KHYBER MEDICAL UNIVERSITY

RESPIRATORY THERAPY AND INTENSIVE CARE TECHNOLOGY CURRICULUM

STUDY GUIDE SEMESTER 6th

16 Weeks Activity Planner

2024-25

CENTRAL CURRICULUM & ASSESSMENT COMMITTE FOR NURSING, REHABILITATION SCIENCES & ALLIED HEALTH SCIENCES

CONTENTS

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VISION AND MISSION

Khyber Medical University (KMU) Vision:

Khyber Medical University will be the global leader in health sciences academics and research for efficient and compassionate health care.

Khyber Medical University (KMU) Mission:

Khyber Medical University aims to promote professional competence through learning and innovation for providing comprehensive quality health care to the nation.

Institute of Paramedical Sciences Peshawar (IPMS-PESH) Mission:

To produce allied health professionals who excel in their skills, research, compassionate care, and community involvement, thereby enhancing the healthcare system

Program Introduction

The BS Respiratory Therapy and Intensive Care Technology program at Khyber Medical University is a comprehensive four-year undergraduate degree designed to equip students with the knowledge, skills, and competencies required to become competent respiratory therapists and Intensive Care Technologist. Respiratory therapy and Intensive Care Technology is a vital healthcare profession that focuses on the diagnosis, management of respiratory disorders and diseases as well as rehabilitation of respiratory system. Respiratory therapists and Intensive Care Technologist work closely with patients, healthcare providers, and other medical professionals to provide life-saving interventions and improve patient outcomes.

This TOS is structured to provide students with a strong foundation in the sciences, as well as specialized training in respiratory therapy and Intensive Care Technology. Students will learn about the principles of respiratory physiology, pathophysiology, and pharmacology, as well as the latest techniques and technologies used in respiratory and critical care. Throughout the four-year program, students will participate in clinical rotations and internships at top-tier hospitals and healthcare facilities, where they will gain hands-on experience in patient care and develop the skills necessary to work effectively in a fast-paced healthcare environment.

Objectives

By the end of BS Respiratory Therapy and Intensive Care Technology Degree, the students will be able to:

Cognitive Domain

1. Explain the principles of respiratory physiology, pathophysiology, and pharmacology.
2. Interpret pertinent clinical information to select appropriate therapeutic interventions for neonatal, pediatric, and adult critical care patients.
3. Identify potential expanded roles for respiratory therapy and Intensive Care professionals by examining professional behavior and the history of the field.
4. Discuss the current professional and clinical roles in respiratory therapy and Intensive Care.
5. Apply knowledge of the field to address current or future needs related to clinical practice, administration, education, and/or research

Psychomotor Domain

1. Demonstrate proficiency in using the latest techniques and technologies in respiratory therapy and Intensive Care.
2. Perform patient assessments and deliver high-quality respiratory care in a clinical setting.
3. Effectively communicate with patients, healthcare providers, and other medical professionals using appropriate terminology.
4. Work collaboratively with inter-professional teams to deliver effective, patient-centered care.
5. Develop the skills necessary to work efficiently in a fast-paced healthcare environment

Affective Domain

1. Exhibit professional behavior and adhere to ethical values in the delivery of Respiratory therapy and Intensive Care.
2. Incorporate an evidence-based approach to patient care by identifying and accessing appropriate literature and assessing relevant medical research.
3. Demonstrate leadership skills in the respiratory therapy profession, healthcare, and the community.
4. Engage in continuous learning and professional development to stay current with the latest advancements in respiratory care.
5. Provide compassionate and patient-centered care that respects the dignity and autonomy of each individual.

6th semester subjects for BS Respiratory Therapy and Intensive Care Technology

S. No	Subjects	Duration
1	RRT-603, Drugs related to intensive care and respiratory therapy, Credit Hours3(2+1)	16 weeks
2	ICT-607, Intensive care monitoring-ll, Credit Hours3(2+1)	16 weeks
3	ICT-606, Surgical Intensive Care, Credit Hours3(2+1)	16 weeks
4	RRT-604, Respiratory therapy-ll, Credit Hours2(1+1)	16 weeks
5	ECT-610, Cardiovascular Emergency, Credit Hours3(2+1)	16 weeks
6	ECT-609, Neonatal and pediatric critical care, Credit Hours 3(2+1)	16 weeks

RRT- 604 Respiratory Therapy-II (2(1+1)

Course Description

The purpose of this course is to equip students with professional knowledge, skills, techniques and understanding of basic principles of respiratory therapy techniques. Students will learn to apply their acquired expertise in Intensive care, manage crisis situations safely, and accurately perform all basic and advanced respiratory therapy techniques.

Learning Objectives

Cognitive Domain:

By the end of this course, students should be able to:

1. To describe the principles of basic and advanced monitoring patients in intensive care unit.
2. To explain the various equipment and its maintenance used for the management and monitoring of the patient in intensive care unit
3. To explain the various respiratory therapy concepts for the practical utilization in intensive care units.

Psychomotor Domain:

By the end of this course, students should be able to:

1. How to check ICU equipment.
2. Explain the procedure of intubation, monitoring and extubation.
3. Describe the Adjustment of ventilator parameters.
4. To provide invasive and non- invasive mechanical ventilation

Affective Domain:

By the end of this course, students should be able to:

1. Demonstrate a practical approach in utilizing various ICU equipment
2. Show a commitment to understanding and mitigating the hazards associated with ICU equipment's.
3. Value the importance of precision and accuracy in interpreting ICU equipment.

TABLES OF SPECIFICATIONS
TOS- Respiratory Therapy-II 2(1+1)

S. No	Weeks	Contents	Learning outcomes	Domains			MIT's	Time/ Hours	Assessment	No of items
				C	P	A				
	TOPIC: PRINCIPLES OF MECHANICAL VENTILATION									
1.	**Week-1**	Definition	Define mechanical ventilation	C1			Interactive Lecture/ SGDs	1	MCQs	**05**
2.		Principles of mechanical ventilation	Explain the principles of mechanical ventilation	C2						
3.		Airway Resistance	Describe airway resistance, factors affecting the airway resistance and its effects on oxygenation, ventilation and work of breathing with reference to Poiseuille's law.	C2						
4.		Lung Compliance	Describe the clinical application of static and dynamic compliance	C3						
5.		Dead Space Ventilation	Explain dead space ventilation and types of dead space ventilation	C3						
6.		Ventilatory Failure	Describe the process of clinical conditions that lead to ventilatory failure.	C3						
7.		Oxygenation Failure	Define oxygenation failure and enlist its causes	C4						
8.		Clinical Conditions leading to mechanical ventilation	Describe primary clinical conditions that lead to mechanical ventilation.	C4						
9.		Practical performance	Demonstrate various respiratory therapy equipment (Face mask, rebreather mask, non rebreather mask, nasal prong, ETT, combitube, tracheostomy tube, pulse oximeter, glucometer, cardiac monitor, ventilator, CPAP and BiPAP) independently		P4		Demo	1	OSPE/OSCE	
10.		Comply to SOPs	Comply to SOPs for the respiratory therapy equipment effectively			A4	Demo			
11.	**TOPIC: SPECIAL AIRWAYS FOR MECHANICAL VENTILATION**									
	Week-2	Types of airways used for mechanical ventilation	List airways used for mechanical ventilation	C1			Interactive Lecture/ SGDs	1	MCQs	05
12.		Indications for various airways	Enlist various indications for the placement of various airways used in mechanical ventilation	C2						
13.		Contraindications	Enlist contraindications for each type of airways used in mechanical ventilation	C3						
14.		Limitations	List the limitations of each type of airways used in mechanical ventilation	C3						
15.		Insertion and placement and Removal	Describe selection, insertion, and removal of airways used in mechanical ventilation.	C4						
16.		Complications	List the complications associated with various airways used in mechanical ventilation	C4						
17.		Practical performance	Demonstrate Insertion and removal of various airways used for mechanical ventilation independently		A4		Demo	1	OSPE/OSCE	
18.		Comply to SOP's	Comply to SOPs for the insertion of various airways for mechanical ventilation independently			P4	Demo			

19.	**TOPIC: NON- INVASIVE POSITIVE PRESSURE VENTILATION (CPAP AND BIPAP)**								
20.	**Week-3**	Definition	Define non-invasive positive pressure ventilation	C1			Interactive Lecture/ SGDs	1	MCQs	03
21.		Physiologic effects of NPPV	Describe the physiological effects of NIPPV	C2						
22.		Applications of CPAP and BiPAP	List the clinical applications of CPAP and BiPAP	C3						
23.		interfaces for CPAP and BiPAP	List common interfaces used for the application of CPAP and BiPAP	C3						
24.		Potential problems with interfaces	List the potential problems associated with the interfaces used for CPAP and BiPAP	C4						
25.		Titration of CPAP and BiPAP	Titrate CPAP and BiPAP in order to achieve the desired goals	C4						
26.		Practical performance	Practical demonstration on CPAP independently		P4		Demo	1	OSPE/OSCE	
27.		Comply to SOP's	Comply to SOPs for demonstration on CPAP affectively			P4	Demo			
28.	**TOPIC: OPERATING MODES OF MECHANICAL VENTILATION AND PEEP**								
29.	**Week-4**	Define	Define the mode of mechanical ventilation	C1			Interactive Lecture/ SGDs	2	MCQs	07
30.	**Week-5**	Negative and positive pressure ventilation	Describe negative and positive pressure ventilation	C2						
31.		Operating modes of mechanical ventilation	Explain the commonly used modes of mechanical ventilation	C3						
32.		Positive End Expiratory pressure	Explain PEEP and its significance in mechanical ventilation	C3						
33.		Indications	List indications for PEEP	C3						
34.		Complications	List complications associated with PEEP	C3						
35.		Mode selection	List factors affecting ventilator's mode selection	C4						
36.		Mode's characteristics	List characteristics of the commonly used ventilator modes	C4						
37.		Clinical applications of the ventilator's mode	List clinical applications of common modes of mechanical ventilation	C4						
38.		Parameters of ventilator' mode	Adjust parameters of individual modes for mechanical ventilation	C4						
39.		Practical Performance	Practical demonstration on BiPAP independently		P4		Practical Demo	2	OSPE/OSCE	
40.		Comply to SOPs	Maintain the ethical norms of the patient effectively			A4				
41.	**TOPIC: INITIATION AND SETTING PARAMETERS OF MECHANICAL VENTILATION**								
42.	**Week-6**	Definition	Define parameters of mechanical ventilation and list normal values	C1			Interactive Lecture/ SGDs	1	MCQs	05
43.		Goals of mechanical ventilation	List the goals of mechanical ventilation	C2						
44.		Indications and contraindications	List indications and contraindications for mechanical ventilation	C3						
45.		Initial ventilator settings	Adjust initial ventilatory settings in patients undergoing mechanical ventilation	C4						
46.		Hazards and complications	List hazards and complications associated with mechanical ventilation	C4						
47.		Practical performance	Demonstrate ventilator parameters independently		P4		Video demo	1	OSPE/OSCE	
48.		Comply to SOPs	Comply to SOPs for demonstration on mechanical ventilator			A4				
49.	**TOPIC: TROUBLE SHOOTING OF VENTILATOR ALARMS AND TRIGGERS**								
50.	**Week-7**	Definition and types	Define ventilator alarms and triggers also enlist the types	C1						
51.		Ventilator alarms	List Conditions That Trigger the Pressure/ Volume Alarm	C2						

52.		Types of ventilator alarms and their significance	List the ventilator alarms and describe their significance in mechanical ventilation	C3			Interactive Lecture/ SGDs	1	MCQs	05
53.		Care of the ventilator circuit	Describe the care of the ventilator circuit	C3						
54.		Care of the artificial airway	Describe the care of the artificial airway	C3						
55.		Triggers	Define triggers, also discuss how triggers work	C4						
56.		Significance of triggers	Describe the importance of triggers in mechanical ventilation	C4						
57.		Practical performance	Demonstrate the setting values of ventilator alarms independently		P4		Video demo	1	OSPE/OSCE	
58.		Comply to SOPs	Comply to SOPs for the demonstration on ventilator alarms effectively			A4	Video demo			
59.	**TOPIC: MONITORING IN MECHANICAL VENTILATION**									
60.	**Week-8**	Definition	Define vital signs	C1			Interactive Lecture/ SGDs	1	MCQs	05
61.		Vital signs	Explain monitoring of the vital signs during mechanical ventilation	C2						
62.		Chest inspection	Describe chest inspection in patients undergoing mechanical ventilation and its importance	C3						
63.		Fluid balance and anion gap	Identify the normal values and describe methods to provide normal fluid balance, electrolyte balance, and nutrition.	C3						
64.		Arterial Blood Gases	Discuss the importance of ABG's in evaluation of the patient clinical status	C3						
65.		Oxygen saturation monitoring	Describe oxygen saturation monitoring in patients undergoing mechanical ventilation	C3						
66.		End- tidal carbon dioxide monitoring	Describe end- tidal CO2 monitoring in patients undergoing mechanical ventilation	C3						
67.		Cerebral perfusion	Describe cerebral perfusion monitoring in patients undergoing mechanical ventilation	C3						
68.		Hemodynamic monitoring	Explain various hemodynamic components and their monitoring during mechanical ventilation	C4						
69.		Practical performance	Practical performance on vital signs assessment independently		P4		Practical demo	1	OSPE/OSCE	
70.		Comply to SOP's	Comply to SOPs for the assessment of vital signs affectively			A4	Role play			
71.	**TOPIC: VENTILATOR WAVEFORM ANALYSIS**									
72.	**Week-9**	Definition	Define waveforms related to ventilator	C1			Interactive Lecture	1	MCQs	05
73.		Flow waveforms during positive pressure ventilation	Describe various waveforms generated during positive pressure ventilation	C2						
74.		Effects of constant flow during volume-controlled ventilation	Describe the effects of constant flow during volume -controlled ventilation	C3						
75.		Spontaneous ventilation during mechanical ventilation	Describe the waveform characteristics of spontaneous breathing during mechanical ventilation	C3						
76.		Effects of flow, circuit, and lung characteristics on pressure- time waveforms	Explain the effects of flow, circuit, and lung characteristics on the pressure-time waveform	C3						
77.		Waveforms developed during pressure- controlled ventilation	Explain the waveform characteristics of pressure-controlled ventilation (PCV)	C4						
78.		Using waveforms for patient-	Analyze pertinent waveforms to identify and correct patient-	C4						

