



Department of Respiratory Care

Course Specification of Cardiopulmonary Critical Care Course No. (RSC 456)

2023/2024

XCII. Course Description:

This intensive course delves into the critical care management of patients with complex cardiopulmonary conditions. It equips respiratory care students with a comprehensive understanding of advanced respiratory therapies, hemodynamic monitoring, mechanical ventilation, and pharmacology relevant to critical care settings. Students will learn to assess and manage critically ill patients with a focus on optimizing oxygenation, ventilation, and cardiac function. The course emphasizes evidence-based practice, clinical decision-making, and collaboration within the multidisciplinary critical care team.

IV Course Content:

Distribution of Semester Weekly Plan of Course Topics/Items and Activities.

A – Theoretical Aspect: (if any)

S	Units/ Topics List	No. of Weeks	Contact hours	CILOs
1	Introduction to Cardiopulmonary Critical Care:	1	2	a1
	○ Definition, scope, and historical evolution of critical care ○ Types of critical care units (ICU, CCU, SICU, etc.) ○ Equipment in the critical care unit (ventilators, monitors, infusion pumps, etc.) ○ Multidisciplinary critical care team: roles and responsibilities of respiratory therapists, physicians, nurses, etc.			
2	Basic Concepts of Non-invasive Ventilation (NIV):	2	2	a2, a3
	○ Indications, contraindications, and modes of NIV (CPAP, BiPAP) ○ Patient selection and interface options (masks, nasal prongs) ○ Monitoring and troubleshooting NIV ○ Transitioning from NIV to invasive ventilation			
3	Cardiac Arrest:	3	4	a3
	○ Recognition and initial management of cardiac arrest ○ Advanced cardiac life support (ACLS) protocols ○ Post-cardiac arrest care and therapeutic hypothermia			
4	Fever in the ICU:	4	2	a2, a3
	○ Differential diagnosis of fever in critically ill patients ○ Infection control and source identification ○ Antipyretic therapy and cooling measures			
5	Antibiotics in the ICU:	5	4	a2, a3
	○ Empiric antibiotic therapy and de-escalation ○ Antibiotic stewardship and resistance patterns ○ Monitoring and adverse effects of antibiotics			

6	Shock:	- Pathophysiology and classification of shock (hypovolemic, cardiogenic, distributive, obstructive) - Hemodynamic monitoring and management of shock - Pharmacological and supportive therapies	6	2	a2, a3
7	Hemoptysis:	- Causes and differential diagnosis - Initial management and airway protection - Bronchial artery embolization and other interventions	7	2	c1, d1, d2
8	Mid-Term Exam		8	2	
9	Airway Maintenance:	- Artificial airways (oral and nasal airways, endotracheal tubes) - Suctioning techniques and airway clearance - Preventing and managing airway complications	9	2	a3

10	Difficult Airway Management & Intubation:	- Predicting and preparing for difficult airways - Alternative intubation techniques (videolaryngoscopy, fiberoptic) - Bedside bronchoscopy - Surgical airway management (cricothyrotomy, tracheostomy)	10	2	b1
11	Extracorporeal Membrane Oxygenation (ECMO):	- Indications, types (VA, VV), and cannulation - Management of patients on ECMO - Complications and weaning from ECMO	11	2	a2, a3, b1, c2
12	Independent Lung Ventilation(ILV):	- Rationale and indications for ILV - Ventilator settings and management strategies - Challenges and troubleshooting	12	2	
13	Liquid Ventilation:	- Principles and potential applications - Technical aspects and challenges - Current research and future directions	13	2	
14	Mechanical Ventilation in Specific Conditions:	- ARDS, COPD, asthma, pneumonia - Neurological conditions (traumatic brain injury, spinal cord injury) - Pediatric and neonatal critical care	14	2	
15	Ethical and Legal Considerations in Critical Care:	- Advanced directives, surrogate decision-making, and end-of-life care - Informed consent and patient autonomy - Resource allocation and ethical dilemmas	15	2	
16	Final Exam		16	2	-
TOTAL			16	32	-
Number of Weeks /and Units Per Semester			16 weeks	2 Credits	-

B - Practical Aspect: (if any)				
S	Tasks/ Experiments	Number of weeks	contact hours	CILOs
1	Not applicable	-	-	-
TOTAL		-	-	-
Number of Weeks /and Units Per Semester		-	-	-

XIX. Schedule of Assessment Tasks for Students during the Semester Theoretical part

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Attendance and Activities	15 th week	5	5%	a, b
2	Student assignment	5 th and 12 th week	5	5%	b
3	Mid-term exam	7 th or 8 th week	20	20%	a, b
4	Final exam	16 th -17 th week	70	70 %	a, b, c, d
Total Theory Weight			100	100%	