KHYBER MEDICAL UNIVERSITY

RESPIRATORY THERAPY AND INTENSIVE CARE TECHNOLOGY CURRICULUM

STUDY GUIDE SEMESTER 6th

16 Weeks Activity Planner

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

CONTENTS

TOS Development Team		
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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.

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.

5th semester subjects for BS Respiratory Therapy and Intensive Care Technology		
S. No	**Subject**	**Duration**
1.	RRT-602 Advances in respiratory therapy and intensive care Credit Hours3(1+2)	16 Weeks
2.	ICT-603 Trauma Intensive Care Credit Hours3(2+1)	16 Weeks
3.	ICT-604 Clinical Laboratory Investigations Credit Hours 3(2+1)	16 Weeks
4.	ICT-605 Applied Physics Credit Hours2(1+1)	16 Weeks
5.	ECT-605 Burns & Toxicology Credit Hours3(2+1)	16 Weeks
6.	ANS-606 Anesthesia Equipment Credit Hours 3(2+1)	16 Weeks

BS RT AND ICT RRT-602 ADVANCES IN RESPIRATORY THERAPY AND INTENSIVE CARE 3(2+1)

COURSE DESCRIPTION

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

LEARNING OBJECTIVES

Cognitive Domain

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

1. Discuss advanced respiratory and Critical Care Concepts: Grasp fundamental and advanced concepts in respiratory therapy and intensive care.
2. Initial and Ongoing Patient Assessment: Comprehend the principles for assessing patients in critical care settings
3. Conduct Comprehensive Surveys: Understand primary and secondary surveys specific to critical care.
4. Use of advance technique in Respiratory and Critical Care.
5. Advanced Management Techniques: Comprehend techniques for managing various types of critical conditions, including respiratory, cardiovascular, and neurological emergencies.

Psychomotor Domain

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

1. Recognize and Assess Emergencies: Identify and assess critical emergencies accurately.
2. Perform Comprehensive Examinations: Conduct detailed history-taking and physical examinations.
3. Advance diagnostic tools: Diagnostic tools, including Chest X-ray, CT chest and polysomnography.
4. Record and Monitor Vital Signs: Accurately record vital signs and basics of ECG monitoring
5. Perform Cardiopulmonary Resuscitation (CPR): Provide effective CPR.

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

ADVANCES IN RESPIRATORY THERAPY AND INTENSIVE CARE

S. No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/ Hours	Assessment	No of Items
				C	P	A				
TOPIC: PATIENT HISTORY AND PHYSICAL EXAMINATION										
1.	Week-1	Knowledge	Define the importance of patient history and physical examination	C1			Interactive			
2.		Comprehension	Overview of patient history and physical examination	C2						
3.		Application	Identify the components of a comprehensive patient	C3						

			history				Lecture/SGDs	2	MCQs	05
4.		Analysis	Explain the physical examination techniques for different body systems	C4						
5.		Evaluation	Recognize the significance of abnormal physical examination findings	C5						
6.		Practical demonstration	Perform a comprehensive physical examination on a patient or simulator		P4		Demonstration	1	OSPE/OSCE	01
7.		SOPs	Demonstrate empathy and respect for patients' dignity and confidentiality during physical examination			A4				
TOPIC:RESPIRATORY SYSTEM EXAMINATION										
8.	Week-2	Knowledge	Identify the normal respiratory rate and breathing patterns	C1			Interactive Lecture/SGDs	2	MCQs	04
9.		Comprehension	Describe the anatomy and physiology of the respiratory system	C2						
10.		Application	Recognize the signs and symptoms of common respiratory disorders	C3						
11.		Analysis	Explain the purpose and procedure of respiratory system examination techniques	C4						
12.		Evaluation	Interpret abnormal respiratory examination findings	C5						
13.		Practical demonstration	Use a stethoscope correctly to auscultate lung sounds		P4		Demonstration	1	OSPE/OSCE	01
14.		SOPs	Recognize the importance of maintaining patient confidentiality during respiratory system examination			A4				
TOPIC: CARDIOVASCULAR SYSTEM EXAMINATION										
15.	Week-3	Knowledge	Describe the anatomy and physiology of the cardiovascular system	C1						
16.		Comprehension	Identify the normal cardiovascular parameters	C2			Interactive			

17.		Application	Recognize the signs and symptoms of common cardiovascular disorders	C3			Lecture/SGDs	2	MCQs	05
18.		Analysis	Explain the purpose and procedure of cardiovascular system examination techniques	C4						
19.		Evaluation	Interpret abnormal cardiovascular examination findings	C5						
20.		Practical demonstration	Demonstrate proper technique for measuring blood pressure and pulse rate		P4		Demonstration	1	OSPE/OSCE	01
21.		SOPs	Show willingness to adapt cardiovascular system examination techniques for patients with diverse needs			A4				
TOPIC: ABDOMINAL EXAMINATION										
22.	Week-4	Knowledge	Describe the anatomy and physiology of the abdominal organs	C1			Interactive Lecture/SGDs	2	MCQs	04
23.		Comprehension	Identify the normal abdominal examination findings	C2						
24.		Application	Recognize the signs and symptoms of common abdominal disorders	C3						
25.		Analysis	Explain the purpose and procedure of abdominal examination techniques	C4						
26.		Evaluation	Interpret abnormal abdominal examination findings	C5						
27.		Practical demonstration	Demonstrate proper technique for assessing abdominal tenderness and guarding		P4		Demonstration	1	OSPE/OSCE	01
28.		SOPs	Collaborate effectively with healthcare team members to provide comprehensive care for patients with abdominal disorders			**A4**				
TOPIC: NEUROLOGICAL EXAMINATION										
29.		Knowledge	Describe the anatomy and physiology of the nervous system	C1						

30.	Week -5	Comprehension	Identify the components of a comprehensive neurological examination	C2			Interactive Lecture/SGDs	2	MCQs	05
31.		Application	Recognize the signs and symptoms of common neurological disorders	C3						
32.		Analysis	Explain the purpose and procedure of neurological examination techniques	C4						
33.		Evaluation	Interpret abnormal neurological examination findings	C5						
34.		Practical demonstration	Perform a thorough cranial nerve examination		P4		Demonstration	1	OSPE/OSCE	01
35.		SOPs	Demonstrate a commitment to ongoing learning and professional development in neurological examination			A4				
TOPIC: BASIC LIFE SUPPORT/ADVANCE LIFE SUPPORT										
36.	Week-6	Knowledge	Describe the chain of survival and the importance of prompt action in cardiac arrest	C1			Interactive Lecture/SGDs	2	MCQs	04
37.		Comprehension	Identify the signs and symptoms of cardiac arrest, stroke, and other life-threatening emergencies	C2						
38.		Application	Explain the principles of BLS	C3						
39.		Analysis	Discuss the concepts of ALS, including airway management, ventilation, and pharmacological interventions	C4						
40.		Evaluation	Describe the importance of teamwork and communication in resuscitation efforts	C5						
41.		Practical demonstration	Demonstrate proper technique for CPR, including chest compressions and ventilations		P4		Demonstration	1	OSPE/OSCE	01
42.		SOPs	Demonstrate a commitment to ongoing learning and professional development in BLS and ALS			A4				
TOPIC: ORAL HEALTH PROTOCOLE										

43.	Week-7	Knowledge	Describe the importance of oral health in overall patient care	C1			Interactive Lecture/SGDs	2	MCQs	05
44.		Comprehension	Identify risk factors for oral health complications, including medications and medical conditions	C2						
45.		Application	Explain the principles of oral assessment, including inspection, palpation, and percussion	C3						
46.		Analysis	Discuss the different types of oral care products	C4						
47.		Evaluation	Describe the role of interdisciplinary collaboration in promoting oral health	C5						
48.		Practical demonstration	Perform a thorough oral cleaning, including removal of plaque and tartar		P4		Demonstration	1	OSPE/OSCE	01
49.		SOPs	Show willingness to adapt oral care protocols to meet individual patient needs			A4				
TOPIC: PATIENT CHARTING										
50.	Week-8	Knowledge	Describe the importance of accurate and timely patient charting	C1			Interactive Lecture/SGDs	2	MCQs	04
51.		Comprehension	Identify the essential components of a patient's chart, including medical history, medications, and treatment plans	C2						
52.		Application	Explain the different types of charting methods, including narrative, problem-oriented, and SOAP notes	C3						
53.		Analysis	Discuss the role of electronic health records (EHRs) in patient charting	C4						
54.		Evaluation	Describe the legal and ethical implications of patient charting	C5						
55.		Practical demonstration	Perform a thorough chart review, identifying essential components and documenting findings		P4		Demonstration			

56.		SOPs	Recognize the importance of accurate and timely charting in promoting patient safety and quality care			A4		1	OSPE/OSCE	01
TOPIC: CHEST X-RAY										
57.	Week-9 and Week-10	Knowledge	Describe the indications and contraindications for chest X-ray	C1			Interactive Lecture/SGDs	4	MCQs	09
58.		Comprehension	Identify the different types of chest X-ray views, including PA, AP, and lateral	C2						
59.		Application	Explain the principles of chest X-ray interpretation, including normal and abnormal findings	C3						
60.		Analysis	Discuss the role of chest X-ray in diagnosing various respiratory and cardiovascular conditions	C4						
61.		Evaluation	Describe the importance of radiation safety and protection during chest X-ray procedures	C5						
62.		Practical demonstration	Demonstrate ability to identify and correct common errors in chest X-ray positioning and technique		P4		Demonstration	1	OSPE/OSCE	01
63.		SOPs	Demonstrate respect for patient autonomy and dignity during chest X-ray procedures			A4				
TOPIC: CT- CHEST										
64.	Week-11 and Week-12	Knowledge	Describe the indications and contraindications for CT chest scans	C1			Interactive Lecture/SGDs	4	MCQs	09
65.		Comprehension	Identify the different types of CT chest scans, including non-contrast, contrast-enhanced, and high-resolution CT	C2						
66.		Application	Explain the principles of CT chest scan interpretation, including normal and abnormal findings	C3						
67.		Analysis	Discuss the role of CT chest scans in diagnosing and monitoring various respiratory and cardiovascular conditions	C4						

68.		Evaluation	Describe the importance of radiation safety and protection during CT chest scans	C5						
69.		Practical demonstration	Perform a thorough analysis of CT chest scan images, identifying normal and abnormal findings		P4		Demonstration	1	OSPE/OSCE	01
70.		SOPs	Demonstrate empathy and understanding when interacting with patients undergoing CT chest scans			A4				
TOPIC: TECHNIQUE AND INTERPRETATION OF ECG										
71.	Week-13	Knowledge	Describe the fundamental principles of electrocardiography	C1			Interactive Lecture/SGDs	2	MCQs	05
72.		Comprehension	Identify the different types of ECG leads	C2						
73.		Application	Explain the normal ECG patterns	C3						
74.		Analysis	Discuss the various ECG abnormalities	C4						
75.		Evaluation	Describe the importance of ECG interpretation in diagnosing and managing cardiovascular diseases	C5						
76.		Practical demonstration	Demonstrate ability to measure ECG intervals and calculate heart rate		P4		Demonstration	1	OSPE/OSCE	01
77.		SOPs	Recognize the importance of effective communication with patients and healthcare team members regarding ECG results and implications			A4				
TOPIC:POLYSOMNOGRAPHY										
78.	**Week-14**	Knowledge	Describe the fundamental principles of polysomnography	C1			Interactive Lecture/SGDs	4	MCQs	09
79.		Comprehension	Identify the various types of sleep disorders, including insomnia and sleep apnea	C2						
80.		Application	Explain the normal and abnormal polysomnography (PSG) findings	C3						