		ventilator system assessment	ventilator dyssynchrony, increased airway resistance, loss of elastic recoil, decreased lung-thorax compliance, gas trapping, lack of ventilator response, and circuit leaks.							
79.		Using expiratory flow and pressure waveforms as diagnostic tools	Identify the upper and lower inflection points and describe the respective clinical application.	C5						
80.		Practical performance	Demonstrate various ventilator waveforms independently		P4		Video demo	1	OSPE/OSCE	
81.		Comply to SOP's	Comply to SOP's for the demonstration of ventilator waveforms			A4	Video demo			
82.	**TOPIC: MANAGEMENT OF MECHANICAL VENTILATION AND SETTINGS ACCORDING TO ABG'S**									
83.	**Week-10**	Definition	Define arterial blood gases with reference to its normal ranges	C1			Interactive Lecture/ SGDs	1	MCQs	05
84.		Basic management strategies	Explain the effects of ventilator setting changes on ventilation and oxygenation	C2						
85.		Strategies to improve oxygenation	Describe various strategies to improve oxygenation	C3						
86.		Strategies to improve ventilation	Select appropriate strategies to improve ventilation by initiating or altering: ventilator frequency, spontaneous ventilation, ventilator tidal volume, and permissive hypercapnia	C3						
87.		ABG's	Interpret ABG's results based on multiple abnormalities or due to changing patient conditions	C3						
88.		Trouble shooting of common ventilator alarms	Explain the troubleshooting of common ventilator alarms	C4						
89.		Care of the ventilator circuit and artificial airways	Explain the care of the ventilator circuit and artificial airway.	C4						
90.		Practical performance	Demonstrate performance of ABG's independently		P4		Video demo	1	OSPE/OSCE	
91.		Ethical Norms	Maintain ethical norms of the patient while performing ABG's effectively			A4	Role play			
92.	**TOPIC: PHARMACOTHERAPY FOR MECHANICAL VENTILATION**									
93.	**Week-11**	Definition	Define pharmacotherapy for mechanical ventilation	C1			Interactive Lecture/ SGDs	1	MCQs	05
94.		Drugs for improving ventilation	Illustrate the mechanism of action, adverse effects, and examples of: adrenergic, anticholinergic, xanthine bronchodilators, and anti-inflammatory agents	C2						
95.		Delivery of MDI medications	List corticosteroids for Metered-Dose Inhaler use	C3						
96.		Neuromuscular blocking agents	Illustrate depolarizing and non- depolarizing neuromuscular blocking agents with reference to mechanism of action and examples of these agents	C3						
97.		Central nervous system agents	Illustrate the mechanism of action, adverse effects, and examples of sedatives and antianxiety agents	C3						
98.		Other agents used in mechanical ventilation	Illustrate the mechanism of action, adverse effects, and examples of opioid analgesics, barbiturates. Propofol, haloperidol, dexmedetomidine, and nitric oxide.	C4						
99.		Practical performance	Demonstrate nebulization independently		P4		Practical demo	1	OSPE/OSCE	

100.		Comply to SOP's	Comply to SOP's for nebulization effectively			A4	Practical demo			
101.	**TOPIC: CRITICAL CARE ISSUES IN MECHANICAL VENTILATION AND VENTILATOR BUNDLES**									
102.	**Week-12**	Definition	Define critical care issues related to mechanical ventilation	C1			Interactive Lecture/ SGDs	1	MCQs	04
103.		Acute lung injury and ARDS	Use the clinical criteria to differentiate between ALI and ARDS	C2						
104.		Ventilator Associated pneumonia	Outline the clinical signs, prevention, and treatment of ventilator-associated pneumonia	C3						
105.		Hypoxic-ischemic encephalopathy	Describe factors that lead to hypoxic-ischemic encephalopathy and its management	C3						
106.		Trauma brain injury	Outline the clinical signs and respiratory management of traumatic brain injury.	C3						
107.		Ventilator bundle	Explain ventilator bundles for the prevention of ventilator associated pneumonia	C4						
108.		Practical performance	Demonstrate donning and doffing of PPE independently		P4		demo	1	OSPE/OSCE	
109.		Comply to SOP's	Comply to SOP's for the demonstration on PPE effectively			A4	demo			
110.	**TOPIC: WEANING FROM MECHANICAL VENTILATION AND VENTILATOR DEPENDENCE**									
111.	**Week-13**	Definition	Define weaning and ventilator dependence	C1			Interactive Lecture/ SGDs	2	MCQs	06
112.		weaning success and failure	Define weaning success, weaning in progress, and weaning failure.	C2						
113.	**Week-14**	Weaning criteria	List, the weaning criteria for assessing ventilation, oxygenation, pulmonary reserve, and pulmonary measurements	C3						
114.		Rapid shallow breathing index	Calculate and interpret the rapid shallow breathing index (RSBI)	C3						
115.		Weaning procedure and protocols	Describe the weaning procedures: spontaneous breathing trial, SIMV, pressure support ventilation & other partial ventilator support.	C3						
116.		Signs of weaning failure	List the indicators of weaning failure	C3						
117.		Causes of weaning failure	List the causes of weaning failure	C3						
118.		Terminal weaning	Differentiate withholding & withdrawing of mechanical ventilation.	C3						
119.		Ventilator's Dependence	Explain ventilator dependence and role of phrenic nerve stimulation to avoid it.	C4						
120.		Practical performance	Demonstrate extubation independently		P4		Video demo	2	OSPE/OSCE	
121.		Comply to SOP's	Comply to SOP's for extubation effectively			A4	Video demo			
122.	**TOPIC: NEONATAL MECHANICAL VENTILATION**									
123.	**Week-15**	Definition	Define neonatal mechanical ventilation	C1			Interactive Lecture/ SGDs	1	MCQs	
124.		Principles of neonatal mechanical ventilation	Explain the basic principles of neonatal mechanical ventilation	C2						
125.		Intubation	List the indications for neonatal intubation	C3						
126.		Surfactant replacement therapy	List the indications for neonatal surfactant replacement therapy.	C4						
127.		Nasal CPAP	Describe the clinical applications of CPAP.	C4						
128.		Initiation of neonatal ventilatory support	Explain the indications and initial settings for neonatal mechanical ventilation	C4						

129.		High frequency ventilation	Outline the initial HFOV settings and the changes of ventilator settings based on patient condition	C4						05
130.		ECMO	Explain indications, patient selection, & clinical application of ECMO	C4						
131.		Practical performance	Demonstrate artificial airways used for neonates independently		P4		Demo	1	OSPE/OSCE	
132.		Comply to SOP's	Comply to SOP's for demonstration on artificial airways used for neonates effectively			A4	Demo			
133.	**TOPIC: VENTILATOR SETTING FOR ARDS, COPD, AND SEVERE ASTHMA EXACERBATION**									
134.	**Week-16**	Definitions	Define ARDS, COPD, and asthma exacerbation	C1			CBL	1	MCQs	05
135.		Pathophysiology	Explain the pathophysiology of ARDS, COPD & asthma exacerbation	C2						
136.		Causes	List the causes of ARDS, COPD and asthma exacerbation	C3						
137.		Clinical presentation	Describe clinical presentation of ARDS, COPD & asthma exacerbation	C3						
138.		Diagnosis	Formulate the diagnosis of ARDS, COPD, and asthma exacerbation	C4						
139.		Initial ventilator settings	Plan the initial ventilator settings for patients with ARDS, COPD and asthma exacerbation admitted to the intensive care units.	C4						
140.		Monitoring	Monitor the ARDS, COPD and patients with asthma exacerbation admitted to the intensive care units	C4						
141.		Practical performance	Demonstrate Spirometry independently		P4		Demo	1	OSPE/OSCE	
142.		Comply to SOPs	Comply to SOPs for the performance of Spirometry effectively			A4	Demo			

Recommended Books:

1. **Clinical applications of mechanical ventilation by David W Chang 4th edition**
2. **Egan's fundamentals of respiratory care 11th edition**
3. **The ICU book of Paul l Marino.**
4. **Mechanical ventilation- clinical Application by Vijay Deshpande, TR Cahndrashekar, 2nd Edition**
5. **Pilbeam's Mechanical Ventilation physiological and Clinical Applications, 5th edition**

ASSESSMENT BREAKDOWN

S. No	Topic	No of MCQ's	No of OSPE/OSCE station	Static / Interactive
1.	Principles Of Mechanical Ventilation	05	01	Static
2.	Special Airways For Mechanical Ventilation	05	01	Interactive
3.	Non- Invasive Positive Pressure Ventilation (CPAP And BiPAP)	03	01	Interactive
4.	Operating Modes Of Mechanical Ventilation And Peep	07	01	Static
5.	Initiation And Setting Parameters Of Mechanical Ventilation	05	01	Static
6.	Trouble Shooting Of Ventilator Alarms And Triggers	05	01	Static
7.	Monitoring In Mechanical Ventilation	05	01	Static
8.	Ventilator Waveform Analysis	05	01	Static
9.	Management Of Mechanical Ventilation And Settings According To ABG'S	05	01	Static
10.	Pharmacotherapy For Mechanical Ventilation	05	01	Static
11.	Critical Care Issues In Mechanical Ventilation And Ventilator Bundles	04	01	Static
12.	Weaning From Mechanical Ventilation And Ventilator Dependence	06	01	Static
13.	Neonatal Mechanical Ventilation	05	01	Static
14.	Ventilator Setting For ARDS, COPD, And Severe Asthma Exacerbation	05	01	Static
Total	**14**	**70**	**14**	**14**

RRT-603 Drugs Related To Intensive Care And Respiratory Therapy 3(2+1)

Course Description

The purpose of this course is to equip students with professional knowledge, skills, techniques, and ethical values necessary for drugs related to intensive care and respiratory therapy. Students will learn to apply their expertise in managing critically ill patients, perform comprehensive assessments, and execute both basic and advanced life support drugs accurately and safely.

Learning Objectives

Cognitive Domain

By the end of this course students should be able to

1. Discuss advanced respiratory and Critical Care drugs:
2. Understand the cardiovascular therapy and their usage especially in critically ill patients
3. Understand the pulmonary therapies and their usage in respiratory care
4. Know the overview of endocrine, gastroenterology, liver and nutrition therapies

Psychomotor Domain

By the end of this course students should be able to

1. Prepare ACLS drugs and label it
2. Prepare sedative and analgesic drugs and calculate dosing
3. Prepare medication for intubation
4. Prepare medication for respiratory emergencies

Affective Domain

By the end of this course students should be able to

1. Adhere to Standard Operating Procedures (SOPs): Comply with SOPs for Respiratory and critical care
2. Demonstrate Ethical Behavior: Adhere to ethical values and practices in critical care situations.
3. Show Professionalism: Exhibit professionalism and effective communication during crisis situations.
4. Display Empathy and Compassion: Demonstrate empathy and care towards critically ill patients and their families
5. Maintain Equipment and Tools: Properly maintain and utilize medical equipment and tools.

