Campbell, Shawn O. Farrell
- Biochemistry Illustrated: Biochemistry and Molecular Biology in the Post-Genomic Era
- 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: OPERATION THEATRE TECHNIQUES
SUBJECT CODE: MOTAT-1110
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: Provide safe and quality patient care by incorporating technical and critical thinking and clinical reasoning in assisting the anesthesia provider with patients of all types, ages, and physical conditions for a variety of surgical and medical related procedures. Assist the anesthesia provider in a variety of current anesthesia techniques and use of equipment for providing anesthesia.

Sr. No.	Contents	Contact Hours
	<ul style="list-style-type: none"> • Bier's block • N. blocks • Field block • Topical • Surface • Tumicent Anaesthesia (Liposuction) • Hypotensive indural • Hypothermic indural • General principles- Pharmacological classification of drugs, route of administration, precautions in administration, drug toxicity, adverse drug reaction. • Inhalational agents: General principles and individual agents. • Pre-anaesthetic medication. • Gases used in Anaesthesia- Sedatives and hypnotics, barbiturates. • Intravenous Anaesthetics. • Muscle relaxants. • Difficult Airway, LMA, • Post Operative care after anesthesia. • Complication of various types of anesthesia • Tracheal Intubation – Oral / Nasotracheal /LMA • Malignant Hyperpyrexia & its management resuscitation 	30

Course Outcomes:

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

MOTAT-1110.1	To knowledge about general Anaesthesia, indication and complications during use.
MOTAT-1110.2	To know about management of patients throughout General Anaesthesia.
MOTAT-1110.3	To knowledge about general Anesthesia, indication and complications during use.
MOTAT-1110.4	To know about management of patients throughout General Anaesthesia.

2ND SEMESTER

SUBJECT TITLE: ANATOMY AND PHYSIOLOGY

SUBJECT 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 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

SECTION I: ANATOMY:

Sr. No.	Contents	Contact Hours
UNIT-I	<ul style="list-style-type: none"> Respiratory system Organs of Respiratory System. Brief knowledge of parts and position <i>Conducting portion:</i> Nose, nasal cavity, Para nasal air sinuses, Larynx, trachea, bronchial tree <i>Respiratory portion:</i> Pleura and lungs 	6
UNIT-II	<ul style="list-style-type: none"> Digestive system Components of Digestive system, Anatomy of organs of digestive system, mouth, tongue, teeth, salivary glands, liver, biliary apparatus, pancreas. 	6
UNIT-III	<ul style="list-style-type: none"> Excretory system <i>Kidneys:</i> location, gross structure, excretory ducts, ureters, Urinary bladder, Urethra 	6
UNIT-IV	<ul style="list-style-type: none"> Reproductive system <i>Male Reproductive System:</i> Testis, Duct system. <i>Female Reproductive System:</i> Ovaries, Duct system 	4
UNIT-V	<ul style="list-style-type: none"> Circulatory system: <i>Heart:</i> size, location, coverings, chambers, blood supply, the blood vessels. General plan of circulation, pulmonary circulation. Names of arteries and veins and their positions 	6
UNIT-VI	<ul style="list-style-type: none"> Endocrine system <i>Endocrine glands:</i> Positions, Hormones secreted and their functions- Pituitary, Thyroid parathyroid, Adrenal glands, Gonads & Islets of pancreas 	5

SECTION II: PHYSIOLOGY

Sr. No.	Contents	Contact Hours
UNIT-I	Excretory system Structure of nephron, Mechanism of urine formation	2
UNIT-II	Central Nervous System motor neuron system, Lower motor neuron system Sensory Nervous system, Sympathetic Nervous system, Parasympathetic nervous system	6
UNIT-III	Muscular System Classification of muscles & their functions	6
UNIT-IV	Special Senses Eye & ear (in brief)	5
UNIT-V	Endocrinology List of endocrine glands, Hormones -their secretion and functions (in brief)	5

Course Outcomes:

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

MOTAT-1201.1	Understand the basic fundamentals structural features of neurons, mechanism of neurotransmitters along with processes of Neuro-conduction and neurotransmission.
MOTAT-1201.2	Clarify the anatomy and physiology of various sense organs involved in body homeostasis
MOTAT-1201.3	Understand the organs and mechanism involve in respiration along with disorders of respiratory system
MOTAT-1201.4	Understand the essential organs of urinary systems and process of urine formation