81.	**and Week-15**	Analysis	Discuss the role of polysomnography in diagnosing and managing sleep disorders	C4						
82.		Evaluation	Describe the importance of polysomnography in sleep research and its applications in various fields	C5						
83.		Practical demonstration	Show proficiency in scoring sleep stages and detecting respiratory events		P4		Demonstration	1	OSPE/OSCE	01
84.		SOPs	Demonstrate empathy and understanding when interacting with patients undergoing polysomnography			A4				
TOPIC: FLUID AND ELECTROLYTE THERAPY AND ITS MANAGEMENT										
85.	Week-16	Knowledge	Describe the fundamental principles of fluid and electrolyte balance	C1			Interactive Lecture/SGDs	2	MCQs	04
86.		Comprehension	Identify the different types of fluid and electrolyte disorders, including dehydration, hypovolemia, and hyperkalemia	C2						
87.		Application	Explain the principles of fluid and electrolyte therapy, including the use of crystalloids, colloids, and electrolyte supplements	C3						
88.		Analysis	Discuss the role of laboratory tests, including electrolyte panels and osmolality	C4						
89.		Evaluation	Describe the importance of monitoring and adjusting fluid and electrolyte therapy based on patient response	C5						
90.		Practical demonstration	Show proficiency in calculating fluid and electrolyte requirements, including the use of formulas		P4		Demonstration	1	OSPE/OSCE	01
91.		SOPs	Demonstrate a commitment to ongoing learning and professional development in fluid and electrolyte management			A4				

Recommended Books:

1. Bate's guide for history and physical examination
2. Paul L Marino's book of ICU
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.	Patient history and physical examination	05	01	Static and Interactive
2.	Respiratory system examination	04	01	Static and Interactive
3.	Cardiovascular system examination	05	01	Static and Interactive
4.	Abdominal examination	04	01	Static and Interactive
5.	Neurological examination	05	01	Static and Interactive
6.	Basic life support/advance life support	04	01	Static and Interactive
7.	Oral health protocols	05	01	Static and Interactive
8.	Patient charting	04	01	Static and Interactive
9.	Chest x-ray	09	01	Static and Interactive
10.	Ct chest	09	01	Static and Interactive
11.	Technique and interpretation of ECG	05	01	Static and Interactive
12.	Polysomnography	09	01	Static and Interactive
13.	Fluid and electrolyte therapy and its management	04	01	Static and Interactive
Total	**13**	**70**	**13**	**13**

BS RT AND ICT | ICT-6033 | TRAUMA INTENSIVE CARE | 3(2+1)

COURSE DESCRIPTION

This course provides advanced knowledge and clinical skills for the management of the critically ill trauma patients in the intensive care unit. It focuses on the pathophysiology, diagnosis and evidence- based treatment of the life threatening injuries and complications resulting from trauma. This course will help the students' understand the pathophysiological impact of the major trauma and principles of the critical care management perform comprehensive assessments and interventions for the trauma patients in ICU. This course will also enable the students to interpret diagnostic tests and monitoring data to guide clinical decision, collaborate effectively with a multidisciplinary team and apply current guidelines and protocols in trauma intensive care.

LEARNING OBJECTIVES

Cognitive Domain

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

1. Understand the physiological impact of major trauma and principles of critical care management
2. Explain the pathophysiological responses to major trauma and how they affect organ systems in critically ill patients.
3. Analyze diagnostic data and clinical indicators to assess the severity of trauma and guide intensive care interventions.
4. Evaluate evidence- based treatment strategies for managing traumatic injuries including intensive care support procedures.
5. Synthesize information from the clinical scenarios to formulate care plans that address both immediate and long term needs of trauma patients in ICU.

Psychomotor Domain

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

1. Demonstrate proper technique in airway management including endotracheal tube intubation and maintenance of ventilatory support in trauma patients.
2. Perform advance cardiovascular monitoring procedures such as insertion of CVP and arterial lines and interpret the date effectively.
3. Administer emergency medications and fluids effectively
4. Operate and troubleshoot critical care equipment including mechanical ventilator, infusion pumps and bed side monitors in trauma care.
5. Execute sterile techniques during invasive procedures such as chest tube insertion and wound care to prevent infection.

Affective Domain

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

1. Demonstrate empathy and compassion when communicating with trauma patients and their families during high stress and emotionally charged situations.
2. Exhibit a strong sense of responsibility and accountability in delivering safe and ethical care in the ICU setting.
3. Respect the role and contribution of the multidisciplinary team members and engage in effective inter- professional collaboration
4. Respond calmly and confidently during trauma emergency situations, maintaining professionalism under pressure.
5. Value the importance of continuous learning and reflection to improve clinical judgment and patient outcomes in trauma intensive care.

TABLE OF SPECIFICATIONS

TRAUMA INTENSIVE CARE

s. No	Week	content	Learning outcome	Domain			MIT's	Time/ Hours	Assessment	No of items
				C	P	A				
TOPIC: : INTRODUCTION TO TRAUMA AND TRAUMA TYPES										
1.	Week-1	Definition	Define trauma	C1			Interactive lecture/ SGDs	2	MCQ's	03
2.		Importance of time	Explain the importance of time in the context of trauma event	C2						
3.		Types of trauma	Describe the types of trauma	C2						
4.		Major causes	List the major causes of trauma	C2						
5.		Patient's response to injury	Explain the patient's response to an injury	C3						
6.		PTSD	Describe post- traumatic stress disorder	C3						
7.		Practical performance	Demonstrate various trauma types through charts independently		P4		Video demo	1	OSPE/ OSCE	
8.		Comply to SOPs	Comply to SOPs for handling the charts effectively			A4				
TOPIC: TRIAGE										
9.	Week-2	Definition	Define triage, mass and multiple causality	C1			Interactive lecture/ SGDs	2	MCQ's	03
10.		Principles	Explain the principle of triage	C2						
11.		Types	Explain the types of triage	C2						
12.		Purposes	List the purposes of triage	C2						
13.		triage Categories	Describe various categories of patients on the basis of triage	C2						
14.		Triage systems	Explain the triage systems	C3						

15.		Triage in various settings	Explain triage in various settings as an example	C3						
16.		Ethical considerations	Explain ethical considerations that must be applied during triage	C4						
17.		Tool & equipment used in triage	Describe various tools and equipment used during triage	C4						
18.		Practical performance	Demonstrate labeling the patients based on their priorities of need for immediate care independently		P4		Video Demo	1	OSPE/ OSCE	
19.		Ethical Norms	Maintain the ethical norms of the patients effectively			A4				
TOPIC: INITIAL ASSESSMENT AND MANAGEMENT										
20.	Week-3	Introduction	Introduce initial assessment and management of a trauma patient	C1			Interactive lecture/ SGDs	2	MCQ's	05
21.		Preparation	Explain the importance of teamwork in the initial assessment of a trauma patient.	C2						
22.		Triage	Identify the correct sequence of priorities for assessment of a severely injured patient.	C2						
23.		Primary Survey	Apply the principles outlined in the primary and secondary surveys to the assessment of a multiply injured patient	C3						
24.		Resuscitation	Apply guidelines and techniques to the initial resuscitative and definitive-care phases of the treatment of a multiply injured patient.	C3						
25.		Adjuncts to Primary Survey and Resuscitation	Explain the importance of adjuncts in the assessment and monitoring of a trauma patient	C3						
26.		Consider Need for Patient Transfer	Recognize patients who will require transfer for definitive management	C3						
27.		Secondary Survey	Explain the AMPLE history and head to toe examination of a trauma patient	C3						
28.		Reevaluation	Reevaluate a patient who is not responding appropriately to resuscitation and management.	C4						
29.		Practical performance	Demonstrate a chin-lift or jaw-thrust maneuver for the ascertaining airway patency independently		P4		Practical Demo	1	OSPE/ OSCE	
30.		Comply to SOPs	Maintain ethical norms of the patient while ascertaining airway patency effectively			A4				
TOPIC: PRIMARY SURVEY AND SECONDARY SURVEY										
31.	Week-4	Definition	Define primary survey and resuscitation	C1			Interactive lecture/ SGDs	2	MCQ's	06
32.		Team approach	Explain importance of teamwork in initial assessment of a trauma patient	C2						
33.		Assessment	Describe the correct sequence of priorities for assessment of a severely injured	C2						
34.		Phases of trauma resuscitation	Describe guidelines and techniques to the initial resuscitative and definitive-care phases of the treatment of a multiply injured patient	C3						

35.		Mechanism of injury	Explain how a patient's medical history and the mechanism of injury contribute to the identification of injuries	C3						
36.		Airway maintenance with C-spine protection	Illustrate the techniques of maintaining a patent airway in patients with suspected or confirm cervical spine injury with reference to chin left- jaw thrust maneuvers	C3						
37.		Breathing and ventilation	Describe the ways for the assessment of breathing and maintaining an adequate ventilation	C3						
38.		Circulation & hemorrhage control	Describe the steps for the effective hemorrhage control	C3						
39.		Disability and neurological evaluation	Describe the focused neurological examination and GCS assessment in categorization of the patients	C3						
40.		Exposure & environmental control	Explain exposure of the patient and maintenance of the safe environment while performing primary survey	C3						
41.		Patient transfer	Recognize patients who will require transfer for definitive management	C4						
42.		Adjuncts to primary survey	Describe adjuncts to primary survey	C4						
43.		AMPLE history	Explain AMPLE history pertaining to secondary survey	C4						
44.		Adjuncts to secondary survey	Explain adjuncts to secondary survey	C4						
45.		Practical performance	Demonstrate assessment of vital signs independently		P4		Practical Demo	1	OSPE/ OSCE	
46.		Comply to SOPs	Comply to SOPs for the assessment of vital signs effectively			A4				
TOPIC: CIRCULATION AND HEMORRHAGE CONTROL										
47.	Week-5	Introduction	Introduce circulation and hemorrhage control	C1			Interactive lecture/ SGDs	2	MCQ's	04
48.		Features of inadequate perfusion	List the features of inadequate perfusion	C2						
49.		Compromising factors	List factors that compromise circulation	C2						
50.		Fluids for circulation maintenance	Explain fluids for the maintenance of circulation	C3						
51.		Potential sites of hemorrhage	Describe potential sites for bleeding	C3						
52.		Steps of hemorrhage control	Describe steps for hemorrhage control	C4						
53.		Practical performance	Demonstrate application of the direct pressure for the hemorrhage control independently		P4		Practical Demo	1	OSPE/ OSCE	
54.		Ethical norms	Maintain ethical norms of the patient effectively			A4				
TOPIC: TRAUMA SCOREAND TRAUMA FLOW SHEET										
55.	Week-6	Introduction	Introduce trauma score	C1			Interactive lecture/		MCQ's	04
56.		Types	List the types of trauma scores	C2						

57.		Components	Describe the components of each type of trauma score	C2			SGDs			
58.		Patients classification	Explain the significance of trauma scores in the evaluation and prioritization of the critically ill patients	C2						
59.		Applications	Explain the practical applications of each type of trauma score	C3						
60.		Limitations	List the limitations of trauma scores	C3						
61.		Trauma flow sheet	Introduce trauma flow sheet	C3						
62.		Purposes	List the purposes of trauma flow sheet	C3						
63.		Contents	Describe the contents of the trauma flow sheet	C3						
64.		Importance	Explain the importance of the trauma flow sheet	C3						
65.		Structure	Describe the structure of the trauma flow sheet	C4						
66.		Clinical applications	Explain the practical applications of the trauma flow sheet	C4						
67.		Limitations	List the limitations of the trauma flow sheet	C4						
68.		Practical performance	Demonstrate documentation in the trauma flow sheet independently		P4		Practical Demo	1	OSPE/ OSCE	
69.		Comply to SOPS	Comply how to take care of the trauma flow sheet effectively			A4				
TOPIC: TRAUMA MANAGEMENT PRE AND IN HOSPITAL PHASE										
70.	Week-7	Introduction	Introduce trauma management in pre and hospital settings	C1			Interactive lecture/ SGDs	2	MCQ's	04
71.		Scene safety	Explain the significance of scene assessment in pre- hospital trauma care	C2						
72.		Chain of rescue	Explain the chain of rescue in pre- hospital trauma care	C2						
73.		Goals	List goals of the trauma management in pre and in-hospital phases	C2						
74.		Airway management	Explain airway management protocols in pre- hospital trauma care	C3						
75.		Breathing and ventilation	Explain rapid assessment and management of the breathing and ventilation in pre- hospital trauma care	C3						
76.		Circulation and hemorrhage control	Explain the steps for hemorrhage control and maintenance of the circulation in the pre- hospital trauma care	C3						
77.		Disability and neurological status	Explain the significance of the Glasgow coma scale assessment in prioritization of the injured patients in pre-hospital settings	C3						
78.		Exposure and environmental control	Explain the exposure of the patient for the identification of the obvious injuries while maintaining a safe environment	C3						
79.		Patient's extrication	Explain the patient's extrication in pre- hospital settings	C3						
80.		Spinal immobilization	Illustrate the procedure of spinal immobilization to prevent catastrophic spinal injuries	C4						
81.		Fractures and	Explain management of the fractures and musculoskeletal	C4						