TABLE OF SPECIFICATIONS

DRUGS RELATED TO INTENSIVE CARE AND RESPIRATORY THERAPY

S. No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/ Hours	Assessment	No of Items
				C	P	A				
TOPIC: INOTROPES										
1	**Week-1**	Knowledge	Define inotropes	C1			Interactive Lecture/SGDs	2	MCQs	5
2		Mechanism Of Action	Explain the mechanism of action of inotropes	C2						
3		Comprehension	Identify the different types of inotropes	C2						
4		Application	Explain the clinical uses and indications for inotropes	C3						
5		Side Effects	List the side effects of inotropes	C4						
6		Contraindications	List the contraindications for inotropes	C4						
7		Evaluation	Evaluate the role of inotropes in various cardiovascular conditions	C5						
8		Practical demonstration	Demonstrate how to adjust inotrope dosages based on patient response independently		P4		Demonstration	1	OSPE/OSCE	1
9		SOPs	Demonstrate empathy towards patients receiving inotropes effectively			A4	Role play			
TOPIC: BETA BLOCKERS										
10	**Week-2**	Definition	Define beta blockers	C1			Interactive Lecture/SGDs	2	MCQs	4
11		Mechanism of action	Explain the mechanism of action of beta blockers	C2						
12		Comprehension	Identify the different types of beta blockers	C2						
13		Application	Explain the clinical uses and indications for beta blockers	C3						
14		Side effects	List the side effects of beta blockers	C4						
15		Contraindications	List contraindications for beta blockers with special reference to patients asthma	C4						
16		Evaluation	Evaluate the role of beta blockers in various cardiovascular conditions	C5						
17		Practical demonstration	Demonstrate administration of beta blockers safely and effectively in various clinical scenarios independently		P4		Demonstration	1	OSPE/OSCE	1
18		Ethical Norms	Maintain ethical norms of the patient effectively			A4	Role play			
TOPIC: CALCIUM CHANNEL BLOCKER										
19	**Week-3**	Definition	Define calcium channel blocker	C1			Interactive Lecture/SGDs	2	MCQs	5
20		Mechanism of action	Explain the mechanism of action of calcium channel blockers	C2						
21		Comprehension	Identify the different types of calcium channel blocker	C2						
22		Application	Explain the clinical uses and indications for calcium channel blocker	C3						
23		Side effects	List the side effects of calcium channel blockers	C4						
24		Contraindications	List the contraindications for calcium channel blockers	C4						

25		Evaluation	Evaluate the role of calcium channel blocker in various cardiovascular conditions	C5						
26		Practical demonstration	Practical demonstration on proper technique for titrating calcium channel blocker dosages independently		P4		Demonstration	1	OSPE/OSCE	1
27		Ethical Norms	Maintain ethical norms of the patient effectively			A4	Role play			
TOPIC: NITRATES										
28	**Week-4**	Definition	Define nitrates	C1			Interactive Lecture/SGDs	2	MCQs	4
29		Mechanism of action	Explain the mechanism of action of nitrates							
30		Comprehension	Identify the different types of nitrates	C2						
31		Application	Explain the clinical uses and indications for nitrates	C3						
32		Side effects	List the side effects of nitrates	C4						
33		Contraindications	List contraindications for nitrates							
34		Evaluation	Evaluate the role of nitrates in various cardiovascular conditions	C5						
35		Practical demonstration	Practical demonstration on proficiency in managing nitrate related complications independently		P4		Demonstration	1	OSPE/OSCE	1
36		SOPs	Demonstrate empathy towards experiencing nitrates related side effects effectively			A4	Role play			
TOPIC: ACLS DRUGS										
37	**Week-5**	Definition	Define ACLS drugs	C1			Interactive Lecture/SGDs	2	MCQs	5
38		ACLS Drugs	Identify ACLS drugs recommended by AHA guidelines	C2						
39		Mechanism of action	Explain the mechanism of action of ACLS drugs in cardiac arrest	C2						
40		Application	Explain the dosages and administration of amiodarone and lidocaine in Ventricular fibrillation and Ventricular Tachycardia	C3						
41		Analysis	Describe the use of vasopressin in cardiac arrest, as per AHA guidelines	C4						
42		Evaluation	Evaluate the effectiveness of ACLS drugs in various cardiac arrest scenarios, based on AHA guidelines	C5						
43		Practical demonstration	Demonstrate proper technique for amiodarone and lidocaine administration in Ventricular fibrillation and Ventricular Tachycardia independently		P4		Demonstration	1	OSPE/OSCE	1
44		SOPs	Demonstrate a commitment to following AHA guidelines for ACLS drug administration			A4	Demonstration			
TOPIC: THROMBOLYTICS										
45	**Week-6**	Knowledge	Define thrombolytics and their mechanism of action	C1			Interactive Lecture/SGDs	2	MCQs	4
46		Comprehension	Identify the different types of thrombolytics	C2						
47		Application	Explain the clinical uses and indications for thrombolytics	C3						
48		Analysis	Discuss the potential side effects and contraindications of thrombolytics	C4						
49		Evaluation	Evaluate the role of thrombolytics in various cardiovascular conditions	C5						
50		Practical demonstration	Practical demonstration on proficiency in managing thrombolytics		P4		Demonstration	1	OSPE/OSCE	1

			related bleeding							
51		SOPs	Demonstrate empathy towards patients experiencing thrombolytics related bleeding			A4	Role play			
TOPIC: ANTI-HEMORRHAGIC DRUGS										
52	**Week -7**	Definition	Define anti-hemorrhagic and their mechanism of action	C1			Interactive Lecture/SGDs	2	MCQs	5
53		Mechanism of action	Explain the mechanism of action of anti-hemorrhagic drugs	C2						
54		Comprehension	Identify the different types of anti-hemorrhagic	C2						
55		Application	Explain the clinical uses and indications for anti-hemorrhagic	C3						
56		Side effects	List the potential side effects of anti-hemorrhagic	C4						
57		Contraindications	List the contraindications of anti- hemorrhagic drugs	C4						
58		Evaluation	Evaluate the role of anti-hemorrhagic in various blood disorders	C5						
59		Practical demonstration	Practical demonstration on to adjust anti-hemorrhagic dosages based on patient response independently		P4		Demonstration	1	OSPE/OSCE	1
60		SOPs	Demonstrate empathy towards patients experiencing anti-hemorrhagic complication effectively			A4	Role play			
TOPIC: BRONCHODIALATORS										
61	**Week-8**	Definition	Define bronchodilators	C1			Interactive Lecture/SGDs	2	MCQs	4
62		Types	List the types of bronchodilators							
63		Mechanism of action	Explain the mechanism of action of bronchodilators	C2						
64		Application	Explain the clinical uses and indications for bronchodilators	C3						
65		Sides effects	List the potential side effects of bronchodilators	C4						
66		Contraindications	List the contraindications for bronchodilators	C4						
67		Evaluation	Evaluate the role of bronchodilators in various respiratory conditions	C5						
68		Practical demonstration	Practical demonstration on using meter dose inhaler		P4		Demonstration	1	OSPE/OSCE	1
69		SOPs	Value the importance of bronchodilators in managing respiratory condition			A4	Role play			
TOPIC: ANTIEMETICS										
70	**Week-9**	Knowledge	Define anti-emetics	C1			Interactive Lecture/SGDs	2	MCQs	5
71		Mechanism of action	Explain the mechanism of action of anti-emetics	C2						
72		Types	List the types of antiemetics	C2						
73		Applications	Explain the clinical uses and indications for antiemetics	C3						
74		Side effects	List the potential side effects of anti-emetics	C4						
75		Contraindications	List the contraindications of anti-emetics	C4						
76		Evaluation	Evaluate the role of antiemetics in various abdominal condition	C5						
77		Practical demonstration	Administer antiemetics safely and effectively via various routes independently		P4		Demonstration	1	OSPE/OSCE	1
78		SOPs	Maintain ethical norms of the patient effectively			A4	Role play			

TOPIC: SEDATIVE DRUGS										
79	**Week-10**	Definition	Define sedative drugs	C1			Interactive Lecture/SGDs	2	MCQs	4
80		Mechanism of action	Explain the mechanism of action of sedative drugs	C2						
81		Types	Identify the different types of sedative drugs	C2						
82		Application	Explain the clinical uses and indications for sedative drugs	C3						
83		Side effects	List the side effects of sedative drugs	C4						
84		Contraindications	List the contraindications for sedative drugs	C4						
85		Evaluation	Evaluate the role of sedative drugs in critical care	C5						
86		Practical demonstration	Administer sedative drugs safely and effectively via various routes independently		P4		Demonstration	1	OSPE/OSCE	1
87		SOPs	Demonstrate a commitment to safe and effective sedative administration effectively			A4				
TOPIC: MUSCLE RELAXANT DRUGS										
88	**Week-11**	Definition	Define muscle relaxant drugs	C1			Interactive Lecture/SGDs	2	MCQs	5
89		Mechanism of action	Explain the mechanism of action of muscle relaxant drugs	C2						
90		Types	Identify the different types of muscle relaxant	C2						
91		Application	Explain the clinical uses and indications for muscle relaxant	C3						
92		Side effects	List the potential side effects of muscle relaxant drugs	C4						
93		Contraindications	List the contraindications for muscle relaxant drugs	C4						
94		Evaluation	Evaluate the role of muscle relaxant in intubated patients	C5						
95		Informed consent	Demonstrate the process of obtaining an informed consent in patients prior to muscle relaxants administration independently		P4		Demonstration	1	OSPE/OSCE	1
96		Confidentiality	Maintain the confidentiality of the patient effectively			A4	Role play			
TOPIC: ANTI-SEIZURES										
97	**Week-12**	Definition	Define anti-seizure	C1			Interactive Lecture/SGDs	2	MCQs	4
98		Mechanism of action	Explain the mechanism of action of anti-seizure drugs	C2						
99		Types	Identify the different types of anti-seizure	C2						
100		Application	Explain the clinical uses and indications for anti-seizure	C3						
101		Side effects	List the possible side effects of anti-seizure drugs	C4						
102		Contraindications	List contraindications for anti-seizure drugs	C4						
103		Evaluation	Evaluate the role of anti-seizure in various CNS conditions	C5						
104		Practical demonstration	Demonstrate proper technique for preparing and administering anti-seizure injections independently		P4		Demonstration	1	OSPE/OSCE	1

105		SOPs	Demonstrate empathy towards patients experiencing seizure effectively			A4	Role play			
TOPIC: DIURETICS											
106	**Week-13** **Week 14**	Definition	Define diuretics	C1			Interactive Lecture/SGDs	2	MCQs	9
107		Mechanism of action	Explain the mechanism of action of diuretics	C2						
108		Types	List the types of diuretics	C2						
109		Application	Explain the clinical uses and indications for diuretics	C3						
110		Side effects	List the potential side effects of diuretics	C4						
111		Contraindications	List contraindications for diuretics	C4						
112		Evaluation	Evaluate the role of diuretics in various renal conditions	C5						
113		Practical demonstration	Use diuretics dosing chart and calculator accurately independently		P4		demonstration	1	OSPE/OSCE	1
114		SOPs	Value the importance of diuretics in managing fluid overload and hypertension effectively			A4	Role play			
TOPIC: NON- STEROIDAL ANTI INFLAMMATOR DRUGS											
115	**Week-15**	Definition	Define NSAIDs	C1			Interactive Lecture/SGDs	2	MCQs	5
116		Mechanism of action	Explain the mechanism of action of non- steroidal anti-inflammatory drugs	C2						
117		Types	List the types of non- steroidal anti-inflammatory drugs	C2						
118		Application	Explain the clinical uses and indications for non- steroidal anti-inflammatory drugs	C3						
119		Side effects	List the potential side effects of NSAIDs	C4						
120		Contraindications	List contraindications for non- steroidal anti-inflammatory drugs	C4						
121		Evaluation	Evaluate the role of NSAIDs in various inflammatory conditions	C5						
122		Practical demonstration	Use NSAIDs dosing chart and calculator accurately		P4		Demonstration	1	OSPE/OSCE	1
123		SOPs	Value the importance of NSAIDs in managing inflammation effectively			A4	Role play			
TOPIC: OPIOIDs											
124	**Week-16**	Definition	Define opioids	C1			Interactive Lecture/SGDs	2	MCQs	4
125		Mechanism of action	Explain the mechanism of action of opioids							
126		Types	List the types of opioids	C2						
127		Application	Explain the clinical uses and indications for opioids	C3						
128		Side effects	List the potential side effects of opioids	C4						
129		Contraindications	List the contraindications for opioids							
130		Evaluation	Evaluate the role of opioids in various pains	C5						
131		Practical demonstration	Practical demonstration on to adjust opioids dosages based on patient response independently		P4		Demonstration	1	OSPE/OSCE	1
132		SOPs	Demonstrate empathy towards patients receiving opioids effectively			A4				

Recommended Books:
1. **Lippincott Pharmacology, 5th edition** 2. **Handbook of Critical Care Drug Therapy, 3rd Edition** **3. Egan's fundamentals of respiratory care 12th edition**

ASSESSMENT BREAKDOWN				
S. No	**Topics**	**No of MCQ**	**No of OSPE / OSCE Stations**	**Static / Interactive**
1.	Inotropes	5	1	Static
2.	Beta Blockers	4	1	Static
3.	Calcium Channel Blockers	5	1	Static
4.	Nitrates	4	1	Static
5.	ACLS Drugs	5	1	Interactive
6.	Thrombolytics	4	1	Static
7.	Anti-Hemorrhagic	5	1	Static
8.	Bronchodilators	4	1	Static
9.	Antiemetics	5	1	Static
10.	Anti-Seizure	4	1	Static
11.	Sedative Drugs	5	1	Static
12.	Muscle Relaxant	4	1	Static
13.	Diuretics	9	1	Static
14.	NSAIDS	5	1	Interactive
15.	Opioids	4	1	Static
Total.	**15**	**70**	**15**	**15**

Course Description

The purpose of this course is to equip students with professional knowledge, skills, techniques and understanding of Intensive care monitoring. Students will learn to apply their acquired expertise in Intensive care, manage crisis situations safely, and accurately perform all basic and Advanced life support procedures

Learning Objectives

Cognitive Domain

By the end of this course students should be able to

1. To describe the principles of basic and advanced monitoring patients in intensive care unit.
2. To explain the various equipment and its maintenance used for the management and monitoring of the patient in intensive care unit

Psychomotor Domain

By the end of this course students should be able to

1. How to check ICU equipment.
2. Explain the procedure of Cleaning, sterilization and maintenance of all ICU equipment
3. Describe the Adjustment of ventilator parameters.
4. To Monitor fluid responsiveness in ICU patient

Affective Domain

By the end of this course students should be able to

1. Demonstrate a practical approach in utilizing various ICU equipment
2. Show a commitment to understanding and mitigating the hazards associated with ICU equipment's.
3. Value the importance of precision and accuracy in interpreting ICU equipment's

