

Course details

Goals: To train candidates in the safe initiation, management, and weaning of mechanically ventilated patients across various clinical settings.

Equipments & Facilities available: Yes

Duration and schedule of The Course: 3 Months 1–2 per week
(Lecture / Skill Training / Case-based Learning)

Learning Objectives

By the end of the course, trainees will be able to:

1. Understand respiratory physiology relevant to ventilation
2. Set up and troubleshoot ventilators
3. Select appropriate ventilation modes based on pathology
4. Manage ARDS, COPD, asthma & trauma patients on ventilators
5. Apply lung-protective ventilation strategies
6. Perform weaning and extubation safely
7. Handle non-invasive ventilation (NIV)
8. Prevent and manage ventilator-related complications

Teaching Methodology

- Didactic & Interactive Lectures
- Case-based Discussions
- Simulation and Bedside Learning
- Ventilator Handling Workshops
- Assignments, Viva

Eligibility: MD/DNB/DA Anesthesiology, Pulmonary Medicine & Critical Care Residents, OT/ICU Practitioners, MBBS Students

Attendance and leave rules: Minimum 80%

Duties and Responsibilities of fellows: As per University Norms

Evaluation Process:

Assessment System

Component	Weightage
Mid-course Test	20%
End-course Written Exam	30%
Viva & OSCE	20%
Logbook & Practical Competency	30%

Passing Criteria: Minimum 50% in each component

Logbook Requirements

- Daily case entries with ventilator settings + ABG
- Skill sign-offs by faculty
- Minimum 2 seminar/journal club presentations

Course Content (Curriculum):

Month 1 — Fundamentals

Topic	Content	Practical Focus
Basics of Mechanical Ventilation	Respiratory mechanics, compliance, resistance, work of breathing, monitoring (ABG, capnography, pulse oximetry)	Ventilator circuit setup, initial settings for post-op ventilation
Modes of Ventilation	Volume & pressure control, SIMV, PSV, APRV, CPAP	Mode selection scenarios, transition between modes

Month 2 — Pathology-Based Strategies

Topic	Content	Practical Focus
Pathology-based Ventilation	ARDS (lung protective strategy), COPD, asthma, neurotrauma, sepsis, pediatric basics	Recruitment maneuvers, PEEP titration, plateau pressure monitoring
Non-Invasive Ventilation & High-Flow	NIV (BiPAP/CPAP), HFNC indications & settings	Mask fitting, NIV troubleshooting

Month 3 — Weaning & Complications

Topic	Content	Practical Focus
Weaning & Extubation	Weaning protocols, RSBI, sedation in ICU	Spontaneous breathing trial, extubation checklist
Complications & Troubleshooting	VILI, barotrauma, auto-PEEP, VAP	Troubleshooting alarms, VAP bundle implementation

Practical Exposure / Clinical Posting

- Weekly ICU ventilator rounds
- Minimum hands-on exposure to:
 - 20 ventilated patients (management + documentation)
 - 5 NIV patients
 - 5 weaning/extubation cases
- Simulation Skills:
 - Acute desaturation response
 - Ventilator alarms & corrective steps
 - Safe transport of ventilated patients