		musculoskeletal injuries	injuries in pre- hospital settings							
82.		Communication and documentation	Explain the key components of the pre-hospital communication and documentation of the incidents for future uses	C4						
83.		Transport decision making	List the factors determining the need for transfer to definitive care	C4						
84.		Practical performance	Demonstrate the practical application of the spinal board for the spinal immobilization independently		P4		Video Demo	1	OSPE/ OSCE	
85.		Ethical norms	Maintain the ethical norms of the patient effectively			A4				
TOPIC: INJURY PREVENTION										
86.	Week-8	Introduction	Introduce injury prevention	C1			Interactive lecture/ SGDs	2	MCQ's	03
87.		Classification	Classify injury prevention	C2						
88.		Haddon Matrix	Explain Haddon Matrix approach for understanding injury prevention	C3						
89.		Components	Describe the components of injury prevention	C3						
90.		Developing an injury prevention program	Explain the importance of developing an injury prevention program- a public health approach	C4						
91.		Practical performance	Demonstrate the practical uses of PPE independently		P4		Video Demo	1	OSPE/ OSCE	
92.		Comply to SOPs	Comply to SOPs for the applications of PPE effectively			A4				
TOPIC: AIR WAY MANAGEMENT WITH CERVICAL INJURY										
93.	Week-9	O2 therapy in trauma patients	List the indications of supplemental oxygen administration in injured patients	C1			Interactive lecture/ SGDs	2	MCQ's	05
94.		Airway compromising factors	List the clinical situations in which airway compromise is likely to occur.	C2						
95.		Airway obstruction	Recognize the signs and symptoms of acute airway obstruction	C2						
96.		Inadequate ventilation	Recognize ventilatory compromise and signs of inadequate ventilation	C3						
97.		Establishing patent airway	Describe the techniques for establishing and maintaining a patent airway.	C3						
98.		Adequate oxygenation and ventilation	Describe the techniques for confirming the adequacy of ventilation and oxygenation, including pulse oximetry and end-tidal CO2 monitoring.	C3						
99.		Definitive airway	Describe definitive airway and its significance	C3						
100.		Rapid Sequence intubation	List the indications for rapid sequence intubation.	C4						
101.		Post care	Outline the steps necessary for maintaining oxygenation before, during, and after establishing a definitive airway	C4						

102.		Practical performance	Demonstrate Orotracheal intubation independently		P4		Video Demo	1	OSPE/ OSCE	
103.		Comply to SOPs	Comply to SOPs for handling laryngoscope effectively			A4				
TOPIC: CHEST TRAUMA										
104.	Week-10	Introduction	Introduce thoracic trauma	C1			Interactive lecture/ SGDs	2	MCQ's	05
105.		Primary survey	Explain life threatening injuries that compromise airway, breathing and circulation of the patient following a chest trauma (Airway obstruction, Tension pneumothorax, Open pneumothorax, Flail chest and pulmonary contusion , Massive hemothorax, Cardiac tamponade)	C2						
106.		Resuscitative thoracotomy	List the indications for resuscitative thoracotomy for management of life threatening chest injuries	C3						
107.		Secondary survey	Explain potentially life threatening injuries following a chest trauma (Simple pneumothorax, Hemothorax, Pulmonary contusion, Tracheobronchial tree injury , Blunt cardiac injury, Traumatic aortic disruption, Traumatic diaphragmatic injury, Blunt esophageal rupture)	C3						
108.		Management	Explain the emergency room management of the life threatening and potentially life threating chest injuries	C3						
109.		Other chest injuries	Explain the management of subcutaneous emphysema, Thoracic crush injuries, Sternal, rib, and clavicular fractures	C4						
110.		Practical performance	Demonstrate chest tube placement in patients with chest trauma independently		P4		Video Demo	1	OSPE/ OSCE	
111.		Comply to SOPs	Comply to SOPs for the chest tube placement effectively			A4				
TOPIC: MAXILLOFACIAL TRAUMA										
112.	Week-11	Introduction	Introduce maxillofacial trauma	C1			Interactive lecture/ SGDs	2	MCQ's	04
113.		Causes	List the causes of maxillofacial trauma	C2						
114.		Mechanism of injury	Explain the mechanisms of maxillofacial trauma	C3						
115.		Primary survey	Identify life threatening maxillofacial injury by applying the primary survey	C3						
116.		Secondary survey	Explain secondary survey pertaining to maxillofacial trauma	C3						
117.		Soft tissues injury	Describe soft tissue injuries of the face	C3						
118.		Bony injuries of the face	Describe fractures of the facial bones	C3						
119.		Radiologic evaluation	Explain the role of radiologic studies in the evaluation and management of maxillofacial trauma	C3						
120.		Management	Explain the pharmacological and surgical management of the maxillofacial trauma	C4						
121.		Practical performance	Demonstrate management of the soft tissue through suturing independently		P4		Practical Demo	1	OSPE/ OSCE	

122.		Comply to SOPs	Comply to SOPs for the suturing procedure effectively			A4				
TOPIC: HEAD AND NECK TRAUMA										
123.	Week-12	Introduction	Introduce head trauma, traumatic brain injury and neck trauma	C1			Interactive lecture/ SGDs	2	MCQ's	05
124.		Basic intracranial physiology	Explain the basic intracranial physiology	C2						
125.		Patient's evaluation	Evaluate head and neck injury according to the primary survey	C2						
126.		Classification of brain injury	Classify brain injuries	C2						
127.		Neurological examination	Explain the role of neurological examination in predicting the severity of brain injury	C2						
128.		Diagnostic studies	Explain the role of radiologic studies in the diagnosis and evaluation of various head trauma ,traumatic brain injuries and neck trauma	C3						
129.		Adequate resuscitation	Explain the steps for adequate resuscitation in patients with head, neck and traumatic brain injury	C3						
130.		Algorithms	Illustrate algorithm for management of mild, moderate and severe brain injury	C3						
131.		Medical therapy	Explain the medical management of head, neck and traumatic brain injury	C4						
132.		Surgical management	Explain surgical management of head, neck and traumatic brain injury	C4						
133.		Practical performance	Demonstrate CT of the brain for the evaluation of the brain injuries		P4		Practical Demo	1	OSPE/ OSCE	
134.		Ethical norms	Maintain ethical norms of the patient effectively			A4				
TOPIC: SPINE AND SPINAL CARD TRAUMA										
135.	Week-13	Introduction	Introduce spine and spinal cord	C1			Interactive lecture/ SGDs		MCQ's	05
136.		Anatomy and Physiology	Illustrate anatomy and physiology related to spine and spinal cord	C2						
137.		Classifications of Spinal Cord Injuries	Classify spinal cord injuries on the basis of level, severity of neurologic deficits, spinal cord syndrome and morphology	C2						
138.		Specific Types of Spinal Injuries	Describe specific types of spinal cord injuries	C3						
139.		X-Ray Evaluation	Evaluate various types of spinal cord injuries through X-rays and MRI.	C4						
140.		General Management	Apply ATLS guidelines for the management of spine and spinal cord injuries	C4						
141.		Practical performance	Demonstrate the procedure of log- Roll for the assessment of spine and spinal cord injury independently		P4		Role play	1	OSPE/ OSCE	
142.		Comply to SOPs	Comply to SOPs for the procedure of log rolling effectively			A4				

TOPIC: MUSCULOSKELETAL TRAUMA										
143.	Week-14	Introduction	Introduce musculoskeletal injuries	C1			Interactive lecture/ SGDs	2	MCQ's	04
144.		Mechanism of injury	Explain the mechanisms of injury and predicted injury patterns	C2						
145.		Primary Survey and Resuscitation	Explain the steps of primary survey and resuscitation in the management of musculoskeletal injuries	C2						
146.		Adjuncts to Primary Survey	Explain the importance of the adjuncts in assessment of musculoskeletal injuries	C3						
147.		Secondary Survey	Explain the significance of history and physical examination in the assessment of musculoskeletal injuries	C3						
148.		Potentially Life-Threatening Extremity Injuries	Outline priorities in the assessment of musculoskeletal trauma to identify life-threatening injuries (Major Arterial Hemorrhage and Crush Syndrome)	C3						
149.		Limb-Threatening Injuries	Outline priorities in the assessment of musculoskeletal trauma to identify limb-threatening injuries	C3						
150.		Other Extremity Injuries	Explain the assessment Contusions and Lacerations, Joint Injuries , Fractures	C3						
151.		Principles of Immobilization	Explain the principles of immobilization in patients with Femoral Fractures, Knee Injuries, Tibia Fractures, Ankle Fractures, Upper-Extremity and Hand Injuries	C4						
152.		Pain Control	Describe pain control strategies in patients with musculoskeletal injuries	C4						
153.		Management	Explain the proper principles of the initial management of musculoskeletal injuries	C4						
154.		Practical performance	Demonstrate the application of splints for the immobilizations of the injured extremity independently		P4		Video Demo	1	OSPE/ OSCE	
155.		Comply to SOPs	Comply to SOPs for application of splints effectively			A4				
TOPIC: ABDOMINAL TRAUMA										
156.	Week-15	Introduction	Introduce abdominal trauma	C1			Interactive lecture/ SGDs	2	MCQ's	05
157.		Anatomy of the Abdomen	Illustrate the anatomy of the abdomen	C2						
158.		Mechanism of Injury	Describe the mechanisms pertaining to abdominal trauma	C2						
159.		Assessment	Explain the assessment of the patients with abdominal trauma	C3						
160.		Diagnostic peritoneal lavage	Explain the role of diagnostic peritoneal lavage in evaluation of the abdominal injuries	C3						
161.		Diagnostic studies	Explain the role of CT scan and FAST in the evaluation of the abdominal injuries	C3						
162.		Indications for Laparotomy in Adults	List indications for laparotomy in patients with abdominal trauma	C4						

163.		Specific diagnoses and management	Explain the assessment and management of Diaphragm Injuries, Duodenal Injuries, Pancreatic Injuries Genitourinary Injuries, Hollow Viscus Injuries, Solid Organ Injuries , Pelvic Fractures and Associated Injuries,	C4						
164.		Practical performance	Demonstrate the procedure of diagnostic peritoneal lavage for the evaluation of the abdominal injuries independently		P4		Video Demo	1	OSPE/ OSCE	
165.		Comply to SOPs	Comply to SOPs for the procedure of the diagnostic peritoneal lavage effectively			A4				
TOPIC: TRAUMA IN PREGNANCY										
166.	Week-16	Introduction	Introduce trauma in pregnancy	C1			Interactive lecture/ SGDs	2	MCQ's	05
167.		Anatomic and physiologic alterations of pregnancy	Describe the anatomic and physiologic alterations of pregnancy, including their effects on patient treatment.	C2						
168.		Mechanism of injury	Identify common mechanisms of injury in pregnant patients and their fetuses	C3						
169.		Severity of injury	List the factors determining the severity of injury in a pregnant woman	C3						
170.		Assessment and treatment	Outline the treatment priorities and assessment methods for both patients (mother and fetus).	C3						
171.		Perimortem cesarean section	State the indications for operative intervention that are unique to injured pregnant patients	C3						
172.		Isoimmunization	Explain the potential for isoimmunization and the need for immunoglobulin therapy in pregnant trauma patients.	C4						
173.		Intimate partner violence	Identify patterns of intimate partner violence.	C4						
174.		Management	Explain the management of traumatic pregnant patient	C4						
175.		Practical performance	Demonstrate the application of left lateral position to relieve vena caval obstruction in a pregnant women independently		P4		Video Demo	1	OSPE/ OSCE	
176.		Ethical Norms	Maintain the privacy of the patient while obtaining left lateral position effectively			A4				

Recommended Books

1. Advance life support by American College of surgeons- 9th edition
2. ABC of major trauma- 5th edition
3. Trauma Management guidelines by WHO
4. Baily and love short practice of surgery- 26th edition
5. General trauma care and related aspects
6. Emergencies in trauma – Oxford medical publications
7. Emergency department resuscitation of the critically ill by Michael E. Winters, 2nd edition