TABLE OF SPECIFICATIONS
INTENSIVE CARE MONITORING-II

S. No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/ Hours	Assessment	No of Items
				C	P	A				
TOPIC: RESPIRATORY MUSCLES										
1	Week-1	Respiratory Muscles	Recall primary respiratory muscles	C1			Interactive Lecture/SGDs	2	MCQs	5
2		Role of the intercostal muscles in breathing	Explain the role of the intercostal muscles in breathing	C2						
3		Application	Apply knowledge of respiratory muscle function to assess a patient's breathing	C3						
4		Effects of respiratory muscle weakness on breathing	Analyze the effects of respiratory muscle weakness on breathing	C4						
5		Respiratory muscle dysfunction	Evaluate the impact of respiratory muscle dysfunction on disease progression	C5						
6		Practical demonstration	Demonstrate proper technique for assessing respiratory muscle function independently		P4		Demonstration	1	OSPE/OSCE	1
7		SOPs	Demonstrate empathy and understanding when educating patients on respiratory muscle training effectively			A4	Role play			
TOPIC: SPIROMETERY										
8	Week-2	Definition	Define spirometry	C1			Interactive Lecture/SGDs	2	MCQs	4
9		Purposes	List the purposes of Spirometery	C2						
10		Principles	Explain the principles of lung volumes and capacities measured by spirometry	C2						
11		Types	Identify the different types of spirometers	C3						
12		Patient's preparation for spirometry	Describe the procedures for preparing patients for Spirometry testing.	C4						
13		Interpretation	Interpret spirometry results, including FEV1, FVC, and FEV1/FVC ratio	C5						
14		Practical demonstration	Demonstrate spirometry independently		P4		Demonstration	1	OSPE/OSCE	1
15		Comply to SOPs	Comply to SOPS for the procedure of spirometry effectively			A4	Demonstration			
TOPIC: ICU SCORING SYSTEM										
16	Week-3&4	APACHE II scoring system	Explain the components of the APACHE II scoring system	C1			Interactive Lecture/SGDs	4	MCQs	9
17		SAPS II scoring system	Describe the differences between APACHE II and SAPS II scoring systems	C2						
18		SOFA scoring system	Identify the organ systems assessed in the SOFA scoring system	C3						
19		Interpretation of ICU scores	Interpret the results of ICU scoring systems	C4						
20		Limitations	Discuss the limitations of ICU scoring systems	C5						
21		Practical demonstration	Apply ICU scoring systems in clinical practice scenarios independently		P4		Demonstration	2	OSPE/OSCE	1

22		SOPs	Demonstrate a commitment to using ICU scoring systems in clinical practice effectively			A4	Role play			
TOPIC: ICU CARE BUNDLE										
23		Definition	Define ICU care bundle	C1			Interactive Lecture/SGDs	2	MCQs	5
24	Week-5	Components	Identify the key components of the ICU care bundle	C2						
25		VAP prevention	Explain the strategies for preventing VAP in the ICU	C2						
26		Central line-associated bloodstream infection	Describe the measures to prevent CLABSI in the ICU	C3						
27		Urinary catheter related infection	Discuss the strategies for preventing Urinary catheter related infection in the ICU	C4						
28		Implementation	Analyze the challenges and opportunities for implementing the ICU care bundle	C5						
29		Practical demonstration	Demonstrate proper ventilator management techniques		P4		Demonstration	1	OSPE/OSCE	1
30		SOPs	Demonstrate effective communication with the healthcare team when implementing the ICU care bundle			A4	Role play			
TOPIC: PAIN ASSESMENT										
31	Week-6	Definition	Define pain	C1			Interactive Lecture/SGDs	2	MCQs	4
32		Impact on patients' physical and emotional well-being.	Describe the pain impact on patients' physical and emotional well-being.	C2						
33		Types	List the different types of pain	C2						
34		Pain assessment	Identify common pain assessment tools and scales	C3						
35		Importance	Describe the importance of pain assessment in patient care and treatment planning.	C4						
36		Limitation	Discuss the potential biases and limitations of pain assessment tools and scales.	C5						
37		Practical demonstration	Demonstrate pain assessment tools and scales independently		P4		Demonstration	1	OSPE/OSCE	1
38		SOPs	Communicate effectively with patients, families, and healthcare teams to ensure comprehensive pain management effectively			A4	Role play			
TOPIC: CENTRAL NERVOUS SYSTEM MONITORING										
39	Week-7	Definition	Define CNS monitoring	C1			Interactive Lecture/SGDs	2	MCQs	5
40		Classification	Classify CNS monitoring	C2						
41		Indication	List indications for CNS monitoring	C3						
42		Contraindication	Enlist contraindications of CNS monitoring	C4						
43		Importance	Explain the Importance of CNS monitoring	C5						
44		Practical demonstration	Demonstrate proper technique for inserting and maintaining CNS monitoring devices independently		P4		Demonstration	1	OSPE/OSCE	1
45		SOPs	Display empathy and understanding when interacting with patients and families who are undergoing CNS monitoring effectively			A4	Role play			

TOPIC: NUTRITIONAL MONITORING										
46	**Week -8**	Definition	Define nutritional monitoring	C1			Interactive Lecture/SGDs	2	MCQs	4
47		Classification	Classify nutritional monitoring	C2						
48		Indication	Identify indications of nutritional monitoring	C3						
49		Contraindication	Enlist contraindications of nutritional monitoring	C4						
50		Importance	Explain the Importance of nutritional monitoring	C5						
51		Practical demonstration	Demonstrate proper technique for obtaining anthropometric measurements (e.g., height, weight, body mass index)		P4		Demonstration	1	OSPE/OSCE	1
52		SOPs	Display empathy and understanding when interacting with patients who have nutritional deficiencies or disorders			A4	Role play			
TOPIC: CARDIAC MONITOR										
53	**Week-9**	Introduction	Introduce Cardiac monitor	C1			Interactive Lecture/SGDs	2	MCQs	5
54		Classification	Classify Cardiac monitor	C2						
55		Components	Identify Components of Cardiac monitor	C3						
56		Indications	Enlist indications of Cardiac monitoring	C4						
57		Limitations	Discuss the limitation of cardiac monitor	C5						
58		Practical demonstration	Demonstrate proper technique for applying and maintaining cardiac monitoring electrodes and leads independently		P4		Demonstration	1	OSPE/OSCE	1
59		SOPs	Maintain patient-centered care, prioritizing patient comfort and safety during cardiac monitoring effectively			A4	Role play			
TOPIC: ECG MACHINE										
60	**Week-10**	Introduction	introduce the ECG machine	C1			Interactive Lecture/SGDs	2	MCQs	4
61		Working principles	Explain the working principles of ECG machine	C2						
62		Classification	Classify ECG machine	C2						
63		Components	Identify Components of ECG machine	C3						
64		Indications	Enlist indications of ECG machine	C4						
65		Limitations	Discuss the limitations of ECG machine	C5						
66		Practical demonstration	Place ECG electrodes correctly on the patient's body independently		P4		Demonstration	1	OSPE/OSCE	1
67		SOPs	Maintain patient-centered care, prioritizing patient comfort and safety during ECG testing effectively			A4	Role play			
TOPIC: ULTRASOUND MACHINE										
68		Definition	Define the ultrasound machine	C1						5

69	Week-11	Working principles	Explain the working principles of ultrasound machine	C2			Interactive Lecture/SGDs	2	MCQs	
70		Classification	Classify ultrasound machine	C2						
71		Components	Identify Components of ultrasound machine	C3						
72		Indications	Enlist indications for the utilization of ultrasound machine	C4						
73		Limitations	List the limitations of ultrasound machine	C5						
74		Practical demonstration	Demonstrate proper technique for preparing patients for ultrasound exams independently		P4		Demonstration	1	OSPE/OSCE	1
75		SOPs	Maintain patient-centered care, prioritizing patient comfort and safety during ultrasound exams effectively			A4	Role play			
TOPIC: DEFIBRILLATOR										
76	Week-12	Definition	Define the Defibrillator	C1			Interactive Lecture/SGDs	2	MCQs	4
77		Classification	Classify Defibrillator	C2						
78		Components	Identify Components of Defibrillator	C3						
79		Indications	Enlist indications of Defibrillator	C4						
80		Limitations	Discuss the limitation of Defibrillator	C5						
81		Practical demonstration	Demonstrate proper technique for turning on and preparing the defibrillator for use independently		P4		Demonstration	1	OSPE/OSCE	1
82		SOPs	Demonstrate respect for patients' autonomy and dignity when providing care during a cardiac emergency effectively			A4	Role play			
TOPIC: BLOOD ANALYZER										
83	Week-13	Definition	Define the blood analyzer	C1			Interactive Lecture/SGDs	2	MCQs	5
84		Classification	Classify blood analyzer	C2						
85		Components	Identify Components of blood analyzer	C3						
86		Indications	Enlist indications of blood analyzer	C4						
87		Limitations	List the limitation of blood analyzer	C5						
88		Practical demonstration	Demonstrate proper technique for preparing and loading blood samples into the analyzer independently		P4		Demonstration	1	OSPE/OSCE	1
89		SOPs	Show appreciation for the importance of accurate and timely blood test results in patient diagnosis and treatment effectively			A4	Role play			
TOPIC: INFUSION PUMP										
90	Week-14	Definition	Define the infusion pump	C1			Interactive Lecture/SGDs	2	MCQs	4
91		Classification	Classify infusion pump	C2						
92		Components	Identify Components of infusion pump	C3						

93		Indications	Enlist indications of infusion pump	C4						
94		Limitations	List the limitation of infusion pump	C5						
95		Practical demonstration	Demonstrate proper technique for setting up and programming the infusion pump independently		P4		demonstration	1	OSPE/OSCE	1
96		SOPs	Communicate effectively with patients, families, and healthcare teams to ensure that infusion therapy is administered safely and effectively			A4	Role play			
TOPIC: BRONCHOSCOPY										
97	Week-15	Definition	Define the bronchoscopy	C1			Interactive Lecture/SGDs	2	MCQs	5
98		Classification	Classify bronchoscopy	C2						
99		Components	Identify Components of bronchoscopy	C3						
100		Indications	Enlist indications of bronchoscopy	C4						
101		Limitations	Discuss the limitation of bronchoscopy	C5						
102		Practical demonstration	Demonstrate proper technique for assembling and preparing the intubation trolley independently		P4		demonstration	1	OSPE/OSCE	1
103		SOPs	Maintain patient-centered care, prioritizing patient comfort and safety during bronchoscopy effectively			A4	Role play			
TOPIC: PREPARATION OF INTUBATION TROLLY										
104	**Week-16**	Definition	Define intubation trolley	C1			Interactive Lecture/SGDs	2	MCQs	4
105		Classification	Classify intubation trolley	C2						
106		Components	Identify components of intubation trolley	C3						
107		Importance	Discuss the importance of pre-intubation checks and preparation	C4						
108		Analysis	Analyze patient data to determine the need for intubation and select the appropriate size and type of endotracheal tube	C5						
109		Practical demonstration	Demonstrate proper technique for assembling and preparing the intubation trolley independently		P4		Demonstration	1	OSPE/OSCE	1
110		SOPs	Demonstrate respect for patients' autonomy and dignity when performing intubation effectively			A4	Role play			

Recommended books

1. **Egan's Fundamentals of Respiratory Care – Robert L. Wikins, James .Stoller,**
2. **The ICU Book – Paul L Marino (Lippincott, Williams & Wilkins)**
3. **Techniques in Bedside hemodynamic Monitoring – Elaine Kiess Daily Johnspeer Schroeder (Mosby)**
4. **Oxford handbook of critical care**

ASSESSMENT BREAKDOWN				
S. No	**Topics**	**No of MCQ**	**No of OSPE / OSCE Stations**	**Static / Interactive**
1	Respiratory Muscles	5	1	Static
2	Spirometery	4	1	Interactive
3	ICU Scoring System	9	1	Static
4	ICU Care Bundle	5	1	Static
5	Pain Assessment	4	1	Static
6	CNS Monitoring	5	1	Static
7	Nutritional Monitoring	4	1	Static
8	Cardiac Monitor	5	1	Interactive
9	ECG Machine	4	1	Interactive
10	Ultrasound Machine	5	1	Static
11	Defibrillator	4	1	Static
12	Blood Analyzer	5	1	Static
13	Infusion Pump	4	1	Static
14	Bronchoscopy	5	1	Static
15	Preparation Of Intubation Trolley	4	1	Static
Total	**15**	**70**	**15**	**15**

ECT-609 NEONATAL & PEDIATRIC CRITICAL CARE 3(2+1)

Course Description

This course will introduce students to the basic concepts of neonatal and pediatric critical care, focusing on the structures, functions, pathologies, and acute emergencies unique to this patient population. Students will gain an understanding of the basic principles of critical illnesses in neonates and children, emphasizing how these conditions progress into life-threatening emergencies. The course covers various disease states, abdominal trauma in children, respiratory distress, and pediatric septic shock. Emphasis is placed on developing the skills necessary to conduct a thorough clinical assessment, including neonatal resuscitation, pediatric advanced life support (PALS), and recognition of early warning signs of deterioration. Practical components aim to equip students to provide immediate and effective care in emergencies, such as respiratory failure or cardiac arrest, ensuring better outcomes for this vulnerable patient group.

Learning Objectives

Cognitive Domain

By the end of this course, students should be able to:

1. Describe the various neonatal and pediatric critical care emergencies.
2. Describe the clinical presentation of shock in neonates and children, including hypovolemic, cardiogenic, and septic shock.
3. Explain the concept of neonatal and pediatric sepsis and its systemic effects.
4. Describe the pathophysiology of bronchiolitis and its management.
5. Explain the various methods of assessment used in critically ill neonates and children.