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: ANAESTHESIA DRUGS

SUBJECT CODE: MOTAT- 1202

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 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Induction Intubation Maintenance Reversal Recovery / Emergence 	3
UNIT-III	Premedication <ul style="list-style-type: none"> Different drugs used for Premedication their doses, effects and side effects 	3
UNIT-IV	I.V. Induction agent/ Inhalational Anesthetic agents <ul style="list-style-type: none"> I.V. Induction agent their doses, indication, contra indication and management Properties of Inhalational anaesthetic agents, their 	2

	role in GA <ul style="list-style-type: none"> Different volatile anaesthetic agents: Advantages and disadvantages 	
UNIT-V	Neuromuscular Blockers <ul style="list-style-type: none"> Types of drugs used for Neuromuscular blocks their doses, indication and contra indications, complications 	2
UNIT-VI	Reversal Agents <ul style="list-style-type: none"> Drugs used for Reversal Agents: their doses, indication and contra indication 	3
UNIT-VII	Steroids <ul style="list-style-type: none"> Role of steroids in periop period their doses, indication and contra indication 	3
UNIT-VIII	Analgesics <ul style="list-style-type: none"> Drugs used as Analgesics: their doses, indication and contraindication Opioids / Non-opioids Analgesics Infusions, PCA 	3
UNIT-IX	Emergency Drugs <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Types, parts, sizes of ETT Specialized ETT and uses Oropharyngeal / Nasopharyngeal airways: Sizes, colour coding, insertion techniques Airways Adjuvants Stylette, GEB, Lighted wand Supraglottic Airway Devices (SADs) Difficult intubation trolley Tracheostomy, Decannulation protocol 	3
UNIT-XI	Suction Catheters <ul style="list-style-type: none"> Suction Catheters – types, sizes, colour coding, techniques of suction Suction pressure 	3
UNIT-XII	Laryngoscope <ul style="list-style-type: none"> Laryngoscope – Types, Size of blades Fiberoptic intubation / video laryngoscopy Laryngoscopic view of larynx 	3

UNIT-XIII	Spinal and Epidural needle <ul style="list-style-type: none"> • Spinal and Epidural needle – sizes, colour coding, features, differences • Epidural Catheters 	4
UNIT-XIV	Asepsis in OT <ul style="list-style-type: none"> • 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: BIOCHEMISTRY
SUBJECT CODE: MOTAT-1203
SEMESTER: 2
CONTACT HOURS/WEEK:

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

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 <ul style="list-style-type: none"> • Scrubbing Technique • Gowning Technique • Gloving techniques 	2
UNIT-II	Surgical terminology and Incision <ul style="list-style-type: none"> • Surgical terminology • Types of incision • Indications for the use of particular incision 	3
UNIT-III	Haemorrhage <ul style="list-style-type: none"> • Signs and symptoms of internal and external haemorrhage • Classification of haemorrhage • Management of haemorrhage 	4
UNIT-IV	Tourniquets <ul style="list-style-type: none"> • Types of tourniquets • Uses of tourniquet • Duration of tourniquet application- Pneumatic tourniquet, application • Complication of tourniquet application 	4

UNIT-V	Wounds and Abscess <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Skin preparation for invasive procedures • Surgical asepsis 	5
UNIT-VII	Surgical Instruments <ul style="list-style-type: none"> • Classification of surgical instruments and their uses 	5
UNIT-VIII	Suture Material <ul style="list-style-type: none"> • 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	Understand biochemistry at the atomic level, draw molecules and reaction mechanisms perfectly.
MOTAT-1203. 2	Understand in detail about amino acid structures, types of amino acids, classifications, structure of proteins and types of proteins.
MOTAT-1203. 3	Learn the molecular structures of 20 amino acids, differentiating essential and non-essential amino acids, biologically important modified amino acids and their functions.
MOTAT-1203. 4	Learn how amino acids and proteins are metabolized, emphasizing the role of few intermediates of their metabolism, monitoring the deficiency and abundance disorders of amino acid metabolisms and the role of enzymes in the regulation of the pathways

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 1 Marks 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 consist of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: MICROBIOLOGY TERMINOLOGY PATHOLOGY-II

SUBJECT CODE: MOTAT-1204

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: Microbiology: Microbiology is the fundamental course to learn about the evolution of the microorganisms and their relation shop with the ecosystem. The course helps students learn about various agents of diseases caused by a microorganism.