8. Oxford Handbook of accident and emergency- 2nd edition

ASSESSMENT BREAK DOWN				
S. No	**Topic**	**No of MCQs**	**No of OSPE/ OSCE stations**	**Static/ interactive**
1.	Introduction to trauma and trauma types	03	00	----------
2.	Triage	03	01	Static
3.	Initial assessment and management	05	01	Interactive
4.	Primary survey and secondary survey	06	01	Interactive
5.	Circulation and hemorrhage control	04	01	Static / interactive
6.	Trauma score and trauma flow sheet	04	00	static
7.	Trauma management pre and in hospital phase	04	01	Static / interactive
8.	Injury prevention	03	01	Static/ interactive
9.	Air way management with cervical injury	05	01	Static
10.	Chest trauma	05	01	Static
11.	Maxillofacial trauma	04	01	Static/ interactive
12.	Head and neck trauma	05	01	Static
13.	Spine and spinal card trauma	05	01	Interactive
14.	Musculoskeletal trauma	04	01	Static/ interactive
15.	Abdominal trauma	05	01	Static
16.	Trauma in pregnancy	05	01	Static
Total	**16**	**70**	**14**	**14**

RT AND ICT	ICT-605	APPLIED PHYSICS	2(1+1)

COURSE DESCRIPTION

The purpose of this course is to equip students with professional knowledge, skills, techniques and understanding of Applied Physics. 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. Explain Boyle's, Charles's, Gay-Lussac's, and Dalton's laws and their relevance to medical ventilation
2. Describe the concepts of pressure dynamics in the human body
3. Interpret measurements of gas dynamics
4. Discuss the sources, storage, and hazards of medical gases, as well as the principles behind various medical gas delivery systems
5. Explain the basic principles and applications of capnography, PFTs, spectrophotometry, and transducers in medical equipment

Psychomotor Domain

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

1. Explain Boyle's, Charles's, Gay-Lussac's, and Dalton's laws and their relevance to medical ventilation
2. Describe the concepts of pressure dynamics in the human body
3. Interpret measurements of gas dynamics
4. Demonstrate the sources, storage, and hazards of medical gas, as well as the principles behind various medical gas delivery systems
5. Explain the basic principles and applications of capnography, PFTs, spectrophotometry, and transducers in medical equipment

Affective Domain

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

1. Demonstrate a proactive approach in utilizing various medical gas delivery and therapy devices during critical situations.

2. Show a commitment to understanding and mitigating the hazards associated with medical gas storage and delivery
3. Value the importance of precision and accuracy in interpreting measurements and applying physics principles in clinical settings
4. Engage in continuous learning and staying updated with advancements in applied physics relevant to medical practice
5. Foster effective communication and collaboration within medical teams to ensure optimal application of physics principles in patient care.

TABLE OF SPECIFICATIONS

APPLIED PHYSICS

S. No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/ Hours	Assessment	No of Items
				C	P	A				
TOPIC: LAW's FOR GASES										
1.	Week-1&2	Knowledge	Describe the gas laws	C1			Interactive lecture/ SGDs	2	MCQs	9
2.		Comprehension	Identify the different types of gas laws	C2						
3.		Application	Discuss the applications of gas laws	C3						
4.		Analysis	Explain the principles of gas laws	C4						
5.		Evaluation	Analyze the relationships between gas laws	C5						

6.		Practical demonstration	Demonstrate ability to adjust gas equipment		P4		Demonstration	1	OSPE/OSCE	1
7.		SOPs	Recognize the importance of safety protocols when working with gas equipment			A4				
TOPIC: BODY GAS DYNAMICS AND PRESSURE CONCEPT										
8.	Week-3	Knowledge	Describe the concept of partial pressures and gas exchange	C1			Interactive Lecture/SGDs	1	MCQs	5
9.		Comprehension	Explain the dynamics of oxygen and carbon dioxide transport in the body	C2						
10.		Application	Discuss the clinical applications of body gas dynamics and pressure concept	C3						
11.		Analysis	Analyze the factors affecting gas exchange and transport in the body	C4						
12.		Evaluation	Evaluate the importance of monitoring gas exchange and transport in critically ill patients	C5						
13.		Practical demonstration	Demonstrate proper technique for measuring arterial blood gases		P4		Demonstration	1	OSPE/OSCE	1
14.		SOPs	Recognize the importance of maintaining patient confidentiality and respecting patient autonomy			A4				
TOPIC: CENTRAL MEDICAL GAS SUPPLY										
15.	Week-4	Knowledge	Describe the components and functions of a central medical gas supply system	C1			Interactive Lecture/SGDs	1	MCQs	4
16.		Comprehension	Explain the principles of medical gas production, storage, and distribution	C2						
17.		Application	Discuss the maintenance and testing requirements for a central medical gas supply system	C3						
18.		Analysis	Analyze the safety features and emergency procedures for	C4						

			a central medical gas supply system							
19.		Evaluation	Evaluate the importance of a central medical gas supply system in a healthcare setting	C5						
20.		Practical demonstration	Demonstrate proper technique for operating and maintaining a central medical gas supply system		P4		Demonstration	1	OSPE/OSCE	1
21.		SOPs	Show respect for the environment and the impact of a central medical gas supply system on it			A4				
TOPIC: MEDICAL GAS CYLINDERS										
22.	Week-5	Knowledge	Describe the types and sizes of medical gas cylinders	C1			Interactive Lecture/SGDs	1	MCQs	5
23.		Comprehension	Explain the safety features and hazards associated with medical gas cylinders	C2						
24.		Application	Discuss the regulations and standards governing medical gas cylinders | Regulations and standards	C3						
25.		Analysis	Analyze the procedures for handling, storing, and transporting medical gas cylinders	C4						
26.		Evaluation	Evaluate the importance of proper medical gas cylinder management in healthcare settings	C5						
27.		Practical demonstration	Show proficiency in handling and transporting medical gas cylinders safely		P4		Demonstration	1	OSPE/OSCE	1
28.		SOPs	Demonstrate a commitment to safety when handling medical gas cylinders			A4				
TOPIC: TRANSDUCER										
29.		Knowledge	Describe the principles and types of transducers	C1			Interactive Lecture/SGDs	2	MCQs	9
30.		Comprehension	Explain the characteristics and specifications of transducers	C2						
31.		Application	Discuss the calibration and troubleshooting procedures for	C3						

	Week - 6&7		transducers							
32.		Analysis	Analyze the applications and limitations of transducers in medical devices	C4						
33.		Evaluation	Evaluate the importance of transducers in medical device technology	C5						
34.		Practical demonstration	Show proficiency in troubleshooting transducer-related issues in medical devices		P4		Demonstration	1	OSPE/OSCE	1
35.		SOPs	Collaborate effectively with healthcare team members to ensure safe and effective use of transducers			A4				
TOPIC: SPECTROPHOTOMETRY										
36.	Week-8&9	Knowledge	Describe the principles and types of spectrophotometry	C1			Interactive Lecture/SGDs	2	MCQs	9
37.		Comprehension	Explain the components and functions of a spectrophotometer	C2						
38.		Application	Discuss the calibration and troubleshooting procedures for spectrophotometers	C3						
39.		Analysis	Analyze the applications and limitations of spectrophotometry	C4						
40.		Evaluation	Evaluate the importance of spectrophotometry in clinical diagnostics	C5						
41.		Practical demonstration	Demonstrate proper technique for operating a spectrophotometer		P4		Demonstration	1	OSPE/OSCE	1
42.		SOPs	Recognize the importance of maintaining accurate and reliable data in spectrophotometry			A4				
TOPIC: PULMONARY FUNCTION TESTING										
43.		Knowledge	Describe the principles and indications of pulmonary function tests (PFTs)	C1			Interactive Lecture/SGDs	2	MCQs	9

44.	Week-10&11	Comprehension	Explain the different types of PFTs, including spirometry, plethysmography, and diffusion capacity	C2						
45.		Application	Discuss the quality control and safety procedures for performing PFTs	C3						
46.		Analysis	Analyze the clinical applications and limitations of PFTs in diagnosing and managing respiratory diseases	C4						
47.		Evaluation	Evaluate the importance of PFTs in respiratory care and disease management	C5						
48.		Practical demonstration	Demonstrate proper technique for performing spirometry		P4		Demonstration	1	OSPE/OSCE	1
49.		SOPs	Demonstrate empathy and understanding when interacting with patients undergoing PFTs			A4				
TOPIC: DIFFUSION LUNG CAPACITIES FOR CARBON MONOXIDE										
50.	Week-12	Knowledge	Describe the principles and physiology of DLCO testing	C1			Interactive Lecture/SGDs	1	MCQs	4
51.		Comprehension	Explain the indications, contraindications, and limitations of DLCO testing	C2						
52.		Application	Discuss the clinical applications of DLCO testing in diagnosing and managing respiratory diseases	C3						
53.		Analysis	Analyze the factors affecting DLCO values and interpret DLCO results	C4						
54.		Evaluation	Evaluate the importance of DLCO testing in assessing lung function and disease severity	C5						
55.		Practical demonstration	Demonstrate ability to troubleshoot common issues with DLCO testing		P4		Demonstration	1	OSPE/OSCE	1
56.		SOPs	Show respect for patients' cultural and individual differences when performing DLCO testing			A4				
TOPIC: EXTRA CARPORIAL MEMBRANE OXYGENATION										

57.	Week-13	Knowledge	Describe the principles and physiology of ECMO	C1			Interactive Lecture/SGDs	1	MCQs	5
58.		Comprehension	Explain the indications, contraindications, and complications of ECMO	C2						
59.		Application	Discuss the clinical applications of ECMO in adult and pediatric patients	C3						
60.		Analysis	Analyze the different types of ECMO, including VV-ECMO and VA-ECMO	C4						
61.		Evaluation	Evaluate the importance of ECMO in critical care medicine and its impact on patient outcomes	C5						
62.		Practical demonstration	Perform a thorough assessment of a patient's suitability for ECMO		P4		Demonstration	1	OSPE/OSCE	1
63.		SOPs	Demonstrate empathy and understanding when interacting with patients and families affected by ECMO			A4				
TOPIC: VENTILATOR SETTING ACCORDING TO ABGs										
64.	Week-14	Knowledge	Describe the principles of ventilator management based on ABGs	C1			Interactive Lecture/SGDs	1	MCQs	4
65.		Comprehension	Explain the interpretation of ABGs and their relationship to ventilator settings	C2						
66.		Application	Discuss the clinical applications of adjusting ventilator settings based on ABGs	C3						
67.		Analysis	Analyze the effects of ventilator settings on ABGs and patient outcomes	C4						
68.		Evaluation	Evaluate the importance of continuous monitoring of ABGs and ventilator settings in critically ill patients	C5						
69.		Practical demonstration	Demonstrate proper technique for adjusting ventilator settings based on ABGs		P4		Demonstration	1	OSPE/OSCE	1

70.		SOPs	Demonstrate empathy and understanding when interacting with patients and families affected by ventilator settings and ABGs			A4				
TOPIC:CAPNOGRAPHY										
71.	Week-15 and Week-16	Knowledge	Describe the principles and physiology of capnography	C1			Interactive Lecture/SGDs	2	MCQs	9
72.		Comprehension	Explain the different types of capnography, including side stream and mainstream capnography	C2						
73.		Application	Discuss the limitations and potential sources of error in capnography	C3						
74.		Analysis	Analyze the clinical applications of capnography in Respiratory and critical medicine	C4						
75.		Evaluation	Evaluate the importance of capnography in patient safety and quality of care	C5						
76.		Practical demonstration	Show proficiency in interpreting capnography waveforms and making clinical decisions		P4		Demonstration	1	OSPE/OSCE	1
77.		SOPs	Demonstrate empathy and understanding when interacting with patients who require capnography monitoring			A4				

Recommended Books:

1. Paul L Marino's book of ICU
2. Egan's fundamentals of respiratory care 12th edition

ASSESSMENT BREAKDOWN

S. No	Topics	No of MCQ	No of OSPE / OSCE Stations	Static / Interactive
1.	Law's for gases	09	01	Static and Interactive
2.	Body gas dynamics and pressure concept	05	01	Static and Interactive

3.	Central medical gas supply	04	01	Static and Interactive
4.	Medical gas cylinder	05	01	Static and Interactive
5.	Transducer	09	01	Static and Interactive
6.	Spectrophotometry	09	01	Static and Interactive
7.	Pulmonary function testing	09	01	Static and Interactive
8.	Diffusion lung capacities for carbon monoxide	04	01	Static and Interactive
9.	Extra corporeal membrane oxygenation	05	01	Static and Interactive
10.	VENTILATOR SETTING ACCORDING TO ABG's	04	01	Static and Interactive
11.	Capnography	09	01	Static and Interactive
Total	**11**	**70**	**11**	**11**

BS RT AND ICT ANS-606 ANESTHESIA EQUIPMENT 3 (2+1)

COURSE DESCRIPTION

The purpose of this course is to equip students with comprehensive knowledge and understanding of anesthesia equipment and airway management. It aims to foster the development of professional skills by exploring the principles, functionality, and clinical applications of essential anesthesia devices. Through this curriculum, students will gain insight into oxygen delivery systems, supraglottic airway devices, ventilators, and monitoring tools, understanding their role in patient care. Designed to bridge theoretical knowledge with real-world clinical scenarios, this course ensures competency in the safe and effective use of anesthesia equipment in various healthcare settings.