Psychomotor Domain

By the end of this course, students should be able to:

1. Obtain detailed clinical history from caregivers and medical records for neonatal and pediatric emergencies.
2. Perform relevant physical examination techniques for neonates and pediatric patients, including vital signs and neurological status assessment.
3. Demonstrate effective airway management, including the use of endotracheal intubation and bag-valve-mask ventilation in neonates and children.
4. Perform appropriate assessment and management of pediatric and neonatal shock, including IV access and fluid resuscitation.
5. Conduct clinical and differential diagnosis as a team member during critical care scenarios, ensuring collaborative decision-making in Acute conditions

Affective Domain

By the end of this course, students should be able to:

1. Demonstrate punctuality
2. Follow the specified norms of the IL, SGD teaching & learning effectively
3. Demonstrate humbleness and use socially acceptable language during academic and social interactions with human models, colleagues, and teachers.
4. Demonstrate ethically competent decisions when confronted with an ethical, social, or moral problem in professional or personal life
5. Comply with SOPs of practical & procedure effectively

TABLE OF SPECIFICATIONS
NEONATAL & PEDIATRIC CRITICAL CARE 3(2+1)

S. No	Weeks	Contents	Learning outcomes	Domains			MIT'S	Time/ Hour	Assessment	No of items
				C	P	A				
1.	Week-1	**TOPIC: ASTHMA**								
2.		Definition	Define asthma	C1			Interactive Lecture/ SGDs	1	MCQ's	5
3.		Etiology	Explain the etiology of asthma in neonates and pediatric population	C2						
4.		Risk Factor	List the risk factors for asthma in neonates and pediatric population	C3						
5.		Clinical Manifestations	List the clinical manifestations of asthma in neonates and pediatric population	C3						
6.		Pathophysiology	Explain the pathophysiology of asthma in neonates and pediatric population	C4						
7.		Diagnosis	Interpret diagnostic studies for the diagnosis of asthma in neonates and pediatric population	C4						
8.		Management	Explain the management of asthma	C5						
9.		Practical Performance	Practical demonstration on the use of a metered-dose inhaler (mdi) with a spacer and oxygen therapy for managing an acute asthma attack independently		P4		Demonstration	1	OSPE/OSCE	
10.		Comply To Sops	Comply with sops for the use of a metered-dose inhaler (mdi) with a spacer and oxygen therapy for managing an acute asthma attack effectively			A4	Demonstration			
11.		**TOPIC: BREECH DELIVERY**								
12.		Define	Define breech delivery	C1						

13.		Types	list the types of breech presentation	C2		Interactive Lecture/ SGDs	1	MCQ's	5
14.		Causes	Identify the causes of breech presentation	C3					
15.		Diagnosis	Interpret various investigation for the diagnosis of breech delivery	C2					
16.		Management During Pregnancy	Explain the management of breech presentation during pregnancy	C4					
17.		Risks	List the risks of external cephalic version	C4					
18.		Management During Labor	Discuss the management of breech presentation during labor	C4					
19.		Risk To The Fetus Of Breech Delivery	List the risk to the fetus of breech delivery	C5					
20.		**TOPIC: CHILD WITH RESPIRATORY DISTRESS**							
21.		Definition	Define respiratory distress	C1		Interactive Lecture/ SGDs	1	MCQ's	5
22.		Risk Factors	List the risk factors for respiratory distress in children	C2					
23.		Causes	Illustrate the grading of acute respiratory distress	C2					
24.		Differential Diagnosis	Discuss the differential diagnosis of children with respiratory distress	C3					
25.		Pathophysiologic Approach	Discuss the pathophysiologic approach to clinical conditions causing respiratory distress	C3					
26.		Features	List the features of respiratory failure	C4					
27.		Pediatric Assessment Triangle	Examine pediatric assessment triangle	C4					
28.		Practical performance	Practical demonstration on the assessment of respiratory distress using the Pediatric Assessment Triangle independently		P4	Demo	1	OSPE/OSCE	
29.		Ethical consideration	Maintain Ethical consideration for the assessment of respiratory distress using the Pediatric Assessment Triangle effectively		A4	Role Play			
30.		**TOPIC: ANTENATAL CARE**							
31.	**Week-2**	Definition	Define antenatal care	C1		Interactive Lecture/ SGDs	1	MCQ's	3
32.		Antenatal Assessment Of Fetal Well-Being	Describe antenatal assessment of fetal well-being	C2					
33.		Clinical Evaluation Of Fetal Well-Being During Antenatal Period	Determine the clinical evaluation of fetal well-being during antenatal period	C3					
34.		Special Investigations	Explain the special investigations used for antepartum fetal surveillance	C3					
35.		Investigations	List the investigations used in late pregnancy during antenatal care	C4					
36.		Doppler Ultrasound Changes	Outline the antenatal Doppler ultrasound changes and the suggestive features of a compromised fetus	C5					
37.		**TOPIC: SYSTEMATIC APPROACH TO A SERIOUSLY ILL OR INJURED CHILD**							
38.		Definitions	Define the evaluate-identify-intervene sequence for the assessment of a seriously ill or injured child	C1					
39.		Primary And Secondary Assessment Methods	Explain the primary and secondary assessment methods in approaching a seriously ill or injured child	C2					

40.	**Week-3**	Diagnostic Studies	Explain the laboratory, and imaging studies required for the diagnosis of a seriously ill or injured child	C3			Interactive Lecture/ SGDs	2	MCQ's	8
41.		Emergency Management	Explain the emergency department management of a seriously ill or injured child	C4						
42.		Practical Performance	Practical demonstration of the evaluate-identify-intervene sequence for the assessment of a seriously ill or injured child independently		P4		Video Demonstration	1	OSPE/OSCE	
43.		Ethical Consideration	Maintain ethical consideration while performing the evaluate-identify-intervene sequence for the assessment of a seriously ill or injured child effectively			A4	Role Play			
44.	**Week-4**	**TOPIC: ARRHYTHMIAS IN CHILDREN**								
45.		Definition	Define arrhythmias	C1			Interactive Lecture/ SGDs	2	s MCQ's	6
46.		Causes	Discuss the causes of arrhythmias in children	C2						
47.		Symptoms	List the symptoms of arrhythmias in children	C2						
48.		Types Of Arrhythmias	Explain different types of arrhythmias in children	C3						
49.		Emergency Management	Devise a plan for the emergency room management of arrhythmias in children	C5						
50.		Classification Of Antiarrhythmic Drugs	Outline the classification of antiarrhythmic drugs for children with arrhythmias	C5						
51.		Practical Performance	Demonstration the identification of arrhythmias using cardiac monitoring independently		P4		Video demonstration	1	OSPE/OSCE	
52.		Comply To Sops	Comply with sops for the identification of arrhythmias using cardiac monitoring independently			A4	Role Play			
53.	**Week-5**	**TOPIC: BRONCHIOLITIS**								
54.		Definitions	Define bronchiolitis	C1			Interactive Lecture/ SGDs	2	MCQ's	3
55.		Pathophysiology	Explain the pathophysiology of bronchiolitis	C3						
56.		Causes	List the causes of bronchiolitis	C2						
57.		Clinical Features	List the clinical features of bronchiolitis	C2						
58.		Diagnostic Studies	interpret laboratory and imaging studies for the diagnosis of bronchiolitis	C3						
59.		Treatment	Explain the treatment of bronchiolitis	C3						
60.		Practical Performance	Demonstrate oxygen therapy via nasal cannula independently		P4		Video demonstration	1	OSPE/OSCE	
61.		Comply To Sops	Comply With SOPS For Oxygen Therapy Via Nasal Cannula effectively			A4	Role Play			
62.	**Week-6**	**TOPIC: NEWBORN CARE**								
63.		Definition	Define newborn care	C1			Interactive Lecture/ SGDs	2	MCQ's	3
64.		Basic Needs	List the basic needs of a baby at birth	C2						
65.		Thermal Protection	Explain the thermal protection, normal breathing, & infection prevention measures at and after delivery of the baby	C3						
66.		Baby Monitoring	Explain the monitoring of the baby till 1 hour after the birth	C3						
67.		APGAR Score Calculation	Demonstrate the APGAR score calculation by assessing a newborn's appearance, pulse, grimace, activity, and respiration.	C4						

68.		Purposes Of Immediate Care	List the purposes of immediate care of the newborn	C5						
69.		Practical Performance	Practical demonstration of the assessment and calculation of the APGAR score independently		P4		Practical demonstration	1	OSPE/OSCE	
70.		Ethical Norms	Maintain ethical norms for the assessment and calculation of the APGAR score effectively			A4	Role Play			
71.		**TOPIC: CHILDREN WITH BURNS AND SCALD**								
72.		Define	Define burns and scald	C1						
73.		Classification	Classify of burn injuries on the basis of depth and total body surface area burn	C2						
74.	**Week-7**	Burn Area Calculation	Demonstrate the calculation of burn area in children	C2						
75.		Laboratory & Imaging Studies	List the laboratory and imaging studies used for burns in children	C3			Interactive Lecture/ SGDs	2	MCQ's	3
76.		Transfer Criteria	Outline the American burn association criteria for patients who should be transferred to a burn center	C3						
77.		Treatment	Discuss the initial care of a child with burn injuries	C4						
78.		Complications	Illustrate the complications of burn injuries in children	C5						
79.		Practical Performance	Practical demonstration on vital signs assessment in child with burns and scalds independently		P4		Practical demonstration	1	OSPE/OSCE	
80.		Comply To SOP's	Comply with SOPS for vital signs assessment in a child with burns and scalds effectively			A4	Role Play			
81.		**TOPIC: CHILD WITH ACUTE SPINAL CORD INJURY**								
82.		Definition	Define acute spinal cord injury in children	C1						
83.		Clinical Manifestations	List the clinical manifestations of spinal cord injury in children	C2						
84.		Causes	List the causes of spinal cord injury in children	C2			Interactive Lecture/ SGDs	1	MCQ's	4
85.		Mechanism Of Injury	Explain the mechanism of spinal cord injury in children	C3						
86.		Spinal Cord Syndromes	List spinal cord syndromes in children with acute spinal cord injury	C3						
87.	**Week-8**	Initial Assessment And Rapid Support	Discuss initial assessment and rapid support in a child with a suspected spinal injury	C4						
88.		Management	Explain the management of spinal cord injury in children	C5						
89.		**TOPIC: NEAR DROWNING**								
90.		Definition	Define near drowning	C1						
91.		Signs And Symptoms	List the signs and symptoms of near drowning	C2						
92.		Risk Factors	List the risk factors of near drowning	C2						
93.		Classification	Classify near-drowning	C2			Interactive Lecture/ SGDs	1	MCQ's	3
94.		Types	Discuss the types of near-drowning	C3						
95.		Procedure	Explain the pathophysiology of near-drowning	C4						
96.		Treatment	Explain The Pre-hospital And Emergency Department Treatment Strategies For Near Drowning	C5						
97.		Practical Performance	Practical demonstration of application of head blocks and tape in a child with spinal injuries independently		P4		Practical demonstration	1	OSPE/OSCE	
98.		Comply To Sops	Comply With Sops For The Application Of Head Blocks And Tape In A Child With Spinal Injuries effectively			A4	Role play			

99.		**TOPIC: UPPER & LOWER RESPIRATORY TRACT INFECTIONS**								
100.		Definition	Define upper & lower respiratory tract infections	C1			Interactive Lecture/ SGDs	2	MCQ's	3
101.		Indications	List the signs and symptoms of upper & lower respiratory tract infections	C2						
102.	**Week-9**	Causes	List the most common causes of upper & lower respiratory tract infections	C2						
103.		Pathophysiology	Explain the pathophysiology of upper & lower respiratory tract infections	C3						
104.		Investigations	List the investigations used for the diagnosis of upper & lower respiratory tract infections	C4						
105.		Management	Explain the management of upper & lower respiratory tract infections in	C5						
106.		Practical Performance	Demonstrate chest auscultation to identify abnormal lung sounds independently		P4		Video demonstration	1	OSPE/OSCE	
107.		Comply To Sops	Comply With Sops For Auscultation To Identify Abnormal Lung Sounds effectively			A4	Video demonstration			
108.	**Week-10**	**TOPIC: CORD PROLAPSE**								
109.		Definition	Define cord prolapse	C1			Interactive Lecture/ SGDs	2	MCQ's	4
110.		Types	Discuss the types of cord prolapse	C2						
111.		Etiology	Explain the etiology of cord prolapse	C2						
112.		Diagnosis	Discuss the diagnosis of cord prolapse	C3						
113.		Effects of cord prolapse on mother and fetus	Outline the effects of cord prolapse on mother and fetus	C4						
114.		ED Management	Devise a plan for the emergency management of cord prolapse	C5						
115.		Practical Performance	Demonstrate the emergency management of cord prolapse by positioning the mother (e.g., knee-chest and trendelenburg position)independently		P4		Video demonstration	1	OSPE/OSCE	
116.		Ethical Norms	Maintain the ethical norms of the patient during the emergency management of cord prolapse effectively			A4	Role play			
117.		**TOPIC: CHILD WITH SEIZURES**								
118.		Definition	Define seizures	C1			Interactive Lecture/ SGDs	2	MCQ's	2
119.		Types Of Seizures	list the types of seizures in children	C2						
120.		Clinical Presentation	Discuss the clinical presentation of seizures in children	C2						
121.		Causes	List the causes of seizure in children	C2						
122.		History Taking	Obtain history relevant to the child presenting with seizures	C3						
123.		Factors that increase the risk of recurrent seizures	List factors that increase the risk of recurrent seizures in children	C3						
124.	**Week-11**	Imaging And Diagnostic Studies	Discuss the imaging and diagnostic studies for the evaluation of seizures in children	C3						
125.		General Approach	Evaluate a general approach to the evaluation of pediatric seizures	C4						
126.		Emergency Management	Devise a plan for the emergency management of seizure in children	C5						
127.		Practical Performance	Practical demonstration of applying the recovery position		P4		Practical	1	OSPE/OSCE	