Pathology: Develop competency in techniques of pathology branches like haematology, clinical pathology, blood bank, histopathology and cytology. Acquire knowledge and understand the formation of blood cells, structure, functions and methods of estimating different parameters

Sr. No.	Contents	Contact Hours
UNIT-I	<ul style="list-style-type: none"> Origin and Evolution of Microbiology Introduction, History & scope of Microbiology General characteristics of Microorganisms: Bacteria, viruses, fungi. 	2
UNIT-II	<ul style="list-style-type: none"> Study of Common Lab Instruments Microscope: Types, principles & uses Autoclave, Hot air oven, Incubator, Laminar air flow, Colony counter: Principles & uses 	5

UNIT-III	<ul style="list-style-type: none"> • Morphology of Bacteria & Viruses • <i>Bacterial anatomy:</i> Cell wall, Cell membrane, Capsule, Flagella, Nucleoid, Bacterial Spore. • Structure of viruses, Concepts of replication & cultivation • Study of bacteria: Preparation of Stains, various Staining techniques (Simple staining, Gram staining, Acid-fast staining, Negative staining & Albert staining). 	4
UNIT-IV	<ul style="list-style-type: none"> • Growth & Nutrition of bacteria: • Culture media and Culture methods • <i>Bacterial Growth:</i> Growth Curve, Generation Time, Environmental factors affecting growth. • Bacterial nutrition: Nutritional groups, Common Nutritional requirements 	6
UNIT-V	<ul style="list-style-type: none"> • Control of Microbial Growth • Sterilization and disinfection 	7
UNIT-VI	<ul style="list-style-type: none"> • Immunity & Infection • <i>Immunity:</i> Types of immunity, Antigens & Antibodies, Prophylactic Immunization • <i>Infection:</i> Types, Various routes & modes of transmission, Nosocomial Infections 	5
UNIT-VII	<ul style="list-style-type: none"> • Biomedical Waste & Management • Waste categories, Waste treatment & disposal 	5
UNIT-VIII	<ul style="list-style-type: none"> • Origin and Evolution of Microbiology • Introduction, History & scope of Microbiology • General characteristics of Microorganisms: Bacteria, viruses, fungi. 	10

Course Outcomes:

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

MOTAT-1204.1	Demonstrate theory and practical skills in microscopy and their handling techniques and staining procedures
MOTAT-1204.2	Understand the basic microbial structure and function and study the comparative characteristics of prokaryotes and eukaryotes and also Understand the structural similarities and differences among various physiological groups of bacteria/archaea
MOTAT-1204.3	Demonstrates understanding of legal and practical framework in handling human tissue and embryos
MOTAT-1204.4	Understands the importance of sample labelling and how incorrect labelling may contribute to diagnostic errors.

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

Instructions of Question Paper Setter: The Question Paper should be divided into three parts.

Part A shall consist of 12 MCQ's of 1 Marks 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: THEATRE TECHNIQUES

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: Provide safe and quality patient care by incorporating technical and critical thinking and clinical reasoning in assisting the anesthesia provider with patients of all types, ages, and physical conditions for a variety of surgical and medical related procedures. Assist the anesthesia provider in a variety of current anesthesia techniques and use of equipment for providing anesthesia.

Sr. No.	Contents	Contact Hours
UNIT-I	<ul style="list-style-type: none"> Study the indications, instruments, technique, precautions & complications of various method of anesthesia & the anaesthetic agents in details 	5
UNIT-II	<ul style="list-style-type: none"> General Anaesthesia Short review about stages of anaesthesia Old G/A Sp. Ether Anaesthesia (old anaesthesia technique) Modern Anaesthesia Balanced G/A Induced hypotensive GA 	12

	<ul style="list-style-type: none"> Induced Hypothermic GA 	
UNIT-III	<ul style="list-style-type: none"> Local anesthesia Regional anesthesia 	8
UNIT-IV	<ul style="list-style-type: none"> Bier's block N. blocks Field block Topical Surface Tumicent Anaesthesia (Liposuction) Hypotensive indural Hypothermic indural 	10
UNIT-V	<ul style="list-style-type: none"> General principles- Pharmacological classification of drugs, route of administration, precautions in administration, drug toxicity, adverse drug reaction. Inhalational agents: General principles and individual agents. Pre-anaesthetic medication. Gases used in Anaesthesia- Sedatives and hypnotics, barbiturates. Intravenous Anaesthetics. Muscle relaxants. Difficult Airway, LMA, Post Operative care after anesthesia. Complication of various types of anesthesia Tracheal Intubation – Oral / Nasotracheal /LMA Malignant Hyperpyrexia & its management resuscitation. 	15

Course Outcomes:

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

MOTAT-1205. 1	To knowledge about general Anaesthesia, indication and complications during use.
MOTAT-1205. 2	To know about management of patients throughout General Anaesthesia.
MOTAT-1205. 3	To knowledge about general Anesthesia, indication and complications during use.
MOTAT-1205. 4	To know about management of patients throughout General Anaesthesia.