LEARNING OBJECTIVES

Cognitive Domain

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

1. Discuss the historical development and recent advancements in anesthesia equipment and airway management.
2. Describe the structure, function, and principles of operation of various anesthesia devices, including oxygen delivery systems, ventilators, and airway management tools.
3. Explain the fundamental concepts related to anesthesia equipment, including gas supply, pressure systems, and circuit dynamics.
4. Identify different types of airway management devices, such as supraglottic airways, endotracheal tubes, and laryngoscopes, along with their clinical applications.
5. Discuss the mechanisms, advantages, and limitations of different anesthesia ventilation systems.
6. Describe the safety protocols, troubleshooting techniques, and infection control measures related to anesthesia equipment in clinical practice

Psychomotor Domain

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

1. Identify and set up anesthesia equipment, including oxygen delivery systems and airway devices.
2. Apply safety protocols and infection control measures in anesthesia practice.
3. Operate and troubleshoot anesthesia machines and ventilators.
4. Perform airway management techniques, including supraglottic and endotracheal intubation.
5. Use anesthesia monitoring devices to assess patient vitals.

Affective Domain

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

1. Demonstrate punctuality and professionalism.
2. Follow learning norms and respectful communication.
3. Uphold ethical and socially responsible behavior in academic and clinical settings

TABLE OF SPECIFICATIONS

ANESTHESIA EQUIPMENT

S.No	Weeks	Contents	Learning Outcome	Domain			MIT's	Time/ Hours	Assessment	No of Items
				C	P	A				
TOPIC: OXYGEN DELIVERY DEVICES										
1.	Week-1	Introduction	Enlist the Oxygen delivery devices	C1			Interactive lecturer/ SGDs	2	MCQs	4
2.		Working principle	Discuss the working principles, high- and low-pressure systems	C2						
3.		Safety and efficiency	Differentiate different oxygen sources in terms of safety and efficiency	C4						
4.		Practical	Perform la Assist in setting up oxygen cylinders and wall-mounted oxygen systems.		P4		Practical/Video Demonstration	2	OSPE/ OSCE	1
5.		SOPs compliance	Show interest in learning about different oxygen supply devices.			A4	Role Play			
TOPIC: SUPRAGLOTTIC AIRWAY DEVICES										
6.	Week-2	Introduction to Supraglottic airway devices	List the types of airways (OPA, NPA, LMA, etc.)	C1			Interactive Lecture /SGDs	2	MCQs	3
7.		Indication and contraindication	Explain the indications, advantages, and disadvantages of all airways	C2						
8.		Choosing airways in different scenario	Choose appropriate airway device for emergencies, elective and recovery of patients	C3						
9.		Effectiveness	Compare the effectiveness of different airway devices in difficult airway management	C4						
10.		Practical	Perform airway insertion under supervision.		P4		Practical/Video Demonstration	2	OSPE/ OSCE	1
11.		SOPs compliance	Value the selection of appropriate airway devices based on patient needs.			A4	Role Play			
TOPIC: ENDOTRACHEAL TUBE (ETT), LARYNGOSCOPE &AIRWAY ADJUVANTS										

12.	Week-3	Definition	Define an endotracheal tube (ETT) and list its types (cuffed, uncuffed, reinforced, double lumen, etc.)	C 1			Interactive lecturer/ SGDs	2	MCQs	3
13.		Structure and indication	Discuss the structure, function, and indications for different types of ETTs	C 2						
14.		Selection and technique of insertion of ETT	Explain the proper selection, preparation, and technique of insertion of an ETT	C 2						
15.		Airway adjuvants	Recognize boogie, stylets and their proper use	C 2						
16.		Laryngoscope and its types	Explain a laryngoscope and its types (Macintosh, Miller, video laryngoscope, fiber-optic)	C 2						
17.		Practical	Perform intubation under supervision.		P 4		Practical/Video Demonstration	2	OSPE/ OSCE	1
18.		SOPs compliance	Advocate regular practice of intubation techniques to ensure competency.			A 4	Role Play			
TOPIC: RESERVOIR BAGS AND FACE MASKS										
19.	Week-4	Components of AMBU and face mask	Recall the components of AMBU and Face mask	C 1			Interactive lecturer/ SGDs	2	MCQs	3
20.		Functions	Discuss the function and types of reservoir bags & face masks	C 2						
21.		Choosing appropriate size	Choose the appropriate reservoir bags and masks for neonates, pediatrics and adults	C 2						
22.		Practical	Independently apply and manage a face mask for ventilation.		P 4		Practical/Video Demonstration	2	OSPE/ OSCE	1
23.		SOPs compliance	Actively participate in assembling and handling these devices.			A 4	Role Play			
TOPIC: MEDICAL GAS SUPPLY AND CYLINDERS										
24.	Week -5	Definition	Define a gas cylinder and medical gas supply system	C 1			Interactive lecturer/ SGDs	2	MCQs	4
25.		Color codes	Enlist the color codes and pressure systems	C 1						
26.		Capacity of cylinders	Discuss the capacity of different cylinders	C 2						
27.		Risks and handling	Discuss the potential risks associated with improper handling of gas cylinders	C 2						
28.		Practical	Perform cylinder handling and connection under supervision		P 4		Practical/Video Demonstration	2	OSPE/ OSCE	2
29.		SOPs compliance	Show attentiveness while learning about gas cylinder color coding and pressure levels.			A 4	Role Play			
TOPIC:ANESTHESIA MACHINE										
30.	Week	Introduction	Define an anesthesia machine and list the components of anesthesia	C			Interactive	2	MCQs	4

	6		machine	1			lecturer/ SGDs			
31.		Pressure system	Explain the low pressure, intermediate pressure and high-pressure systems	C 2						
32.		Components	Discuss the components of anesthesia machine	C 2						
33.		Function of major components	Explain the function of O2 flush, Soda lime and scavenging system	C 2						
34.		Practical	Assist in daily machine checks and circuit connections.		P 4		Practical/Video Demonstration	2	OSPE/ OSCE	1
35.		SOPs compliance	Advocate strict adherence to machine pre-use checklists.			A 4	Role Play			
TOPIC: VENTILATORS AND ITS TYPES										
36.	Week 7	Introduction	Define the types of ventilators (pneumatic, electronic)	C 3			Interactive lecturer/ SGDs	2	MCQs	7
37.		Different types of ventilators	Discuss different types of ventilators (Invasive and Non-Invasive ventilator)	C 1						
38.		Ventilation criteria	Discuss the criteria for ventilating a patient	C 3						
39.		Difference	Differentiate between various ventilators (Positive &Negative pressure ventilator, high frequency ventilator, Neonatal ventilator)	C 3						
40.		Practical	Perform ventilator settings adjustments under supervision.		P 4		Practical/Video Demonstration	2	OSPE/ OSCE	1
41.		SOPs compliance	Engage in discussions about different types of ventilators			A 4	Role Play			
TOPIC: MODES OF VENTILATION										
42.	Week -8	Introduction to modes	Define different ventilation modes (VCV, PCV, SIMV, APRV, HFOV, CMV, Spont, ASV, BiPAP, PSV, and CPAP.)	C 1			Interactive lecturer/ SGDs	2	MCQs	7
43.		Working Principles	Discuss the working principles of each mode	C 2						
44.		Basic concepts	Explain the Triggering, time, limit, cycling, PEEP, PIP and plateau pressure	C 2						
45.		Practical implication	Differentiate which ventilation mode is best suited for specific clinical conditions (Asthma, COPD, Pneumonia, ARDS)	C 3						
46.		Practical	Perform adjustments to ventilation settings under supervision		P 4		Practical/Video Demonstration	2	OSPE/ OSCE	1
47.		SOPs compliance	Advocate for evidence-based selection of ventilation modes.			A 4	Role Play			
TOPIC: BREATHING CIRCUITS										
48.	Week -9	Introduction	Define breathing circuits and types of breathing circuits (open, closed, semi-closed)	C 1			Interactive lecturer/ SGDs	2	MCQs	3
49.		Impact	Discuss differences between circuits and their impact on anesthesia	C 2						

50.		Mapleson circuits	Discuss the Mapleson breathing circuits	C 2						
51.		Differences	Differentiate the efficiency of different circuits in reducing dead space and rebreathing	C 3						
52.		Practical	Observe different types of breathing circuits.		P 4		Practical /Video Demonstration	2	OSPE/ OSCE	2
53.		SOPs compliance	Engage in discussions about the advantages and limitations of various circuits.			A 4	Role Play			
TOPIC: SPINAL & EPIDURAL NEEDLES, IV CANNULAE										
54.	Week -10	Introduction	Define types of spinal and epidural needles, and Enlist IV cannula sizes	C 1			Team Base Learning	2	MCQs	4
55.		Selection criteria	Explain needle designs and selection criteria of Spinal and Epidural needles	C 2						
56.		Flow rates and color codes	Discuss the flow rate and gauge of IV cannula along color codes	C 2						
57.		Risks and benefit analysis	Differentiate risks and benefits of different needle designs in regional anesthesia (PDPH)	C 3						
58.		Practical	Assist in preparing and positioning patients for spinal/epidural anesthesia.		P 4		Practical /Video Demonstration	2	OSPE/ OSCE	1
59.		SOPs compliance	Encourage strict adherence to aseptic techniques.			A 4	Role Play			
TOPIC: CAPNOGRAPHY & PULSE OXIMETRY										
60.	Week -11	Definition	Define Capnograph and Pulse oximeter	C 1			Interactive lecturer/ SGDs	4	MCQs	8
61.		Working principles	Explain the working principles of both	C 2						
62.		Importance	Discuss the importance of both in Perioperative settings	C 2						
63.		Interpretation	Interpret the capnography waveforms and SpO_2 readings	C 3						
64.		False readings	Explain the conditions in which pulse oximeter gave false readings	C 3						
65.		Different capnography readings	Differentiate normal and abnormal capnography readings for various clinical conditions	C 3						
66.		Summary	Summarize the content	C 2						
67.		Practical	Independently interpret and act on capnography and pulse oximetry readings.		P 4		Practical /Video Demonstration	2	OSPE/ OSCE	2
68.		SOPs compliance	Show interest in learning how to interpret waveforms and readings.			A 4				
TOPIC: NERVE STIMULATOR & GLUCOMETER										
69.	Week	Introduction	Define nerve stimulators and glucometer	C			Interactive	2	MCQs	5