			to maintain airway patency independently				demonstration			
128.		Comply To Sops	Comply with SOPs for the application of recovery position to maintain airway patency effectively			A4	Role play			
129.	Week-12	**TOPIC: SHOCK IN CHILDREN**								
130.		Definitions	Define shock	C1			Interactive Lecture/ SGDs	2	MCQ's	4
131.		Clinical Manifestations	List the clinical manifestations of shock in children	C2						
132.		Compensatory Mechanisms	explain the compensatory mechanisms of shock in children	C2						
133.		Pathophysiology	Explain the pathophysiology of shock	C3						
134.		Types Of Shock	Classify the types of shock in children	C4						
135.		Diagnosis	Discuss the diagnosis of shock in children	C3						
136.		Treatment Of Shock	Discuss the treatment for shock in children	C4						
137.		Drugs Used In Shock	Outline the drugs used for shock in children	C5						
138.		Practical Performance	Practical demonstration of the recognition of signs of shock effectively		P4		Video demonstration	1	OSPE/OSCE	
139.		Comply To Sops	Comply with sops for the demonstration recognition of signs of shock effectively			A4	Video demonstration			
140.	Week-13	**TOPIC: AIRWAY OBSTRUCTION**								
141.		Introduction	Introduce airway obstruction	C1			Interactive Lecture/ SGDs	2	MCQ's	2
142.		Causes	List the causes of airway obstruction	C2						
143.		Pathophysiology	Explain the pathophysiology of airway obstruction	C3						
144.		Clinical Manifestations	Discuss the clinical manifestations of airway obstruction	C3						
145.		Investigations	Discuss various investigations for the diagnosis of airway obstruction	C4						
146.		E.D Management	Devise a plan for the emergency management of airway obstruction	C5						
147.		Practical Performance	Practical demonstration on the assessment & management of airway obstruction using techniques like the Heimlich maneuver for older children back blows, and abdominal thrusts for infants independently		P4		Video demonstration	1	OSPE/OSCE	
148.		Ethical Norms	Maintain the ethical norms of the patient during the assessment and management of airway obstruction using techniques like the Heimlich maneuver for older children, back blows, and chest thrusts for infants effectively			A4	Role play			
149.	Week-14	**TOPIC: CHILD WITH ABDOMINAL TRAUMA**								
150.		Definition	Define abdominal trauma	C1			Interactive Lecture/ SGDs	2	MCQ's	3
151.		Causes	List the causes of abdominal trauma in children	C2						
152.		Relevant Anatomy	Discuss the relevant anatomy	C3						
153.		Types	Discuss the types of abdominal trauma in children	C3						
154.		Clinical Manifestations	List the clinical manifestations of abdominal trauma in children	C3						
155.		Diagnostic Studies	Discuss the laboratory and radiological investigations for the evaluation of abdominal trauma in children	C4						
156.		Treatment	Explain the treatment of a child with abdominal trauma	C5						
157.		Practical Performance	Practical demonstration of the initial assessment of abdominal trauma using the ABCDE approach,		P4		Video demonstration	1	OSPE/OSCE	

			independently							
158.		Ethical Norms	Maintain the ethical norms of the patient during the initial assessment of abdominal trauma using the ABCDE approach effectively			A4	Video demonstration			
159.	**Week-15**	**TOPIC: ACUTE CHEST TRAUMA**								
160.		Definition	Define acute chest trauma	C1			Interactive Lecture/ SGDs	2	MCQ's	3
161.		Causes	List the causes of chest trauma in children	C3						
162.		Pathophysiology	Explain the pathophysiology of chest trauma in children	C3						
163.		Clinical Presentation	Describe clinical presentation of chest trauma in children	C3						
164.		Common Chest Injuries	Explain the most common chest injuries in children	C4						
165.		Complications	Discuss the complications of head injury in children	C5						
166.		Emergency Management	Devise an E.D plan for the management of chest trauma in children	C5						
167.		Practical Performance	Practical demonstration on assessment of chest injuries using inspection, palpation, and auscultation independently		P4		Practical demonstration	1	OSPE/OSCE	
168.		Comply To Sops	Comply with SOPs for assessment of chest injuries using inspection, palpation, and auscultation effectively			A4	Role Play			
169.	**Week-16**	**TOPIC: CHILD WITH HEAD INJURY AND ITS MANAGEMENT**								
170.		Definition	Define head injury	C1			Interactive Lecture/ SGDs	2	MCQ's	3
171.		Causes	List the causes of head injury in children	C2						
172.		Pathophysiology	Discuss the pathophysiology of head injury in children	C3						
173.		Clinical Presentation	Discuss the clinical presentation of head injury in children	C3						
174.		Types Of Head Injury	Explain the types of head injuries in children	C4						
175.		Complications	Discuss the complications of head injury in children	C4						
176.		Emergency Management	Devise an E.D plan for the management of head injury in children	C5						
177.		Practical Performance	Practical demonstration of the application of cervical spine immobilization independently		P4		Role play	1	OSPE/OSCE	
178.		Comply To Sops	Comply with sops for the application of cervical spine immobilization effectively			A4	Role play			

Recommended Books:

1. **Nelson Text Book of Pediatrics 20th edition.**
2. **Text Book of Pediatrics by Prof Dr Azam Khan.**
3. **Emergency medicine manual.o .john.2005**
4. **Rosens Emergency Medicine; Concepts & Clinical Practice John. A Marx.2005**
5. **Oxford book of emergency medicine.**
6. **Oh; S Manual Of Intensive Care By Andrew Bersten.**
7. **The ICU Book Of Paul L Marino**

ASSESSMENT BREAKDOWN				
S.No	**Topics**	**No of MCQ**	**No of OSPE / OSCE Stations**	**Static / Interactive**
1	Asthma	5	0	
2	Breech Delivery	3	1	Static
3	Child With Respiratory Distress	5	1	Static
4	Antenatal Care	3	0	
5	Systematic Approach To A Seriously Ill Or Injured Child	8	1	Static
6	Arrhythmias In Children	6	1	Static
7	Bronchiolitis	3	1	Static
8	Newborn Care	3	1	Interactive
9	Children With Burns And Scald	3	1	Static
10	Child With Acute Spinal Cord Injury	4	1	Interactive
11	Near Drowning	3	0	
12	Upper & Lower Respiratory Tract Infections	3	1	Interactive
13	Cord Prolapse	4	1	Static
14	Child With Seizures	2	1	Interactive
15	Shock In Children	4	1	Static
16	Airway Obstruction	2	1	Interactive
17	Child With Abdominal Trauma	3	1	Static
18	Acute Chest Trauma	3	1	Static
19	Child With Head Injury And Its Management	3	1	Static
Total	**19**	**70**	**16**	**16**

ICT-606 SURGICAL INTENSIVE CARE 3(2+1)

Course Description

This course is designed to equip students with the essential knowledge and skills needed to manage surgical emergencies effectively. It emphasizes the importance of preventing Secondary injuries, developing critical decision-making abilities, and maintaining aseptic techniques in all patient care scenarios. The course fosters the ability to anticipate Potential complications, prioritize tasks, and adhere to high standards of infection control, ensuring patient safety and optimal outcomes.

Learning Objectives

Cognitive Domain

By the end of this course, students should be able to

1. Understand the causes and implications of secondary injuries in surgical emergencies.
2. Identify the steps to maintain asepsis in injections, operative procedures, and care of contagious patients.
3. Analyze and prioritize tasks based on the severity and urgency of the surgical situation.
4. Evaluate potential complications and plan appropriate interventions.

Psychomotor Domain

By the end of this course, students should be able to:

1. Perform aseptic techniques with precision in all procedures requiring injections or surgery.
2. Demonstrate proper use of surgical instruments and emergency equipment.
3. Administer life-saving procedures, such as wound management, in adherence to hospital protocols.
4. Execute safe patient handling techniques to avoid further injuries during emergencies

Affective Domain

By the end of this course, students should be able to:

1. Demonstrate punctuality
2. Demonstrate effective communication and collaboration with healthcare team members in high-pressure situations.
3. Exhibit a commitment to patient safety and ethical practices in emergency care.

4. Develop a professional attitude towards continuous learning and adapting to advancements in emergency care technologies.
5. Reflect on their role as medical technologists in delivering high-quality care in emergency and critical care environments.

TABLE OF SPECIFICATIONS
SURGICAL INTENSIVE CARE

S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/ Hours	Assessment	No of Items
				C	P	A				
TOPIC: ACUTE AIRWAY BLEED										
1	Week-1	Definition	Define airway bleeding	C1			Interactive Lecture/SGD	2	MCQs	
2		Types	Enlist different types of airway bleeds	C1						
3		Pathophysiology	Explain the pathophysiology of airway bleeding	C2						
4		Etiology	Discuss the etiology of airway bleeds	C3						
5		Management	Explain the pharmacological and surgical management of airway bleed	C4						
9		Practical	Demonstrate application of nasal packs independently		P4		Demo	1	OSPE/OSCE	
10		Comply To SOPS	Comply to SOPs for application of nasal packs independently			A4	Role play			
TOPIC: CHEST TUBE										
11	Week-2	Introduction	Introduce chest tube	C1			Interactive Lecture/SGD	2	MCQs	
12		Indication	List the indication of chest tube insertion	C2						
13		Procedure	Discuss the procedure of chest tube	C3						
14		Complication	List the complications of chest tube insertion	C3						
15		Post care	Explain the post care of chest tube insertion	C2						
16		Practical	Demonstrate chest tube insertion independently		P4		Demo	1	OSPE/OSCE	
17		comply to SOPS	Comply to SOPs for the insertion of chest tube effectively			A4	Demo			
TOPIC:CENTRAL VENOUS LINES										
18		Definition	Define central venous access	C1						
19		Insertion sites	outline sites of central venous access	C2						
20		Indication	List indications for central venous access	C3						

21	Week-3	Procedure	Discuss procedure protocols for insertion of central venous access	C3			Interactive Lecture/SGD	2	MCQS	
22		Complication	Enlist the complications of central venous access	C4						
23		Post care	Explain the post care of central venous access	C5						
24		Practical demonstration	Demonstrate central venous line placement independently		P4		Demo	1	OSPE/OSCE	
25		Informed consent	Obtain an informed consent in patients undergoing central venous line effectively			A4	Role play			
TOPIC: VENOUS CUT DOWN										
26	Week-4	Define	Define venous cut down	C1			Interactive Lecture/SGD	2	MCQS	
27		Insertion sites	Outline different insertion sites for venous cut down	C2						
28		Indication	list the indications for venous cut down	C3						
29		Procedure complication and post care	Explain the procedure of venous cut down	C4						
30		Complication	List the complications associated with venous cut down	C4						
31		post care	Explain the post- care of venous cut down	C5						
32		Practical	Video demonstration on insertion of venous cut down		P4		Demo	1	OSPE/OSCE	
33		Ethical considerations	Maintain ethical considerations for insertion of venous cut down			A4	Role play			
TOPIC: PERIPHERAL VENOUS ACCESS										
34	Week-5	Definition	Define peripheral venous access	C1			Interactive Lecture/SGD	2	MCQS	
35		Insertion sites	List the different sites for peripheral venous access	C2						
36		Indication	list indications for peripheral venous access	C3						
37		Procedure	Discuss the procedure for peripheral venous access	C4						
38		Post care	Explain the post care of peripheral venous access	C5						
39		Practical performance	Video demonstration on insertion of peripheral venous access		P4		Demo	1	OSPE/OSCE	
40		Comply to SOP	Comply to SOPs for performing peripheral venous access			A4	Role play			
TOPIC: TRACHEOSTOMY TUBE,CARE AND COMPLICATIONS										
41		Introduction	Introduce tracheostomy tube	C1						
43		Anatomy for tracheostomy	illustrate the relevant Anatomy for tracheostomy tube placement	C2						
44		Indications	List indications for tracheostomy tube placement	C3						

45	Week-6	Techniques	Explain surgical vs. percutaneous techniques for tracheostomy tube placement	C3			Interactive Lecture/SGD	2	MCQS	
46		Complication	Enlist the complication of tracheostomy tube placement	C4						
47		Post care	Discuss the post care of tracheostomy tube	C4						
48		Complications	Enlist the complications associated with tracheostomy tube	C5						
49		Practical performance	Demonstrate placement of tracheostomy tube		P4			1	OSPE/OSCE	
50		Comply to SOP	Comply to SOPs for performing tracheostomy tube placement			A4	Demo			
TOPIC: PNEUMOTHORAX & TENSION PNEUMOTHORAX										
51	Week-7 & Week 8	Definition	Define pneumothorax and tension pneumothorax	C1			Interactive Lecture/SGD	4	MCQS	
52		Classification	Classify Pneumothorax	C2						
53		Causes	list the causes of Pneumothorax & Tension Pneumothorax	C3						
54		Pathophysiology	Explain the pathophysiology of Pneumothorax and Tension Pneumothorax	C3						
55		Diagnosis	Explain the diagnostic approaches for Pneumothorax and Tension Pneumothorax	C4						
56		Management	Explain the surgical management for Pneumothorax and Tension Pneumothorax	C5						
57		Practical performance	Demonstrate needle decompression for pneumothorax independently		P4		Video Demonstration	2	OSPE/OSCE	
58		Comply to SOPS	Comply to SOPs for performing needle decompression for pneumothorax independently			A4	Video Demonstration			
TOPIC :HEMOTHORAX AND HYDROTHORAX										
59	Week 9 Week 10	Definition	Define Hemothorax and Hydrothorax	C1			Interactive Lecture/SGD	4	MCQS	
60		Causes	List the causes of Hemothorax and Hydrothorax	C2						
61		Pathophysiology	Explain the pathophysiology of Hemothorax and Hydrothorax	C3						
62		Diagnosis	Explain the diagnostic approaches for Hemothorax and Hydrothorax	C4						
63		Management	Explain the surgical management for Hemothorax and Hydrothorax	C5						
64		Practical performance	Demonstrate chest tube placement in patients with hemothorax independently		P4		Demo	2	OSPE/OSCE	
65		Comply to SOP	Comply to SOPS for the placement of chest tubes placement effectively			A4	Demo			