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 1Mark 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 AND PHYSIOLOGY (Practical)**SUBJECT CODE: MOTAT-1206****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 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
	<i>Conducting portion:</i> <ul style="list-style-type: none">• Nose, nasal cavity, Para nasal air sinuses, Larynx, trachea, bronchial tree	30

	<ul style="list-style-type: none"> <i>Respiratory portion:</i> Pleura and lungs Digestive system <ul style="list-style-type: none"> Components of Digestive system, Anatomy of organs of digestive system, mouth, tongue, teeth, salivary glands, liver, biliary apparatus, pancreas. Excretory system <ul style="list-style-type: none"> <i>Kidneys:</i> location, gross structure, excretory ducts, ureters, Urinary bladder, Urethra Circulatory system: <i>Heart:</i> <ul style="list-style-type: none"> size, location, coverings, chambers, blood supply, the blood vessels. General plan of circulation, pulmonary circulation. Names of arteries and veins and their positions Endocrine system <ul style="list-style-type: none"> <i>Endocrine glands:</i> Positions, Hormones secreted and their functions- Pituitary, Thyroid parathyroid, Adrenal glands, Gonads & Islets of pancrea 	
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Course Outcomes:

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

MOTAT-1206. 1	Understand the basic fundamentals structural features of neurons, mechanism of neurotransmitters along with processes of Neuro-conduction and neurotransmission.
MOTAT-1206. 2	Clarify the anatomy and physiology of various sense organs involved in body homeostasis
MOTAT-1206. 3	Understand the organs and mechanism involve in respiration along with disorders of respiratory system
MOTAT-1206. 4	Understand the essential organs of urinary systems and process of urine formation

SUBJECT TITLE: ANESTHESIA DRUGS (Practical)
SUBJECT 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 Objective: Understand the safe anesthesia techniques for various elective and emergency procedures in and outside the operation theatre Obtain knowledge about the proper functioning of various anesthetic equipments such as the work station, anesthesia monitors, syringe pumps etc. Assist the anesthesiologists efficiently during procedures in and outside the operation theatre.

Sr. No.	Contents	Contact Hours
	<ul style="list-style-type: none"> Physical examination – General and systemic Informed consent <i>Investigations:</i> Preparations, Identification, Consent, NPO, Prosthesis Lab results: <ul style="list-style-type: none"> Biochemistry – Blood, glucose, Urea, Creatinine Hematology – Hemogram, Prothrombin Time, Partial thromboplastin time, BT,CT Urine- Complete urine analysis ECG, Chest X-ray, ABG Equipment Checking the machine, laryngoscopes, tubes, airways etc. suction apparatus, oxygen Cylinder, anaesthetic drugs and emergency drugs. Monitoring system <i>Testing Machine:</i> Gas supply, Flow meters, O₂ bypass, Valves, Vaporizer 	30

Course Outcomes:

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

MOTAT-1207.1	Understand the preoperative evaluation, premedication and different anaesthesia techniques, in general
MOTAT-1207.2	Understand intraoperative fluid management and pain management
MOTAT-1207.3	Operate the monitoring devices and record the vital signs
MOTAT-1207.4	Explain technique of general anaesthesia and regional anaesthesia

SUBJECT TITLE: BIOCHEMISTRY (Practical)
SUBJECT CODE: MOTAT-1208
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 Objective: In the present scenario study of Biochemistry is highly relevant, biochemistry students can aspire for bigger roles in industry as well as academia. Some of its scope in medical sciences