	-12			1			lecturer/ SGDs			
70.		Working Principles	Discuss the working principle of Nerve stimulator and its role in perioperative management	C 2						
71.		Interpretation	Interpret Train-of-four" (TOF)	C 3						
72.		Importance of glucometer	Discuss the importance of Glucometer and its operating technique	C 1						
73.		Practical	Observe nerve stimulator and glucometer usage		P 4		Practical /Video Demonstration	4	OSPE/ OSCE	1
74.		SOPs compliance	Engage in discussions on nerve stimulation and glucose assessment techniques.			A 4	Role Play			
TOPIC: OT TABLE & SUCTION APPARATUS										
75.	Week -13	Introduction	Define Negative suction	C 1			Interactive lecturer/ SGDs	2	MCQs	3
76.			Recall the parts of OT tables and suction apparatus	C 1						
77.		Working principles	Discuss the working mechanisms and applications of different suction catheters	C 2						
78.		Appropriate pressure and catheter	Choose appropriate suction pressure and catheter in adults, paeds and neonates	C 3						
79.		OT table positioning	Differentiate, different OT table positioning techniques for specific surgeries	C 4						
80.		Practical	Perform suctioning under supervision.		P 4		Practical /Video Demonstration	4	OSPE	1
81.		SOPs compliance	Promote routine equipment checks before surgical procedure			A 4	Role Play			
TOPIC: AUTOCLAVE, TYPES, AND FUNCTION										
82.	Week -14	Introduction	Recall sterilization and define autoclave	C 1			Interactive lecturer/ SGDs	2	MCQs	4
83.		Types of Autoclaves	Discuss the types of Autoclaves	C 2						
84.		Principles	Explain the principles of autoclave	C 2						
85.		Importance	Explain the importance of autoclave in Hospital settings and anesthesia	C 2						
86.		Practical	Observe the autoclaving process.		P 4		Practical /Video Demonstration	2	OSPE/ OSCE	1
87.		SOPs compliance	Show interest in learning about different sterilization techniques.			A 4	Role Play			
TOPIC: DEFIBRILLATOR										

88.	Week -15	Introduction	Define a defibrillator and list its types (manual, semi-automatic, automatic)	C 1			Interactive lecturer/ SGDs	2	MCQs	5
89.		Working principles	Explain the working principle of defibrillators and their role in cardiac arrest management	C 2						
90.		Types	Discuss the monophasic and Biphasic defibrillator mechanism	C 2						
91.		Precautions	Discuss the SOPs and precautions while applying defibrillator	C 2						
92.		Practical	Observe the functioning of a defibrillator		P 4		Practical /Video Demonstration	4	OSPE/ OSCE	1
93.		SOPs compliance	Show willingness to learn about defibrillator operation.			A 4	Role Play			
TOPIC: INFUSION PUMP & VAPORIZER										
94.	Week -16	Definition	Define an infusion pump	C 1			Interactive lecturer/ SGDs	2	MCQs	3
95.		Types	Explain its types (volumetric, syringe, PCA)	C 2						
96.		Working Principles	Explain the working principle, components, and clinical applications	C 2						
97.		Troubleshooting	Interpret correct setup, programming, and troubleshooting of an infusion pump	C 3						
98.										
99.		Vaporizer	Define an anesthetic vaporizer and list its types (variable bypass, desflurane vaporizer)	C 3						
100		Working principle of Vaporizer	Discuss the working principles, temperature compensation, and output control	C 4						
101										
102		Practical	Assist in priming an infusion pump and refilling a vaporizer		P 4		Practical /Video Demonstration	1	OSPE/ OSCE	1
103		SOPs compliance	Show responsibility in ensuring accurate dosing			A 4	Role Play			

Recommended Books

1. Understanding Anesthetic Equipment & Procedures A Practical Approach: Dwarkadas K Baheti 1st Edition
2. Understanding Anesthetic Equipment: Jerry A. Dorsch MD & Susan E. Dorsch MD 5th Edition
3. Essentials of Anesthetic Equipment: Baha Al-Shaikh & Simon Stacey 4th Edition

ASSESSMENT BREAKDOWN				
S.No	**Topics**	**No of MCQ**	**No of OSPE / OSCE Stations**	**Static / Interactive**
1	Oxygen Supply Devices	4	1	Interactive
2	Supraglottic Airway devices	3	1	Interactive
3	Endotracheal Tube (ETT), Laryngoscope &airway adjuvants	5	1	Interactive
4	Reservoir Bags and Face Masks	3	1	Interactive
5	Medical Gas Supply and Cylinders	4	0	Interactive
6	Anesthesia Machine	4	1	Interactive
7	Ventilators and Its Types	7	1	Interactive
8	Modes of Ventilation	7	0	Interactive
9	Breathing Circuits	3	1	Interactive
10	Spinal & Epidural Needles, IV Cannula	4	1	Interactive
11	Capnograph & Pulse Oximeter	5	1	Interactive
12	Nerve Stimulator & Glucometer	4	1	Interactive
13	OT Table & Suction Apparatus	5	1	Interactive
14	Autoclave, Types, and Function	4	1	Interactive
15	Defibrillator	5	1	Interactive
16	Infusion Pump & Vaporizer	3	1	Interactive
Total	**16**	**70**	**14**	**14**

BS RT AND ICT	ICT - 604	CLINICAL LABORATORY INVESTIGATIONS	3(2+1)

COURSE DESCRIPTION

The Clinical Laboratory Investigations course is tailored for BS Emergency Care Technology and BS Respiratory Therapy and Intensive Care Technology students, focusing on the essential diagnostic techniques and tools used in critical care settings. This three-credit-hour course, over a 16-week semester, aims to equip students with the theoretical knowledge and practical skills necessary for analyzing and interpreting critical care diagnostics. Emphasis is placed on the diagnostic processes related to various organ systems, metabolic functions, and the use of point-of-care devices. The course also covers the handling and interpreting laboratory tests to support critical clinical decisions.

LEARNING OBJECTIVES

Cognitive Domain

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

1. Describe the principles, methodologies, and clinical significance of common laboratory investigations, including hematology, microbiology, biochemistry, and immunology.
2. Explain the proper sample collection, handling, storage, and transport techniques to ensure accurate laboratory results.
3. Discuss the interpretation of laboratory results in the context of various diseases and conditions.
4. Describe the quality control measures and good laboratory practices essential for maintaining laboratory accuracy and reliability.
5. Explain the biosafety levels, infection control practices, and risk assessment in a clinical laboratory setting.

Psychomotor Domain

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

1. Perform proper specimen collection techniques, including venipuncture, capillary blood sampling, and urine, sputum, and swab collection, following standard operating procedures (SOPs).
2. Conduct basic and advanced laboratory investigations such as blood glucose testing, complete blood count (CBC), urinalysis, and arterial blood gas (ABG) analysis.
3. Follow biosafety and infection control protocols while handling biological specimens to prevent contamination and exposure risks.

Affective Domain

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

1. Laboratory schedules and deadlines.
2. Follow standard operating procedures (SOPs) and ethical guidelines in laboratory investigations.
3. Maintain professional conduct and effective communication with peers, faculty, and healthcare professionals in a laboratory setting.
4. Exhibit respect for patient confidentiality and the ethical handling of biological samples.
5. Uphold a commitment to continuous learning and quality improvement in clinical laboratory practices.

TABLE OF SPECIFICATIONS

CLINICAL LABORATORY INVESTIGATIONS

S.No	Week	Content	Learning Outcome	Domain			MIT's	Time/ Hours	Assessment	No of items
				C	P	A				
TOPIC: INTRODUCTION TO LABORATORY INVESTIGATIONS										
1.	Week-1	Definition	Define laboratory investigations	C1			Interactive lecturer/ SGDs	2	MCQs	
2.		Applications	List the generic applications of laboratory investigations	C2						
3.		Classification	Discuss the classification based on hospital lab services	C2						
4.		Common investigations	Discuss the clinical investigation frequently and infrequently required	C2						
5.		Types of sample	Explain the different types of samples used for laboratory investigation	C3						

6.		Blood collection tubes	Discuss the different types of blood collection tubes used.	C4						
7.		Practical performance	Demonstrate Techniques for proper labeling, storage, and transportation of specimens.		P4		Demo	1	OSPE/ OSCE	
8.		Comply to SOPs	comply with SOPs for performing the procedure of urine, sputum, and swab collection			A4	Practical Demo			
TOPIC: BLOOD GLUCOSE DETERMINATION										
9.	Week-2	Introduction	Define blood sugar and HbA1C	C1			Interactive lecturer/ SGDs	2	MCQs	
10.		Indications	Enlist the indications of HbA1C	C2						
11.		Components	Discuss the different components of blood sugar and HbA1C	C3						
12.		Clinical presentation	Describe the effects of hyper and hypoglycemia	C4						
13.		Interpretation	Interpret the blood sugar and HbA1C results	C5						
14.		Practical performance	Perform the procedure of glucometery independently		P4		Video Demo	1	OSPE/ OSCE	
15.		Comply to SOPs	Comply to SOPs for performing the procedure of glucometery independently			A4				
TOPIC: ARTERIAL BLOOD GASES										
16.	Week-3	Introduction	Define the basic terms and terminologies used in ABGs	C1			Interactive lecturer/ SGDs	2	MCQs	
17.		Indications	Enlist the indications of ABGs	C2						
18.		Components	Discuss the different components of ABGs	C2						
19.		Clinical presentation	Describe the effects of acidosis and alkalosis on the different systems of the body	C3						
20.		Acid-base regulation	Discuss acid-base regulation	C3						
21.		Interpretation	Interpret various investigations for the diagnosis of acid-base imbalance	C4						
22.		Practical performance	Video Demonstration of arterial blood sampling techniques effectively		P4		Video Demo	1	OSPE/ OSCE	
23.		Comply to SOPs	Comply to SOPs for the procedure of arterial blood gases effectively			A4				
TOPIC: PANCREATIC FUNCTIONS TESTS										
24.	Week-4	Introductions	Define pancreatic function tests	C1			Interactive lecturer/ SGDs	2	MCQs	
25.		Function of pancreas	Classify the functions of the pancreas	C2						
26.		Importance of amylase	Explain the importance of serum amylase	C3						
27.		Clinical limitations of amylase	Discuss the clinical limitations of using serum amylase	C3						
28.		Importance of Lipase	Discuss the Importance of Serum Lipase	C3						
29.		Benefits of serum lipase	Enlist the Benefits of serum lipase	C4						
30.		Practical performance	Video demonstration on amylase and serum lipase		P4		Video Demo	1	OSPE/ OSCE	
31.		Comply to SOPs	Comply to SOPs for performing the procedure of amylase and serum lipase			A4				

TOPIC: COMPLETE BLOOD COUNT (CBC)										
32.	Week-5	Introduction	Introduce complete blood count (CBC)	C1			Interactive lecturer/ SGDs	2	MCQs	
33.		Indications	Enlist the indications of CBC	C1						
34.		Role of CBC	Discuss the role of CBC in the diagnosis and management of diseases	C1						
35.		Main parameter	Explain the main parameters measured in CBC	C3						
36.		Investigations	Interpret various investigations for the diagnosis of different types of anemia	C3						
37.		Practical performance	Video demonstration on COMPLETE BLOOD COUNT(CBC)		P4		Video Demo	1	OSPE/ OSCE	
38.		Comply to SOPs	Comply with SOPs for performing COMPLETE BLOOD COUNT (CBC)			A4				
TOPIC: CARDIAC BIOMARKERS										
39.	Week-6	Definition	Define biomarker and cardiac biomarkers	C1			Interactive lecturer/ SGDs	2	MCQs	
40.		Classification	Discuss the classification of cardiac biomarkers	C2						
41.		Current cardiac biomarkers	Explain the current biomarkers and test panels used	C3						
42.		Troponin, Myoglobin, and CK	Explain Troponin, creatine kinase, and myoglobin as cardiac biomarkers	C4						
43.		Mechanisms	Discuss the mechanisms of releasing the troponin, myoglobin, and CK into blood circulation	C3						
44.		Practical performance	Video demonstration on cardiac biomarkers Independently		P4		Demo	1	OSPE/ OSCE	
45.		Comply to SOPs	Comply with SOPs for performing cardiac biomarkers test Independently			A4				
TOPIC: PERIPHERAL BLOOD SMEAR										
46.	Week-7	Introduction	Define peripheral blood smear	C1			Interactive lecturer/ SGDs	2	MCQs	
47.		Indications	Enlist the indications of peripheral blood smear	C2						
48.		Method	Discuss the method of a peripheral blood smear preparation	C3						
49.		Purpose of PBS	Discuss the information obtained from a peripheral blood smear	C3						
50.		RBCs, WBC, and platelets Morphology	Explain the morphology of Red, white blood cells and platelets	C3						
51.		Types of parasites on Blood film	Discuss the parasite present on the blood film	C3						
52.		Practical performance	Video demonstration on peripheral blood smear		P4		Video Demo	1	OSPE/ OSCE	
53.		Comply to SOPs	Comply with SOPs for peripheral blood smear			A4				
TOPIC: BLOOD GROUP AND CROSS MATCH										
54.	Week-8	Definition	Define blood group and cross-match	C1			Interactive lecturer/ SGDs	2	MCQs	
55.		Classification	Discuss the classification of the blood group system	C3						
56.		Blood group systems	Explain the ABO and Rh systems	C3						