TOPIC: INTENSIVE CARE PROCEDURES (PERICARDIOCENTASIS, ASCETIC TAP, PLEURAL TAP, LUMBER PUNCTURE)										
66	**Week-11**	Definition	Define Pericardiocentasis, ascetic tap, pleural tap and lumbar puncture	C1			Interactive Lecture/SDG	2	MCQs/SEQs	
67		Indication	List indications for Pericardiocentasis, ascetic tap, pleural tap and lumbar puncture	C3						
68		Contraindications	List contraindications for Pericardiocentasis, ascetic tap, pleural tap and lumbar puncture	C2						
69		Complications	List complications for Pericardiocentasis, ascetic tap, pleural tap and lumbar puncture							
70		Post care	Explain the post care of Pericardiocentasis, ascetic tap, pleural tap and lumbar puncture	C3						
71		Practical performance	Video demonstration on Pericardiocentasis, ascetic tap, pleural tap and lumbar puncture		P4		Demo	1	OSPE/OSCE	
72		Comply to SOP	Comply to SOPs for the procedure of Pericardiocentasis, ascetic tap, pleural tap and lumbar puncture			A4	Video demo			
73	**TOPIC: CT & ULTRASOND GUIDED BIOPSIES, TYPES OF BRONCHOSCOPY, ECHOCARDIOGRAPHY , PULMONARY ANGIOGRAPHY)**									
74	**Week 12**	Definition	Define biopsy, bronchoscopy, echocardiography and angiography	C1			Interactive Lecture/SDG	1	MCQs/SEQs	
75		Ultrasound & CT guided biopsy	Explain ultrasound and CT guided biopsy	C2						
76		Indications	List indications for biopsy, bronchoscopy, echocardiography and angiography	C3						
77		Contraindications	List contraindications for biopsy, bronchoscopy, echocardiography and angiography	C3						

78		Complications	List complications associated with biopsy, bronchoscopy, echocardiography and angiography	C4						
79		Post- care	Explain the post care of biopsy, bronchoscopy, echocardiography and angiography	C5						
80		Practical performance	Demonstrate biopsy, bronchoscopy, echocardiography and angiography independently		P4		Video Demo		OSPE/ OSCE	
81		Comply to SOPs	Obtain an informed consent in patients undergoing biopsy, bronchoscopy, echocardiography and angiography effectively			A4	Role play			
			TOPIC: UPPER GASTROINTESTINAL BLEEDING							
82	**Week-13**	Definition	Define upper gastrointestinal bleeding	C1			Interactive Lecture/SDG	2	MCQs/SEQs	
83		Anatomy	Explain the anatomical landmarks for the upper gastrointestinal bleeding	C2						
83		Clinical Presentation	Describe the clinical presentation of upper gastrointestinal bleeding	C2						
84		Causes	List the causes of upper gastrointestinal bleeding	C3						
85		Risk factors	List the risk factors for upper gastrointestinal bleeding	C3						
86		Investigations	Interpret laboratory and radiological investigations for the diagnosis of upper gastrointestinal bleeding	C3						
87		Conservative treatment	Devise plan for the pharmacological treatment of upper gastrointestinal bleeding	C4						
88		Surgical management	Explain the surgical management of upper gastrointestinal bleeding	C5						
89		Practical performance	Video demonstration on endoscopy		P4		Demo	1	OSPE/OSCE	
90		Comply to SOP	Comply to SOPs for performing Endoscopy			A4				
			TOPIC: LOWER GASTROINTESTINAL BLEEDING							
91	**Week 14**	Definition	Define lower gastrointestinal bleeding	C1					MCQs/SEQs	
92		Anatomy	Describe the anatomical landmarks for lower gastrointestinal bleeding	C2						
93		Clinical Presentation	Describe the clinical presentation of lower gastrointestinal bleeding	C2						

94		Causes	List the causes of lower gastrointestinal bleeding	C2			Interactive Lecture/SDG	2		
95		Risk factors	List the risk factors for lower gastrointestinal bleeding	C3						
96		Investigations	Interpret laboratory and radiological investigations for the diagnosis of lower gastrointestinal bleeding	C4						
97		Management	Devise plan for the pharmacological management of lower gastrointestinal bleeding	C5						
98		Surgical Management	Explain the surgical management of lower gastrointestinal bleeding	C5						
99		Comply to SOPS	Demonstrate colonoscopy independently		P4		Video demo	1	OSPE/OSCE	
100		Ethical Norms	Maintain ethical norms of the patients with gastrointestinal bleeding effectively			A4				
TOPIC: INTRA OSSEOUS ACCESS										
101	**Week-15**	Definition	Define intra osseous access	C1			Interactive Lecture/SDG	2	MCQs/SEQs	6
102		Sites	Discuss the different sites used for intra osseous access	C3						
103		Indication	Discus the indication for intra osseous access	C2						
104		Procedure	Explain the procedure for intra osseous access	C2						
105		Complication	Discuss the complication of intra osseous access	C3						
106		Post care	Explain the post care of intra osseous access	C2						
107		Practical performance	Video demonstration on insertion of intra osseous access		P4		Demo	1	OSPE/OSEC	
108		comply to SOP	Comply SOPs for insertion of intra osseous access			A4	Role Play			
TOPIC: SUTURING SKILLS										
109	**Week-16**	Definition	Define suturing	C1			Interactive Lecture/SDG	2	MCQs/SEQs	6
110		Types	list the different types of needles	C3						
111		Principle	Explain the principle of suturing	C3						
112		Types	Explain the types of suture material	C2						
113		Suturing techniques and procedure	Explain the suturing techniques and procedure for suturing	C4						
114		Practical performance	Video demonstration on suturing		P4		Demo	1	OSPE/OSEC	
115		Comply to SOPS	Comply to SOPs for performing suturing			A4	Role Play			

Recommended Books:

1. **Emergency Medicine manual.O.John.2005**
2. **Rosen's Emergency Medicine; concepts & clinical practice Jhon A Marx.2005**
3. **Oxford Book of Emergency Medicine**
4. **The ICU book of Paul Marino**
5. **Oh;s manual of intensive care by Andrew Berstin**
6. **Churchill's pocket book of intensive care**
7. **Quick critical Care reference by Susan B Stillwell**

ASSESSMENT BREAKDOWN				
S.No	**Topics**	**No of MCQ**	**No of OSPE / OSCE Stations**	**Static / Interactive**
1	Acute airway bleed	6	1	Static
2	Suturing skills	6	1	Interactive
3	Intra osseous access	6	1	Static
4	Central venous line	4	1	Static
5	Peripheral access	6	1	Static
6	Venous cut down	5	1	Static
7	Pneumothorax	1	1	Static
8	Hemothorax	1	0	Static
9	Tension Pneumothorax	1	0	Static
10	Hydrothorax	1	0	Static
11	Bronchoscopy	6	1	Static
12	Chest tube	4	-	Static -
13	Tracheostomy tube	4	1	Static
14	Echocardiography	3	1	Static
15	Upper and Lower GI bleed	3	1	Static
16	Ascetic tap	2	1	Static
17	Pericardiocentasis	2	0	Static
18	Lumber puncture	3	-	Static
19	Biopsy	3	1	Static
20	Intensive care procedures	3	1	Static
Total	**20**	**70**	**14**	**14**

ECT-610 Cardiovascular Emergency 3(2+1)

Course Description

This course will introduce the students to recognize critical care priorities, including the identification and understanding of the physiological and psychological needs of patients in critical conditions. Students will explore the design, function, and collaborative roles of emergency care technologists and other healthcare professionals in providing effective care to critically ill patients, Proficiency in recognizing and utilizing essential emergency care equipment, instruments, and therapies. Students will develop technical expertise in the management of common and complex medical emergencies

Learning Objectives

Cognitive Domain

By the end of this course, students should be able to

1. Recognize critical care priorities, including physiological and psychological needs of critically ill patients.
2. Identify the roles and responsibilities of medical technologists and other healthcare professionals in emergency and critical care settings.
3. Demonstrate knowledge of emergency care equipment, instruments, and their appropriate applications.
4. Understand evidence-based management strategies for common and complex problems in emergency care settings.
5. Analyze case scenarios to develop problem-solving and decision-making skills in emergency care situations.

Psychomotor Domain

By the end of this course, students should be able to:

1. Operate and handle basic emergency care equipment.
2. Perform technical procedures such as basic life support (BLS), airway management, and wound care.
3. Apply emergency therapies, including the use of oxygen delivery systems and intravenous access.
4. Conduct patient assessments and monitor vital signs efficiently in emergency situations.
5. Participate in simulated emergency scenarios to demonstrate hands-on competence and teamwork.

Affective Domain

By the end of this course, students should be able to:

1. Demonstrate punctuality
2. Demonstrate effective communication and collaboration with healthcare team members in high-pressure situations.
3. Exhibit a commitment to patient safety and ethical practices in emergency care.
4. Develop a professional attitude towards continuous learning and adapting to advancements in emergency care technologies.
5. Reflect on their role as medical technologists in delivering high-quality care in emergency and critical care environments

TABLE OF SPECIFICATIONS

CARDIOVASCULAR EMERGENCY

S. No	Week	contents	Learning Outcomes	Domain			MIT's	Time/Hours	Assessment	No of items
				C	P	A				
TOPIC: BASIC ECG										
1.	Week- 1	Cardiovascular Emergencies	Define cardiovascular emergencies	C1			Interactive lecture/ SGDs	1	MCQ'S	3
2.		Definition	Define ECG	C2						
3.		Purposes of ECG	List the purposes of ECG	C3						
4.		Indications	List indications for ECG	C4						
5.		ECG waves	Relate various ECG waves according to cardiac cycle	C4						
6.		ECG leads	Describe ECG leads	C4						
7.		**TOPIC: ACUTE CHEST PAIN**								
8.		Definition	Define acute chest pain	C1			Interactive lecture/ SGDs	1	MCQ'S	4
9.		Causes	List the causes of acute chest pain	C2						
10.		Pathophysiology	Explain the pathophysiology of acute chest pain	C2						
11.		Clinical features	List the clinical features of acute chest pain	C3						
12.		Investigations	Interpret various investigations for the evaluation of acute chest pain	C4						
13.		Management	Explain the management of acute chest pain	C4						
14.		Practical performance	Demonstrate various ECG leads placement for ECG recording independently		A4		Practical demo	1	OSPE/ OSCE	
15.		Comply to SOPs	Comply to SOPs for the ECG machine effectively			P4				
16.	**TOPIC: ACUTE CORONARY SYNDROME(STABLE ANGINA, UNSTABLE ANGINA, ACUTE MYOCARDIAL INFARCTION)**									
17.	Week-2	Definition	Define Acute coronary syndrome	C1			Interactive lecture/ SGDs	2	MCQ'S	5
18.		Causes	List the causes of Acute coronary syndrome	C2						
19.		Pathophysiology	Explain the pathophysiology of Acute coronary syndrome	C2						
20.		Clinical features	List the clinical features of Acute coronary syndrome	C3						
21.		Investigations	Interpret various investigations for the evaluation of Acute coronary syndrome	C4						
22.		Management	Explain the management of Acute coronary syndrome	C5						
23.		Practical performance	Practical performance on ECG recording independently		P4		Practical demo	1	OSPE/ OSCE	
24.		SOPs	Comply to SOPs for ECG machine			A4	Role Play			
25.	**TOPIC: CARDIOGENIC SHOCK**									

26.		Definition	Define cardiogenic shock	C1		Interactive lecture/ SGDs	1	MCQ'S	3
27.		Causes	List the causes of cardiogenic shock	C2					
28.		Pathophysiology	Explain the pathophysiology of cardiogenic shock	C2					
29.		Clinical features	List the clinical features of cardiogenic shock	C3					
30.		Investigations	Interpret various investigations for the evaluation of cardiogenic shock	C4					
31.		Management	Explain the management of cardiogenic shock	C4					
32.		**TOPIC: SYNCOPE**							
33.	**Week-3**	Definition	Define syncope	C1		Interactive lecture/ SGDs	1	MCQ'S	2
34.		Causes	List the causes of syncope	C2					
35.		Pathophysiology	Explain the pathophysiology of syncope	C2					
36.		Clinical features	List the clinical features of syncope	C3					
37.		Investigations	Interpret various investigations for the evaluation of syncope	C4					
38.		Management	Explain the management of syncope	C4					
39.		Practical performance	Apply trendlenberg's position in patients with syncope independently		P4	Video Demo	1	OSPE/ OSCE	
40.		Ethical Norms	Maintain ethical norms while applying trendlenberg's position effectively		A4	Role Play			
41.		**TOPIC: CONGESTIVE HEART FAILURE & ITS COMPLICATIONS**							
42.	**Week-4**	Definition	Define congestive heart failure	C1		Interactive lecture/ SGDs	2	MCQ'S	5
43.		Causes	List the causes of congestive heart failure	C2					
44.		Pathophysiology	Explain the pathophysiology of congestive heart failure	C2					
45.		Clinical features	List the clinical features of congestive heart failure	C3					
46.		Investigations	Interpret various investigation for the evaluation of congestive heart failure	C4					
47.		Management	Explain the management of congestive heart failure	C4					
48.		Complications	List the complications of congestive heart failure	C5					
49.		Practical performance	Examine patients with congestive heart failure for the signs of congestion independently		P4	Video Demo	1	OSPE/ OSCE	
50.		Informed consent	Obtain informed consent in patients undergoing examination effectively		A4	Role Play			
51.		**TOPIC: PULSELESS ELECTRICAL ACTIVITY**							
52.		Definition	Define Pulseless electrical activity	C1		Interactive lecture/ SGDs	2	MCQ'S	3
53.		Causes	List the causes of Pulseless electrical activity	C2					
54.		Pathophysiology	Explain the pathophysiology of Pulseless electrical activity	C2					