Sr. No.	Contents	Contact Hours
	<p><i>Normal Values & Interpretations:</i></p> <p><i>Electrolytes:</i> Sodium, Potassium, Calcium, Iron, Chloride</p> <p><i>Renal Function Test:</i> Urea, Creatinine, Uric Acid, Glucose</p> <p><i>Urine Analysis:</i> Composition, Colour, Volume, pH, Specific Gravity, Turbidity</p> <p><i>Liver Function Test:</i> SGOT, SGPT, Bilirubin, Albumin, Globulin & Alkaline Phosphatase</p> <p><i>Carbohydrates:</i> Fasting, Random, GTT</p> <ul style="list-style-type: none"> • <i>Lipid Profile: Cholesterol, Triglycerides, HDL, LDL, VLDL</i> • Moist heat sterilization • Dry heat sterilization • EO gas sterilization • H2O2 gas plasma sterilization • Irradiation: Gamma sterilization <p>Common Laboratory Apparatus & Instruments</p> <p><i>General description & uses of common Laboratory apparatus:</i> Pipettes- Burettes, Beakers, Petri dishes, Depression plates, Flasks, Funnels Bottles, Measuring cylinders, Porcelain dish, Test tubes, Centrifuge tubes,</p> <ul style="list-style-type: none"> • <i>Working & uses of: Spectrophotometer, Water bath, Centrifuges, Analytical Balances, pH meter, Colorimeter</i> • 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	Understand biochemistry at the atomic level, draw molecules and reaction mechanisms perfectly.
MOTAT-1208. 2	Understand in detail about amino acid structures, types of amino acids, classifications, structure of proteins and types of proteins.
MOTAT-1208. 3	Learn the molecular structures of 20 amino acids, differentiating essential and non-essential amino acids, biologically important modified amino acids and their functions.
MOTAT-1208. 4	Learn how amino acids and proteins are metabolized, emphasizing the role of few intermediates of their metabolism, monitoring the deficiency and abundance disorders of amino acid metabolisms and the role of enzymes in the regulation of the pathways

SUBJECT TITLE: MICROBIOLOGY TERMINOLOGY PATHOLOGY (Practical)
SUBJECT CODE: MOTAT-1209
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 Objective: Microbiology: Microbiology is the fundamental course to learn about the evolution of the microorganisms and their relation shop with the ecosystem. The course helps students learn about various agents of diseases caused by a microorganism.

Pathology: Develop competency in techniques of pathology branches like haematology, clinical pathology, blood bank, histopathology and cytology. Acquire knowledge and understand the formation of blood cells, structure, functions and methods of estimating different parameters

Sr. No.	Contents	Contact Hours
	<ul style="list-style-type: none"> Study of Common Lab Instruments Microscope: Types, principles & uses 	30

	<ul style="list-style-type: none"> Autoclave, Hot air oven, Incubator, Laminar air flow, Colony counter: Principles & uses <i>Bacterial anatomy</i>: Cell wall, Cell membrane, Capsule, Flagella, Nucleoid, Bacterial Spore. Structure of viruses, Concepts of replication & cultivation Study of bacteria: Preparation of Stains, various Staining techniques (Simple staining, Gram staining, Acid-fast staining, Negative staining & Albert staining). Sterilization and disinfection Waste categories, Waste treatment & disposal 	
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Course Outcomes:

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

MOTAT-1209. 1	Demonstrate theory and practical skills in microscopy and their handling techniques and staining procedures
MOTAT-1209. 2	Understand the basic microbial structure and function and study the comparative characteristics of prokaryotes and eukaryotes and also Understand the structural similarities and differences among various physiological groups of bacteria/archaea
MOTAT-1209. 3	Demonstrates understanding of legal and practical framework in handling human tissue and embryos
MOTAT-1209. 4	Understands the importance of sample labelling and how incorrect labelling may contribute to diagnostic errors.

SUBJECT TITLE: THEATRE TECHNIQUES (practical)
SUBJECT CODE: MOTAT-1210
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 Objective: Provide safe and quality patient care by incorporating technical and critical thinking and clinical reasoning in assisting the anesthesia provider with patients of all types, ages, and physical conditions for a variety of surgical and medical related procedures. Assist the

anesthesia provider in a variety of current anesthesia techniques and use of equipment for providing anesthesia.

Sr. No.	Contents	Contact Hours
	<ul style="list-style-type: none"> • Local anesthesia • Regional anesthesia • Bier's block • N. blocks • Field block • Topical • Surface • Tumicent Anaesthesia (Liposuction) • Hypotensive indural • Hypothermic indural • barbiturates. • Intravenous Anaesthetics. • Muscle relaxants. • Difficult Airway, LMA, • Post Operative care after anesthesia. • Complication of various types of anesthesia • Tracheal Intubation – Oral / Nasotracheal /LMA • Malignant Hyperpyrexia & its management resuscitation. 	30

Course Outcomes:

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

MOTAT-1210. 1	To knowledge about general Anaesthesia, indication and complications during use.
MOTAT-1210. 2	To know about management of patients throughout General Anaesthesia.
MOTAT-1210. 3	To knowledge about general Anesthesia, indication and complications during use.
MOTAT-1210. 4	To know about management of patients throughout General Anaesthesia.