57.		Method &procedure	Discuss the Methods and procedure of blood group identification	C4						
58.		Principle and types	Discuss the principles and types of cross-matching	C3						
59.		Result Interpretation	Interpret blood grouping result	C4						
60.		Practical performance	Perform the procedure of blood grouping independently		P4		Practical Demo	1	OSPE/ OSCE	
61.		Comply to SOPs	Comply with SOPs for blood grouping and cross-match independently			A4				
TOPIC: STOOL EXAMINATION										
62.	Week-9	Introduction	Define the macroscopic examination of stool and its clinical importance.	C4			Interactive lecturer/ SGDs	2	MCQs	
63.		Significance of WBCs and RBCs in Microscopic Examination	Discuss the significance of WBCs and RBCs in stool samples under a microscope.	C3						
64.		Examination for Ova and Parasites	Explain the methods and significance of examining stools for ova and parasites.	C3						
65.		Role of Stool Examination in Diagnosing GI Infections	Explain how stool examination helps in diagnosing gastrointestinal infections	C2						
66.		Practical performance	Video demonstration on stool R/E independently		P4		Demo	1	OSPE/ OSCE	
67.		Comply to SOPs	Comply with SOPs for stool R/E independently			A4				
TOPIC: RENAL FUNCTION TESTS										
68.	Week-10	Introduction	Define renal function tests.	C1			Interactive lecturer/ SGDs	2	MCQs	
69.		Importance and applications	List the generic applications of renal function tests.	C3						
70.		Common renal function tests	Describe the common renal function tests (Serum Creatinine, BUN, GFR)	C2						
71.		Urinalysis	Explain Urinalysis	C3						
72.		pathophysiology of azotemia	Illustrate the Basic pathophysiology of azotemia	C3						
73.		Creatinine clearance and its importance	Discuss Creatinine clearance and its importance	C4						
74.		Interpretation of results	Interpret the results of renal function tests.	C3						
75.		Practical performance	Video demonstration on accurate and reliable measurements of 24-hour urine collection and protein-to-creatinine ratio		P4		Demonstration	1	OSPE/ OSCE	
76.		Comply to SOPs	Comply to SOPs for collecting urine sample effectively			A4				
TOPIC: LIVER FUNCTIONS TEST										

77.	Week-11	Introduction	Define liver function testing	C1			Interactive lecturer/ SGDs	2	MCQs	
78.		LFTs in hepatitis	Discuss liver function testing	C3						
79.		LFTs in cholecystitis	Discuss hepatocellular injuries	C3						
80.		LFTs in Cholestasis	Explain Hapatobiliary injury	C3						
81.		Importance	Discuss the diagnostic approach to cholestasis, hyperbilirubinemia, and hepatocellular injuries	C4						
82.		Interpretation	Interpret the result of LFTs	C3						
83.		Practical performance	Video demonstration on LFTs		P4		Video Demo	1	OSPE/ OSCE	
84.		Comply to SOPs	Comply with SOPs for collecting samples for LFTs effectively			A4				
TOPIC: BETA HCG										
85.	Week-12	Introduction	Introduction to beta HCG	C1			Interactive lecturer/ SGDs	2	MCQs	
86.		Indications	Enlist the indications of beta HCG	C3						
87.		Structure and function	Discuss the structure and function of the beta HCG	C2						
88.		Procedure	Explain the procedure of beta HCG test	C3						
89.		Interfering factors	Discuss the factors interfering the results of beta HCG	C3						
90.		Interpretation	Interpret the result of beta HCG	C4						
91.		Practical performance	Practical demonstration of Beta HCG testing independently		P4		Demo	1	OSPE/ OSCE	
92.		Comply to SOPs	Comply with SOPs for performing Beta HCG testing independently			A4				
TOPIC: TORCH PROFILE										
93.	Week-13	Definition	Define TORCH profile	C1			Interactive lecturer/ SGDs	2	MCQs	
94.		types	Discuss the clinical manifestations of TORCH infections	C2						
95.		Pathophysiology	Explain the effects of TORCH infections on pregnancy	C3						
96.		diagnostic criteria	Discuss the diagnostic criteria of TORCH infections	C3						
97.		Practical performance	Video demonstration on TORCH profile for infections in pregnancy.		P4		Demonstration		OSPE/ OSCE	
98.		Comply to SOPs	Comply with SOPs for performing TORCH profile independently			A4				
TOPIC: LIPID PROFILE										
99.	Week-14	Introduction	Define Lipid profile test	C1			Interactive lecturer/ SGDs	1	MCQs	
100.		tests	Enlist various tests of lipid profile	C3						
101.		procedure	Explain the procedure of lipid profile tests	C3						
102.		patient care	Discuss the pre and post-test patient care of lipid profile test	C4						
103.		clinical implications	Discuss the clinical implications of lipid profile tests	C3						
104.		Practical performance	Video demonstration on lipid profile		P4				OSPE/ OSCE	
105.		Comply to SOPs	Comply with SOPs for lipid profile			A4				
TOPIC: SERUM ELECTROLYTES										
106.	Week-	Introduction	Define the serum electrolytes	C1			Interactive	2	MCQs	

107.	15	Indications	Enlist the indications of serum electrolyte testing	C3			lecturer/ SGDs			
108.		Components	Discuss the different components of serum electrolytes	C3						
109.		clinical presentation	Describe the effects of electrolyte imbalance on the different systems of the body	C4						
110.		Acid base regulation	Discuss the effects of serum electrolytes on acid-base regulation	C3						
111.		Interpretation	Interpret the reports of serum electrolytes	C3						
112.		Practical performance	Video demonstration on serum electrolytes		P4			1	OSPE/ OSCE	
113.		Comply to SOPs	Comply to SOPs for serum electrolytes			A4				
TOPIC: THYROID FUNCTION TEST										
114.	Week-16	Introduction	Define Thyroid function tests	C1			Interactive lecturer/ SGDs	2	MCQs	
115.		Indications	Enlist the indications of TFTs	C3						
116.		Components	Explain the clinical implications of Thyroid Stimulating Hormone (TSH)	C3						
117.		Clinical presentation	Discuss the significance of Thyrotropin-releasing hormone (TRH)	C4						
118.		Interpretation	Interpret the reports of TFTs	C3						
119.		Practical performance	Video demonstration on TFTs		P4		Demonstration	1	OSPE/ OSCE	
120.		Comply to SOPs	Comply with SOPs for TFTs			A4				

Recommended Books:

1. District Laboratory Practice in Tropical Countries by Monica Cheesbrough
2. Clinical Laboratory Medicine Lippincott Williams & Wilkins (LWW)
3. ICU Book Paul Merino
4. EKG book, Dale and dubbin.
5. AFIP manual of laboratory medicine,3rd edition

ASSESSMENT BREAKDOWN

S.No	Topics	No of MCQ	No of OSPE / OSCE Stations	Static / Interactive
1	Introduction to laboratory investigations	5	1	Static
2	Blood glucose determination	3	1	Static
3	Arterial blood gases	10	1	Static

4	Pancreatic Functions tests	2	1	Static
5	Complete blood count	4	1	Static
6	Cardiac biomarkers	6	1	Static
7	Peripheral blood smear	5	1	Static
8	Blood group and cross match	3	1	Interactive
9	Stool examination	4	1	Static
10	Renal function tests	6	1	Static
11	Liver functions test	5	1	Static
12	Beta HCG	4	1	Interactive
13	Torch profile	4	1	Static
14	Lipid profile	3	1	Static
15	Serum electrolytes	4	1	Static
16	Thyroid function test	2	1	Static
Total	**16**	**70**	**16**	**16**

BS RT AND ICT ECT – 605 BURNS & TOXICOLOGY 3(2+1)

COURSE DESCRIPTION

This course provides an in-depth understanding of the pathophysiology, assessment, and management of burns and toxicological emergencies. It covers the classification of burns, fluid resuscitation, wound care, and complications associated with burn injuries. Additionally, the course explores various toxicological emergencies, including poisoning, overdose, and hazardous material exposure. Emphasis is placed on pre- hospital and hospital interventions, critical decision-making, and patient safety in burn and toxicology management.

LEARNING OBJECTIVES

Cognitive Domain

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

1. Explain the pathophysiology, classification, and severity of burn injuries.
2. Identify the principles of burn management, including fluid resuscitation, wound care, and pain control.
3. Describe common toxicological emergencies, their mechanisms of action, and clinical manifestations.
4. Discuss the principles of decontamination, antidote administration, and supportive care in toxicology cases.

Psychomotor Domain

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

1. Demonstrate empathy and compassion when managing burn and poisoning patients.
2. Exhibit professionalism and ethical decision-making in pre- hospital and hospital burn/toxicology cases.
3. Develop effective communication skills when educating patients and families on burn prevention and poison control

Affective Domain

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

1. Perform accurate assessment and triage of burn injuries based on severity and extent.
2. Demonstrate proper techniques for burn wound care, dressing application, and pain management.
3. Execute airway management and fluid resuscitation in critically burned patients.
4. Apply appropriate decontamination procedures for toxic exposures, including chemical and biological agents.
5. Administer antidotes and supportive treatments for specific poisoning cases, following established protocols.

TABLE OF SPECIFICATIONS

BURNS & TOXICOLOGY

S. No	week	Content	Learning Outcome	Domain			MIT'S	Time/ Hour	Assessment	No items
				C	P	A				
TOPIC: INTRODUCTION TO BURNS										
1.	Week-1	Introduction	Introduction to burns	C1			Interactive lecturer/ SGDs	2	MCQs	
2.		Causes	Enlist causes of burn injuries	C3						
3.		Pathophysiology	Explain pathophysiology of burn injuries	C3						
4.		Circulatory changes	Discuss the circulatory changes occurring due to burn injuries	C4						
5.		Mechanical block	Explain mechanical block occurring due to burn injuries	C3						
6.		Practical demonstration	Practical demonstration on Identification of different types of burns		P4			1	OSPE/ OSCE	
7.		comply to SOPS	comply to SOPS for the identification of various degree of burns			A4	Practical Demo			
TOPIC: IMMEDIATE CARE OF BURN PATIENTS										
8.	Week-2	Introduction	Introduction to the immediate care of burn patients	C1			Interactive lecturer/ SGDs	2	MCQs	
9.		Classification	Discuss the classification of immediate care into pre hospital and hospital care	C3						
10.		Recognition	Explain the recognition of a potentially burned airway	C3						
11.		Clinical features	Discuss the clinical features of inhalational injury	C3						
12.		Management	Explain the immediate management of an inhalational injury	C4						
13.		Video demonstration	Video demonstration on the utilization fire		P4			1	OSPE/ OSCE	

			extinguisher and fire blankets in fire hazards							
14.		comply to SOPS	Comply to SOPs for utilization fire extinguisher and fire blankets			A4				
TTOPIC: BURN CLASSIFICATION AND ASSESSMENT										
15.	Week-3	Introduction	Introduction to classification of burn injuries	C1			Interactive lecturer/ SGDs	2	MCQs	
16.		Types	Discuss the classification on basis of types	C3						
17.		Depth	Explain the classification on basis of depth of burn injuries	C3						
18.		Electric burns	Explain the mechanism of burn injuries due to electrical burns	C3						
19.		Chemical burns	Explain the mechanism of burn injuries due to chemical burns	C3						
20.		Assessment	Explain the assessment of burn injury size through palm method and Rule of 9	C3						
21.		Practical demonstration	Practical demonstration on the application of rule of nine for assessment of total body surface area Burn		P4			1	OSPE/ OSCE	
22.		comply to SOPS	Comply to SOPs for the application of rule of nine for assessment of total Body Surface area burn independently			A4				
TOPIC: FLUID RESUSSCITATION AND ENERGY BALANCE IN BURN PATIENTS										
23.	Week-4	Introduction	Introduction of different types of fluids that can be given to burn patients	C1			Interactive lecturer/ SGDs	2	MCQs	
24.		Principle	Explain the principles for fluid resuscitation	C3						
25.		Indications	Discuss the indications for fluid resuscitation	C2						
26.		Parkland formula	Explain the parkland formula for crystalloid resuscitation	C3						
27.		Muir and Barcley formula	Explain Muir and Barcley formula for colloid resuscitation	C4						
28.		Monitoring	Discuss the monitoring of fluid resuscitation	C3						
29.		Definition	Define energy balance	C1						
30.		Assessment	Explain the assessment of energy requirement	C2						
31.		Objectives	Discuss the objectives of nutritional management	C3						
32.		Goals	Explain the goals of nutritional management	C3						
33.		Curreri formula	Explain Curreri formula for daily caloric requirement of burn patients	C3						
34.		Devies formula	Explain Devies formula for daily caloric requirement of burn patients	C3						
35.		Practical performance	Video demonstration on escharotomy in patients with circumferential full thickness burns		P4		Practical Demo	1	OSPE/ OSCE	
36.		Comply to SOP	Comply to SOPs for escharotomy			A4				
TOPIC: TREATING THE BURN WOUND										