55.	**Week-5**	Clinical features	List the clinical features of Pulseless electrical activity	C3						
56.		Investigations	Interpret various investigations for the evaluation of Pulseless electrical activity	C4						
57.		Management	Explain the management of Pulseless electrical activity	C5						
58.		Practical performance	Practical performance on high quality CPR in patients with pulseless electrical activity independently		P4		Practical demo	1	OSPE/ OSCE	
59.		Comply to SOPs	Comply to SOPs for CPR effectively			A4	Role Play			
60.	**TOPIC: CARDIOGENIC PULMONARY EDEMA**									
61.	**Week-6**	Definition	Define cardiogenic pulmonary edema	C1			Interactive lecture/ SGDs	1	MCQ'S	3
62.		Causes	List the causes of cardiogenic pulmonary edema	C2						
63.		Pathophysiology	Explain the pathophysiology of cardiogenic pulmonary edema	C3						
64.		Clinical features	List the clinical features of cardiogenic pulmonary edema	C3						
65.		Investigations	Interpret investigations for the evaluation of cardiogenic pulmonary edema	C4						
66.		Management	Explain the management of cardiogenic pulmonary edema	C5						
67.		Practical performance	Demonstrate sigs of cardiogenic pulmonary edema on a chest X- ray independently		P4		Video demo	1	OSPE/ OSCE	
68.		Comply to SOPs	Comply to SOPs for the assessment of a chest radiograph effectively			A4	Role Play			
69.		**TOPIC: ACUTE PERICARDITIS**								
70.		Definition	Define acute pericarditis	C1			Interactive lecture/ SGDs	1	MCQ'S	
71.		Causes	List the causes of acute pericarditis	C2						
72.		Pathophysiology	Explain the pathophysiology of acute pericarditis	C2						
73.		Clinical features	List the clinical features of acute pericarditis	C4						
74.		Investigations	Interpret various investigations for the evaluation of acute pericarditis	C4						
75.		Management	Explain the management of acute pericarditis	C5						
76.	**TOPIC: ACUTE MYOCARDITIS**									
77.		Definition	Define acute myocarditis	C1			Interactive lecture/ SGDs	1	MCQ'S	2
78.		Causes	List the causes of acute myocarditis	C2						
79.		Pathophysiology	Explain the pathophysiology of acute myocarditis	C3						
80.		Clinical features	List the clinical features of acute myocarditis	C3						
81.		Investigations	Interpret various investigations for the evaluation of acute myocarditis	C4						
82.		Management	Explain the management of acute myocarditis	C5						

83.		**TOPIC: PERICARDIAL EFFUSION**							
84.	**Week-7**	Definition	Define pericardial effusion	C1			Interactive lecture/ SGDs	1	MCQ'S	2
85.		Causes	List the causes of pericardial effusion	C2						
86.		Pathophysiology	Explain the pathophysiology of pericardial effusion	C3						
87.		Clinical features	List the clinical features of pericardial effusion	C3						
88.		Investigations	Interpret various investigations for the evaluation of pericardial effusion	C4						
89.		Management	Explain the management of pericardial effusion	C5						
90.		Practical performance	Demonstrate the procedure of Pericardiocentasis independently		P4		Video demo	1	OSPE/ OSCE	
91.		Comply to SOP's	Comply to SOPs for Pericardiocentasis effectively			A4	Role Play			
92.		**TOPIC: SYSTEMIC AND PULMONARY HYPERTENSION**							
93.	**Week-8**	Definition	Define systemic and pulmonary hypertension	C1			Interactive lecture/ SGDs	1	MCQ'S	5
94.		Causes	List the causes of systemic and pulmonary hypertension	C2						
95.		Pathophysiology	Explain the pathophysiology of systemic and pulmonary hypertension	C3						
96.		Clinical features	List the clinical features of systemic and pulmonary hypertension	C3						
97.		Investigations	Interpret various investigations for the evaluation of systemic and pulmonary hypertension	C4						
98.		Management	Explain the management of systemic and pulmonary hypertension	C5						
99.		Practical performance	Practical performance on the measurement of pulmonary artery wedge pressure independently		P4		Video demo	1	OSPE/ OSCE	
100.		Comply to SOP's	Comply to SOPs for the performance of PAWP effectively			A4	Role Play			
101.		**TOPIC: AORTIC DISSECTION**							
102.	**Week-9**	Definition	Define aortic dissection	C1			Interactive lecture/ SGDs	2	MCQ'S	4
103.		Causes	List the causes of aortic dissection	C2						
104.		Pathophysiology	Explain the pathophysiology of aortic dissection	C3						
105.		Clinical features	List the clinical features of aortic dissection	C3						
106.		Investigations	Interpret various investigations for the evaluation of aortic dissection	C4						
107.		Management	Explain the management of aortic dissection	C5						
108.		Practical performance	Demonstrate the aortic dissection's patient assessment on a cardiac monitor independently		P4		Video demo	1	OSPE/ OSCE	

109.		Comply to SOPs	Comply to SOPs for the cardiac monitor effectively			A4	Role Play			
110.	**TOPIC: AORTIC ANEURYSM**									
111.	**Week-10**	Definition	Define aortic aneurysm	C1			Interactive lecture/ SGDs	2	MCQ'S	5
112.		Causes	List the causes of aortic aneurysm	C2						
113.		Pathophysiology	Explain the pathophysiology of aortic aneurysm	C3						
114.		Clinical features	List the clinical features of aortic aneurysm	C3						
115.		Investigations	Interpret various investigations for the evaluation of aortic aneurysm	C4						
116.		Management	Explain the management of aortic aneurysm	C5						
117.		Practical performance	Demonstrate radiological features of aortic aneurysm on a chest radiograph independently		P4		Video demo	1	OSPE/ OSCE	
118.		Comply to SOPs	Comply to SOPs for the demonstration of a chest radiograph effectively			A4	Role Play			
119.	**TOPIC: HEART BLOCKS**									
120.	**Week-11**	Definition	Define heart blocks	C1			Interactive lecture/ SGDs	1	MCQ'S	4
121.		Causes	List the causes of heart blocks	C2						
122.		Pathophysiology	Explain the pathophysiology of heart blocks	C3						
123.		Clinical features	List the clinical features of heart blocks	C3						
124.		Investigations	Interpret ECG for the diagnosis of heart blocks	C4						
125.		Management	Explain the management of heart blocks	C5						
126.		Practical performance	Demonstrate ECG findings related to various types of heart blocks independently		P4		Video demo	1	OSPE/ OSCE	
127.		Comply to SOPs	Comply to SOPs for the interpretation of ECG paper effectively			A4	Role Play			
128.	**TOPIC: CARDIAC TAMPONADE**									
129.	**Week-12**	Definition	Define cardiac tamponade	C1			Interactive lecture/ SGDs	2	MCQ'S	4
130.		Causes	List the causes of cardiac tamponade	C2						
131.		Pathophysiology	Explain the pathophysiology of cardiac tamponade	C3						
132.		Clinical features	List the clinical features of cardiac tamponade	C3						
133.		Investigations	Interpret various investigations for the evaluation of cardiac tamponade	C4						
134.		Management	Explain the management of cardiac tamponade	C5						
135.		Practical performance	Demonstrate Beck's triad for the assessment of clinical signs related to cardiac tamponade independently		P4		Video Demo	1	OSPE/ OSCE	
136.		Ethical Norms	Maintain the ethical norms of the patient with cardiac tamponade effectively			A4	Role Play			

137.	**TOPIC: MANAGEMENT OF ARRHYTHMIAS (ATRIAL FLUTTER & ATRIAL FIBRILLATION)**									
138.	**Week-13**	Definition	Define arrhythmias	C1			Interactive lecture/ SGDs	2	MCQ'S	8
139.		Causes	List the causes of arrhythmias	C2						
140.		Pathophysiology	Explain the pathophysiology of arrhythmias	C3						
141.		Clinical features	List the clinical features of arrhythmias	C3						
142.		Investigations	Interpret ECG paper for the diagnosis of various types of arrhythmias	C4						
143.		Management	Explain the management of arrhythmias according to AHA guidelines	C5						
144.		Practical performance	Demonstrate the interpretation of ECG for the diagnosis of various types of arrhythmias independently		P4		Practical Demo	1	OSPE/ OSCE	
145.		Comply to SOPs	Comply to SOPs for the interpretation of ECG paper effectively			A4	Role Play			
146.	**TOPIC: MANAGEMENT OF VENTRICULAR FLUTTER & FIBRILLATION, SUPRAVENTRICULAR TACHYCARDIA)**									
147.	**Week- 14**	Definition	Define ventricular flutter, ventricular fibrillation and supraventricular tachycardia	C1			Interactive lecture/ SGDs	2	MCQ'S	
148.		Causes	List the causes of ventricular flutter, ventricular fibrillation and supraventricular tachycardia	C2						
149.		Pathophysiology	Explain the pathophysiology of ventricular flutter, ventricular fibrillation and supraventricular tachycardia	C3						
150.		Clinical features	List the clinical features of ventricular flutter, ventricular fibrillation and supraventricular tachycardia	C3						
151.		Investigations	Interpret ECG for the diagnosis of ventricular flutter, ventricular fibrillation and supraventricular tachycardia	C4						
152.		Management	Explain the management of ventricular flutter, ventricular fibrillation and supraventricular tachycardia according to AHA guidelines	C5						
153.		Practical performance	Demonstrate defibrillation in patients with arrhythmias independently		P4		Video demo	1	OSPE/ OSCE	
154.		Comply to SOPs	Comply to SOPs for the defibrillator effectively			A4	Role Play			
155.	**TOPIC: BRAD Y ARRHYTHMIAS**									
156.		Definition	Define Brad y arrhythmia	C1			Interactive lecture/	4	MCQ'S	4
157.		Causes	List the causes of Brad y arrhythmia	C2						

158.	**Week-15**	Pathophysiology	Explain the pathophysiology of Brad y arrhythmia	C3			SGDs			
159.		Clinical features	List the clinical features of Brad y arrhythmia	C3						
160.		Investigations	Interpret ECG for the evaluation of Brad y arrhythmia	C4						
161.		Management	Explain the management of Brad y arrhythmia according to AHA guidelines	C5						
162.		Practical performance	Demonstrate the pacemaker's placement in patients with fatal Brady arrhythmias independently		P4		Video Demo	2	OSPE/ OSCE	
163.		Comply to SOPs	Comply to SOPs for the pacemaker effectively			A4	Role Play			
164.		**TOPIC: CARDIAC PACING**								
165.	**Week-16**	Definition	Define cardiac pacing	C1			Interactive lecture/ SGDs	2	MCQ'S	
166.		Types	List the types of cardiac pacing	C2						
167.		Indications	List the indications for cardiac pacing	C3						
168.		Contraindications	List contraindications for cardiac pacing	C3						
169.		Procedure	Explain the procedure of cardiac pacing	C4						
170.		Post care	Explain the post care of cardiac pacing	C4						
171.		Complications	List the complications of cardiac pacing	C5						
172.		Practical performance	Demonstrate the procedure of cardiac pacing independently		P4		Video demo	1	OSPE/ OSCE	
173.		Comply to SOPs	Comply to SOPs for cardiac pacing effectively			A4	Role Play			

Recommended Books

1. **EMERGENCY Medicine manual.O .John.2005**
2. **Rosens emergency medicine; concepts & clinical practice John.A Marx.2005**
3. **Oxford book of emergency medicine.**
4. **Critical care medicine At a Glance. Richard Leasch.**
5. **Oh;s manual of intensive care by Andrew bersten.**
6. **The ICU book of Paul l Marino**
7. **Churchill's pocket book of intensive care by Simon M. whitely**
8. **Quick critical care reference by Susan B Stillwell**

ASSESSMENT BREAKDOWN				
S. No	**Topic**	**No of MCQ's**	**No of OSPE/OSCE station**	**Static / Interactive**
1.	Basic ECG	**3**	**1**	Interactive
2.	Acute Chest Pain	**4**	**1**	Static
3.	Acute Coronary Syndrome(Stable Angina, Unstable Angina, Acute Myocardial Infarction)	**5**	**1**	Static
4.	Cardiogenic Shock	**3**	**1**	Static
5.	Syncope	**2**	**1**	Static
6.	Congestive Heart Failure & Its Complications	**5**	**1**	Static
7.	Pulseless Electrical Activity	**3**	**1**	Static
8.	Cardiogenic Pulmonary Edema	**3**	**1**	Static
9.	Acute Pericarditis	**4**	**1**	Static
10.	Acute Myocarditis	**2**	**1**	Static
11.	Pericardial Effusion	**2**	**1**	Static
12.	Systemic And Pulmonary Hypertension	**5**	**1**	Static
13.	Aortic Dissection	**4**	**1**	Static
14.	Aortic Aneurysm	**5**	**1**	Static
15.	Heart Blocks	**4**	**1**	Interactive
16.	Cardiac Tamponade	**4**	**1**	Static
17.	Management Of Arrhythmias (Atrial Flutter & Fibrillation, Ventricular Flutter & Fibrillation, Supraventricular Tachycardia & Fibrillation)	**8**	**1**	Static
18.	Brady Arrhythmia	**2**	**1**	Static
19.	Cardiac Pacing	**2**	**1**	Static
Total		**70**	**19**	

THE END