Suggested Readings:

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

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 Objective: Surgery is a medical specialty that uses operative manual and instrumental techniques on a person to investigate or treat a pathological condition such as a disease or injury, to help improve bodily function, appearance, or to repair unwanted ruptured areas

Sr. No.	Contents	Contact Hours
UNIT-I	Preparation, nursing requirement, equipments including instruments, sutures, etc.	6
UNIT-II	Anaesthesia techniques, patient positioning & recovery	8
UNIT-III	Gynecological /obstetric surgery	8
UNIT-IV	Urologic surgery	6
UNIT-V	Orthopedic surgery	8
UNIT-VI	Neurosurgery	8
UNIT-VI	Ophthalmic surgery	8

Course Outcomes:

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

MOTAT-2301.1	Demonstrate knowledge and understanding of common surgical problems
MOTAT-2301.2	Demonstrate an understanding of surgical treatments, and alternatives to surgical treatment
MOTAT-2301.3	To become familiar with various surgical procedures and know their expected outcomes and complications

MOTAT-2301.4	Be familiar with action, dosage and use of common pharmacologic agents used in surgery (analgesics, antibiotics, anticoagulants, sedatives)
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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 1Mark 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: SURGICAL INSTRUMENTS

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 Objective: 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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Role, Types, sizes, Locations • Positions, Technique, Precautions • Complications 	5
UNIT-III	Arterial Cannulation <ul style="list-style-type: none"> • Significance, Locations, types, sizes • Techniques • Complications 	3
UNIT-IV	Intubation <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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 Tourniquet 	5
UNIT-VI	Drainage of Abscess <ul style="list-style-type: none"> • Cleaning Incision • Drainage • Bandaging 	6
UNIT-VII	Foley Catheter <ul style="list-style-type: none"> • Types,sizes • InsertionTechnique 	6

	<ul style="list-style-type: none"> • Sterile precautions 	
UNIT-VIII	Nasogastric Tube <ul style="list-style-type: none"> • Size, uses • Techniques of Insertion 	6
UNIT-IX	Face Masks & Airways, ETT, Laryngoscopes, CPR <ul style="list-style-type: none"> • Types of masks: Open and closed • 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 <ul style="list-style-type: none"> • Meaning of %, 1:1000, 1:20000 etc. • Macro drip / Micro drip / mcg / ml • Drop Factor • Drops per min, infusion rate calculation • Mcg / mg / gm Conversion <p>Making 2.5 % solution from 1 gm / 0.5 gm of Thiopentone powder.</p>	4
UNIT-XI	Baby Resuscitation Trolley <ul style="list-style-type: none"> • Contents of baby resuscitation trolley • Uses • Check list 	2

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 1 Marks 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 consist of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: ANATOMY AND PHYSIOLOGY

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 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

SECTION I: ANATOMY:

Sr. No.	Contents	Contact Hours
UNIT-I	<ul style="list-style-type: none"> • Respiratory system • Organs of Respiratory System. Brief knowledge of parts and position • <i>Conducting portion:</i> Nose, nasal cavity, Para nasal air sinuses, Larynx, trachea, bronchial tree • <i>Respiratory portion:</i> Pleura and lungs 	6
UNIT-II	<ul style="list-style-type: none"> • Digestive system • Components of Digestive system, Anatomy of organs of digestive system, mouth, tongue, teeth, salivary glands, liver, biliary apparatus, pancreas. 	6

UNIT-III	<ul style="list-style-type: none"> • Excretory system • <i>Kidneys:</i> location, gross structure, excretory ducts, ureters, Urinary bladder, Urethra 	6
UNIT-IV	<ul style="list-style-type: none"> • Reproductive system • <i>Male Reproductive System:</i> Testis, Duct system. • <i>Female Reproductive System:</i> Ovaries, Duct system 	4
UNIT-V	<ul style="list-style-type: none"> • Circulatory system: <i>Heart:</i> size, location, coverings, chambers, blood supply, the blood vessels. General plan of circulation, pulmonary circulation. Names of arteries and veins and their positions 	6
UNIT-VI	<ul style="list-style-type: none"> • Endocrine system • <i>Endocrine glands:</i> Positions, Hormones secreted and their functions- Pituitary, Thyroid parathyroid, Adrenal glands, Gonads & Islets of pancreas 	5

SECTION II: PHYSIOLOGY

Sr. No.	Contents	Contact Hours
UNIT-I	Excretory system Structure of nephron, Mechanism of urine formation	2
UNIT-II	Central Nervous System motor neuron system, Lower motor neuron system Sensory Nervous system, Sympathetic Nervous system, Parasympathetic nervous system	6
UNIT-III	Muscular System Classification of muscles & their functions	6
UNIT-IV	Special Senses Eye & ear (in brief)	5
UNIT-V	Endocrinology List of endocrine glands, Hormones -their secretion and functions (in brief)	5