37.	Week-5	Introduction	Introduction to treatment options of burns	C1			Interactive lecturer/ SGDs	2	MCQs	
38.		Escharotomy	Discuss escharotomy procedure	C4						
39.		Key features	Explain key features for escharotomy placement	C3						
40.		Dressing	Explain the types of dressings used for burn wounds	C3						
41.		Contaminated burn wound	Discuss the management of contaminated burn wound	C4						
42.		Additional aspects	Describe the additional aspects of treating the burn patient	C4						
43.		Practical performance	Practical/Video demonstration on various pharmacological dressings in burn		P4			1	OSPE/ OSCE	
44.		Comply to SOP	Comply to sops for pharmacological dressings in burn			A4				
TOPIC: SURGERY FOR THE ACUTE BURN WOUND										
45.	Week-6	Indications	Discuss the indications for surgery of burn wounds	C1			Interactive lecturer/ SGDs	2	MCQs	
46.		Indications	Discuss the criteria for surgical treatment of burn wounds	C3						
47.		Deep burn wounds	Explain the surgery for deep burn wounds	C4						
48.		Cosmetic surgeries	Explain Z-plasty ,free flaps and tissue expansion	C3						
49.		Hypertrophic scars	Explain the use pressure garments for hypertrophic scars	C3						
50.		Practical performance	Video demonstration on dressing and debridement in full thickness burns		P4			1	OSPE/ OSCE	
51.		Comply to SOP	Comply to SOPs for dressing and debridement			A4	Practical Demo			
TOPIC: NON THERMAL BURN INJURIES										
52.	Week-7	Definition	Define non thermal burn injuries	C1			Interactive lecturer/ SGDs	2	MCQs	
53.		Electric Injuries	Explain electrical injuries	C2						
54.		High tension Electric burns	Explain the classification of high tension electric burns	C3						
55.		Low tension Electric burns	Explain the classification of low tension electric burns	C3						
56.		Chemical burns	Explain chemical injuries	C3						
57.		Classification	Discuss the classification of chemical injuries	C4						
58.		Management	Explain the management of non-thermal burn injuries	C3						
59.		Ionizing radiation injury	Explain the types and management of ionizing radiation injury	C4						
60.		Practical performance	Practical/Video demonstration on ECG monitoring in electrical burns		P4		Demonstration	1	OSPE/ OSCE	
61.		Comply to SOP	Comply to SOPs for ECG monitoring			A4				
TOPIC: INTRODUCTION TO TOXICOLOGY										
62.	Week-8	Introduction	Introduction of toxicology	C1			Interactive lecturer/	2	MCQs	
63.		Routes of poisoning	Discuss different routes of poisoning	C3						

64.		Causes	Explain the causes of drug overdose	C3			SGDs			
65.		Investigation	Discuss the investigations performed for patients with poisoning	C4						
66.		Differential diagnosis	Explain the differential diagnosis related to poisoning	C3						
67.		Management	Explain the general and immediate management of cases with poisoning	C4						
68.		Practical performance	Video demonstration on identification and differentiation of common toxidromes		P4			1	OSPE/ OSCE	
69.		Ethical considerations	Maintain ethical considerations while assessing toxidromes			A4				
TOPIC: INTRODUCTION TO TOXICOLOGY										
70.	Week-9	Decontamination	Explain different procedures used for decontamination	C4			Interactive lecturer/ SGDs	2	MCQs	
71.		Management	Discuss the management of patients with special case	C3						
72.		Antidotes	Discuss the antidotes specific to poisons	C3						
73.		Legal pitfalls	Discuss legal pitfalls of patients with poisoning	C2						
74.		Practical performance	Practical demonstration on gastric decompression in patients with acute poisoning		P4			1	OSPE/ OSCE	
75.		Informed consent	Obtain informed consent before gastric decompression			A4				
TOPIC: ORGANOPHOSPHATE POISONING										
76.	Week-10	Definition	Define organophosphates	C1			Interactive lecturer/ SGDs	2	MCQs	
77.		Mechanism	Explain the mechanism of toxicity of organophosphates	C3						
78.		Modes	Discuss modes of toxicity	C2						
79.		Clinical features	Explain the clinical features of patients with organophosphate poisoning	C3						
80.		Presentation and assessment	Discuss the presentation and assessment of patients with organophosphate poisoning	C3						
81.		Investigations	Discuss the investigations performed for patient with organophosphate poisoning	C4						
82.		diagnosis	Discuss the diagnosis of patient with organophosphate poisoning	C3						
83.		Management	Explain the management of patients with organophosphate poisoning	C4						
84.		Practical performance	Practical demonstration on the application activated charcoal in acute poisoning		P4		Demonstration	1	OSPE/ OSCE	
85.		Comply to SOP	Comply to SOPs for application activated charcoal in acute poisoning independently			A4				
TOPIC: ANTICONVULSANTS DRUGS TOXICITY										
86.	Week-11	Definition	Define Anticonvulsants	C1			Interactive lecturer/	2	MCQs	
87.		Mechanism	Explain the mechanism of action of anticonvulsants	C3						

88.		Etiology	Discuss the etiology of anticonvulsants overdose	C3			SGDs			
89.		Pathophysiology	Explain the pathophysiology of anticonvulsants toxicity	C3						
90.		diagnosis	Discuss the laboratory diagnosis of anticonvulsants toxicity	C4						
91.		Management	Explain the management of patients with anticonvulsants toxicity	C3						
92.		Practical performance	Identification of specific antidotes for various poisoning		P4			1	OSPE/ OSCE	
93.		comply to SOP	Comply to SOPs for identification of antidotes independently			A4				
TOPIC: BETA BLOCKER AND CALCIUM CHANNEL BLOCKER TOXICITY										
94.	Week-12	Definition	Define Beta blocker and Calcium channel blockers	C1			Interactive lecturer/ SGDs	2	MCQs	
95.		Mechanism	Explain the mechanism of action of beta blockers and calcium channel blockers	C3						
96.		etiology	Discuss the etiology of beta blockers and calcium channel blockers	C2						
97.		Presentation and assessment	Discuss Presentation and assessment of patients with beta blockers and calcium channel blockers	C3						
98.		pathophysiology	Explain the pathophysiology of beta blockers and calcium channel blockers	C3						
99.		laboratory diagnosis	Discuss the laboratory diagnosis of beta blockers and calcium channel blockers overdose	C4						
100		Management	Explain the management of patients with beta blockers and calcium channel blockers overdose	C4						
101		Practical performance	Practical demonstration on preparation of first aid kit for poisoning patients		P4			1	OSPE/ OSCE	
102		comply to SOP	Comply to SOPs for preparation of first aid kit for poisoning patients independently			A4				
TOPIC: BENZODIAZEPINES TOXICITY										
103	Week-13	Definition	Define Benzodiazepines	C1			Interactive lecturer/ SGDs	2	MCQs	
104		Mechanism	Discuss the mechanism of action of benzodiazepines	C2						
105		Etiology	Discuss the etiology of benzodiazepines overdose	C3						
106		Pathophysiology	Explain the pathophysiology of benzodiazepines toxicity	C3						
107		Presentation and assessment	Discuss Presentation and assessment of patients with benzodiazepines toxicity	C3						
108		laboratory diagnosis	Discuss the laboratory diagnosis of benzodiazepine toxicity	C4						
109		Management	Explain the management of patients with benzodiazepines toxicity	C4						
110		Practical performance	Practical demonstration on application of urinary catheterization		P4		Demonstration	1	OSPE/ OSCE	

111		Comply to SOPS	Comply to SOPs for application of urinary catheterization independently			A4				
TOPIC: ASPIRIN TOXICITY										
112	Week-14	Definition	Define Aspirin	C1			Interactive lecturer/ SGDs	2	MCQs	
113		Mechanism	Discuss the mechanism of action of aspirin	C3						
114		Etiology	Discuss the etiology of aspirin overdose	C3						
115		Pathophysiology	Explain the pathophysiology of aspirin toxicity	C4						
116		Presentation and assessment	Discuss Presentation and assessment of patients with aspirin toxicity	C3						
117		laboratory diagnosis	Discuss the laboratory diagnosis of aspirin toxicity	C3						
118		Management	Explain the management of patients with aspirin toxicity	C4						
119		Practical performance	Practical demonstration of application of NG tube independently		P4		Demonstration	1	OSPE/ OSCE	
120		Comply to SOPs	Comply to SOPs for application of NG tube effectively			A4				
TOPIC: NSAIDS AND ALCOHOL TOXICITY										
121	Week-15	Introduction	Give introduction about NSAIDs and alcohol	C1			Interactive lecturer/ SGDs	2	MCQs	
122		Mechanism	Discuss the mechanism of action of NSAIDs and alcohol	C3						
123		Etiology	Discuss the etiology of NSAIDs overdose	C3						
124		Pathophysiology	Explain the pathophysiology of NSAIDs and alcohol toxicity	C4						
125		Presentation and assessment	Discuss Presentation and assessment of patients with NSAIDs and alcohol toxicity	C3						
126		laboratory diagnosis	Discuss the laboratory diagnosis of NSAIDs and alcohol toxicity	C3						
127		Management	Explain the management of patients with NSAIDs and alcohol toxicity	C4						
128		Practical performance	Practical demonstration on application of endotracheal tube for metabolic poisoning independently		P4			1	OSPE/ OSCE	
129		Comply to SOPs	Comply to SOPs for application of endotracheal tube for metabolic poisoning effectively			A4				
TOPIC: MANAGEMENT OF SNAKE AND SCORPION BITE										
130	Week-16	Introduction	Give introduction about snake and scorpion bite	C1			Interactive lecturer/ SGDs	2	MCQs	
131		Sign and symptoms	Discuss the sign and symptoms of snake and scorpion bite	C3						
132		Types	Discuss the types of snake venom	C3						
133		Toxic effect	Explain the toxic effect of snake and scorpion bite	C4						
134		Diagnosis	Discuss the lab diagnosis of snake and scorpion bite	C3						
135		Management	Explain the management for snake and scorpion bite	C3						
136		Practical performance	Practical demonstration on assessment of urine output for monitoring toxicity in Poisoning Patients		P4		Demonstration	1	OSPE/ OSCE	

			independently							
137		Comply to SOPs	Comply to SOPs for assessment of urine output for monitoring toxicity in Poisoning Patients effectively			A4				

Recommended Books

1. Baily & Love Short Practice of Surgery
2. ABC of Burns
3. Emergencies in critical care
4. ABC of Emergency Medicines
5. First Aid for the Emergency Medicines Board

ASSESSMENT BREAKDOWN

S.No	Topics	No of MCQ	No of OSPE / OSCE Stations	Static / Interactive
1	Introduction to burns	5	1	Static
2	Immediate care of burn patients	2	1	Static and Interactive
3	Burn classification and assessment	7	1	Interactive
4	Fluid resuscitation in burn patients	4	1	Static
5	Energy balance in burn patients	3	1	Interactive
6	Treating the burn wound	3	1	Static
7	Surgery for the acute burn wound	4	1	Static
8	Non thermal burn injuries	6	1	Static
9	Introduction to toxicology	9	1	Static
10	Organophosphate poisoning	5	1	Static
11	Anticonvulsants drugs toxicity	4	1	Static/ Interactive
12	Beta blocker and calcium channel blocker toxicity	5	1	Interactive
13	Benzodiazepines toxicity	3	-	-
14	Aspirin toxicity	3	-	-
15	Nsaids and alcohol toxicity	5	1	Interactive
16	Management of snake and scorpion bite	2	1	Static
Total	**16**	**70**	**14**	**14**

THE END