Course Outcomes:

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

MOTAT-2303. 1	Understand the basic fundamentals structural features of neurons, mechanism of neurotransmitters along with processes of Neuro-conduction and neurotransmission.
MOTAT-2303. 2	Clarify the anatomy and physiology of various sense organs involved in body homeostasis
MOTAT-2303. 3	Understand the organs and mechanism involve in respiration along with disorders of respiratory system
MOTAT-2303. 4	Understand the essential organs of urinary systems and process of urine formation

Suggested Readings:

7. Anatomy & Physiology- Ross and Wilson
8. Anatomy and Physiology: Understanding the Human Body by Clark
9. Anatomy and Physiology for nurses by Evelyn Pearce
10. Anatomy and Physiology for nurses by Sears
11. Anatomy and Physiology for nurses by Pearson
12. 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: HARMACOLOGY OF ANESTHESIA DRUGS
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: Pharmacology is the science which involves all aspects of the action of drugs on living system. It is the study of the therapeutic value and/or potential toxicity of chemical agents on biological systems. It targets every aspect of the mechanisms for the chemical actions of both traditional and novel therapeutic agents.

Sr. No.	Contents	Contact Hours
UNIT-I	Pharmacotherapy of Respiratory Disorders Pharmacotherapy of bronchial asthma. Pharmacotherapy of cough. Mucokinetic and mucolytic agents	10
UNIT-II	Corticosteroids Classification, mechanism of action, adverse effects and complications, preparation, dose and routes of administration.	10
UNIT-III	Diuretics Mode of action of diuretics Adverse effects. Preparations, dose and routes of administration	10
UNIT-IV	Chemotherapy of infections Definition. Classification and mechanism of action of antimicrobial agents. Combination of antimicrobial agents. Chemoprophylaxis. Classification, spectrum of activity, dose, routes of administration and adverse effects of penicillin, cephalosporins, aminoglycosides, tetracyclines, chloramphenicol, antitubercular drugs	10
UNIT-V	Miscellaneous IV fluids- various preparations and their usage. Electrolyte supplements.	5

	Immunosuppressive agents. New drugs included in perfusion technology. Drugs used in metabolic and electrolyte imbalance	
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Course Outcomes:

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

MOTAT-2304.1	To study fundamentals of pharmaceutical analysis and pharmacopoeia.
MOTAT-2304.2	Understand basic concepts involved in errors and to know the sources of impurities and methods to determine the impurities.
MOTAT-2304.3	Understand the chemistry of drugs with respect to their pharmacological activity
MOTAT-2304.4	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 1 Marks 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 consist of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: SURGICAL INSTRUMENTS (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: 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 <ul style="list-style-type: none"> Sizes, Colour Coding, Technique of I.V. cannulation Preparation of I.V. drip Types of fluids Precaution during IV cannulation Central Venous Catheterization and CVP <ul style="list-style-type: none"> Role, Types, sizes, Locations Positions, Technique, Precautions Complications Intubation <ul style="list-style-type: none"> Technique of endotracheal intubation Insertion of SGADs (LMA, I -Gel etc.) Cuff inflation and pressure Difficult intubation kit Sellick maneuver, BURP Technique Face Masks & Airways, ETT, Laryngoscopes, CPR <ul style="list-style-type: none"> Types of masks: Open and closed 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 	30

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: SURGICAL PROCEDURES (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: Course Objective: 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
	<ul style="list-style-type: none"> • Preparation, • nursing requirement, \ • equipments including instruments, sutures, etc. • Anaesthesia techniques, patient positioning & recovery • Gynecological /obstetric surgery 	30

	<ul style="list-style-type: none">• Bandaging• Types,sizes• InsertionTechnique• Sterile precautions• Size, uses• Techniques of Insertion	
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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.

4TH SEMESTER

SUBJECT TITLE: RESEARCH METHODOLOGY, BIOSTATISTICS AND HOSPITAL MANAGEMENT

SUBJECT CODE: MOTAT-2401

SEMESTER: 4

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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Experimental and non-experimental research designs • Sampling methods, datacollection, observation method • Interview method, questionnaires and schedules construction 	5
UNIT-III	Research Framework <ul style="list-style-type: none"> • Ethical issues in research • Principles and concepts in research ethics- 	4

	confidentiality and privacy informed consent, Writing research proposals <ul style="list-style-type: none"> • Development of conceptual framework in research 	
UNIT-IV	Introduction to statistics <ul style="list-style-type: none"> • Introduction to statistics • Classification of data, source of data • Method of scaling-nominal, ordinal, ratio and interval scale • Measuring reliability and validity of scales 	6
UNIT-V	Data sampling <ul style="list-style-type: none"> • Measures of central tendency • Measures of dispersion, skewness and kurtosis, sampling, sample size determination • Concept of probability and probability distributions-binomial probability distribution, poisson probability distribution and normal probability distribution 	7
UNIT-VI	Data correlation <ul style="list-style-type: none"> • Correlation-Karl person, spearman's rank correlation methods regression analysis, testing hypothesis-chi square test, ANOVA 	5
UNIT-VII	Health care – an overview <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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-2401. 1	Learner will understand basic theorems and concepts of Biostatistics & Basic Computer. And its applications in research
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MOTAT-2401. 2	Student will get insight of research tools
MOTAT-2401. 3	The student will gain knowledge of basic statistical approaches
MOTAT-2401. 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: 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.	2

	<ul style="list-style-type: none"> • Clinical Monitoring • Central Venous access • ECG monitoring • NIBP – Cuff sizes and application • Multiparameter monitor- Normal values • PCT, Surgical Tracheostomy • ICD • USG • Invasive hemodynamic monitoring, Cardiac Output 	
UNIT-II	General Care of Patient in ICU <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Ventilator Associated Pneumonia (VAP) • Prevention of infection in ICU 	3
UNIT-IV	Acid-Base Disorders and Fluid Balance <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Inotropic support • Vasodilator drugs • Vasopressor • Antiarrhythmic drugs • Bronchodilators • Sedatives & Hypnotics • Anticoagulant drugs • Anticonvulsants • Neuromuscular blockers 	4
UNIT-VI	Trauma <ul style="list-style-type: none"> • Head Injury, Glasgow coma score (GCS) • Fluid Resuscitation in Trauma • Polytrauma 	3
UNIT-VII	Blood Transfusion <ul style="list-style-type: none"> • Blood Grouping and cross matching • Whole blood, packed RBC 	4

	<ul style="list-style-type: none"> • Blood components and indications • Technique of blood transfusion • Complication of Blood Transfusion • Anaphylactic reaction 	
UNIT-VIII	ICU Ventilators <ul style="list-style-type: none"> • 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 • Decannulation Procedure 	4
UNIT-IX	Nutrition ICU Patient <ul style="list-style-type: none"> • NG tube insertion • Parenteral Nutrition • Types, Techniques, complications • Enteral Nutrition 	4
UNIT-X	Cardiopulmonary Resuscitation <ul style="list-style-type: none"> • Causes of cardiac arrest and types • Basic life support outside hospital • 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 1 Marks 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 consist of 3 Long Questions of 8 Marks each out of which 1 question shall have internal choice

SUBJECT TITLE: BASIC INTENSIVE CARE (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 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

	<ul style="list-style-type: none"> • 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 • 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 and types • Basic life support outside hospital • 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 	30
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Course Outcomes:

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.
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SUBJECT TITLE: RESEARCH PROJECT

SUBJECT CODE: MOTAT- 2404

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	25

	project will be finalized in the third semester.	
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 methods and design of the experiments needed for completion, the progress to date and plans for completion in the third semester.	25
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.

SUBJECT TITLE: HUMAN VALUES AND PROFESSIONAL ETHICS

SUBJECT CODE: MOTAT- 2405

SEMESTER: 4

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	<p>Course Introduction - Need, Basic Guidelines, Content and Process for Value Education</p> <ul style="list-style-type: none"> Understanding the need, basic guidelines, content and process 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 	10

	<p>basic requirements for fulfillment of aspirations of every human being with their correct priority.</p> <ul style="list-style-type: none"> • Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario • Method to fulfill the above human aspirations: understanding and living 	
UNIT-II	<p>Harmony at various levels</p> <ul style="list-style-type: none"> • 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	<p>Implications of the above Holistic Understanding of Harmony on Professional Ethics</p> <ul style="list-style-type: none"> • Definitiveness of Ethical Human Conduct • Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order • Competence in professional ethics 	10
UNIT-IV	<ul style="list-style-type: none"> • 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-2405. 1	To develop the ability to distinguish between what is of value and what is superficial in life.
MOTAT-2405. 2	To develop the ability to face difficult situations in life boldly and resolve them confidently.
MOTAT-2405. 3	To enable students to progress from discrimination to commitment.
MOTAT-2405. 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 Illic, 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. Susan George, 1976, How the Other Half Dies, Penguin Press, Reprinted 1986,

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