# RESP-210: PRINCIPLES & APPLICATIONS OF MECHANICAL VENTILATION/LAB

**Effective Term**
Fall 2026

**CC Approval**
12/05/2025

**AS Approval**
12/11/2025

**BOT Approval**
12/18/2025

## SECTION A - Course Data Elements

**Send Workflow to Initiator**
No

**CB04 Credit Status**
Credit - Degree Applicable

**Discipline**

| Minimum Qualifications | And/Or |
|---|---|
| Respiratory Technologies (Any Degree and Professional Experience) | |

**Subject Code**
RESP - Respiratory Care

**Course Number**
210

**Department**
Respiratory Therapy

**Division**
Health Occupations (HEOC)

**Full Course Title**
Principles & Applications of Mechanical Ventilation/Lab

**Short Title**
Prin & App of Mech Vent/Lab

**CB03 TOP Code**
1210.00 - *Respiratory Care/Therapy

**CIP Code**
51.0908

**CB08 Basic Skills Status**
NBS - Not Basic Skills

**CB09 SAM Code**
C - Clearly Occupational

**Rationale**
Course reviewed and updated.

## SECTION B - Course Description

**Catalog Course Description**
Students will receive instruction in the care and treatment of the acutely ill cardiopulmonary patient. The course will cover management of patients requiring ventilatory support, intubation avoidance strategies, and hazards of positive pressure ventilation. This course's laboratory work will develop the student's knowledge and technical skills in adult, pediatric, and neonatal mechanical ventilation. The course lab will cover application and management of state-of-the-art ventilators.

## SECTION C - Conditions on Enrollment

**Open Entry/Open Exit**
No

**Repeatability**
Not Repeatable

**Grading Options**
Letter Grade Only

**Allow Audit**
Yes

## Requisites

**Prerequisite(s)**
Completion of RESP-185 with a minimum grade of C.

**Corequisite(s)**
Concurrent enrollment in RESP-220 and RESP-250.

## Requisite Justification

**Requisite Description**
Course Not in a Sequence

**Subject**
RESP
**Course #**
185

**Level of Scrutiny**
Requisite Established by Statute/Regulation

**Explanation**
Must have completed content in RESP 185 per CoARC (accrediting agency) minimum clinical standards.

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**Requisite Description**
Course Not in a Sequence

**Subject**
RESP
**Course #**
220

**Level of Scrutiny**
Content Review

**Upon entering this course, students should be able to:**
1. Describe indications for mechanical ventilation.
2. Classify approaches for the initiation of mechanical ventilation.
3. Evaluate the management of patients with various disease processes.
4. Perform monitoring techniques used on patients in the ICU.

5. Differentiate modes of mechanical ventilation.
6. Compare various ventilatory strategies.
7. Describe complications of mechanical ventilation.
8. Discuss intubation avoidance strategies.

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**Requisite Description**

Course Not in a Sequence

**Subject**

RESP

**Course #**

250

**Level of Scrutiny**

Content Review

**Upon entering this course, students should be able to:**

1. Describe indications for mechanical ventilation.
2. Classify approaches for the initiation of mechanical ventilation.
3. Evaluate the management of patients with various disease processes.
4. Perform monitoring techniques used on patients in the ICU.
5. Differentiate modes of mechanical ventilation.
6. Compare various ventilatory strategies.
7. Describe complications of mechanical ventilation.
8. Discuss intubation avoidance strategies.

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## SECTION D - Course Standards

**Is this course variable unit?**

No

**Units**

4.00

**Lecture Hours**

54.00

**Lab Hours**

54.00

**Outside of Class Hours**

108

**Total Contact Hours**

108

**Total Student Hours**

216

## Distance Education Approval

**Is this course offered through Distance Education?**

No

## SECTION E - Course Content

**Student Learning Outcomes**

| | Upon satisfactory completion of the course, students will be able to: |
|---|---|
| 1. | Initiate mechanical ventilator support for a patient simulator (adult, pediatric, neonate). |
| 2. | Initiate ventilator strategies on age-specific patient simulators. |
| 3. | Optimize patient ventilator interactions. |

**Course Objectives**

| | Upon satisfactory completion of the course, students will be able to: |
|---|---|
| 1. | Describe indications for mechanical ventilation by assembling and applying ventilator circuitry. |
| 2. | Classify approaches for the initiation of mechanical ventilation. |
| 3. | Evaluate the management of patients with various disease processes and demonstrate monitoring techniques used on patients in the ICU. |
| 4. | Differentiate modes of mechanical ventilation and manipulate ventilatory parameters. |
| 5. | Compare various ventilatory strategies. |
| 6. | Describe complications of mechanical ventilation. |
| 7. | Discuss intubation avoidance strategies by demonstrating assistance at intubation. |
| 8. | Perform ventilatory techniques on infant models. |

**Course Content**

1. Indications for mechanical ventilation
2. Initiation of mechanical ventilation
3. Management of patients with various disease processes
4. Monitoring techniques used on patients in the ICU
5. Complications of mechanical ventilation
6. Intubation avoidance strategies
7. Manipulation of ventilatory parameters

## Methods of Instruction

**Methods of Instruction**

| Types | Examples of learning activities |
|---|---|
| Activity | Set up ventilator in volume control for a post-op male patient 5ft. 10in. |
| Discussion | Explain how APRV is lung protective. |
| Lab | Activities to support lecture portion in a concurrent format. |
| Lecture | Reviewing Dual Modes on current ventilators. |
| Other | Lecture, group activities, student presentation. |

## Methods of Evaluation

**Methods of Evaluation**

| Types | Examples of classroom assessments |
|---|---|
| Exams/Tests | Mr. X is being mechanically ventilated with a tidal volume of 500mls. Mr. X has an ideal body weight of 150 pounds. His set and controlled respiratory rate is 10. How much of his tidal volume is going to the combined anatomic and alveolar dead space?<br><br>Final Exam - A 28-year-old woman is seen in the emergency room with paralysis of the lower extremities. Her initial ABGs were pH 7.49 PaCO2 29 mmHg, PaO2 63mmHg, HCO3 24mEq/liter on room air. Respiratory rate was 30 and MIP was -30 cm H2O. What is your initial recommendation? |
| Quizzes | Calculate the amount of oxygen dissolved given the hemoglobin, oxygen partial pressure, and oxygen saturation. |
| Homework | Prepare case study for presentation to class. |

| | |
|---|---|
| Lab Activities | Various lab assignments and activities to support the lecture portion of the course (e.g., troubleshoot ventilator malfunction, problem solve ventilator parameters with various patient pathology). |
| Other | Completion of computer programs and internet research assignments. |

## Assignments

**Reading Assignments**

Assigned readings from textbooks:

1. Read - Pilbeam chapter 3 and answer the review questions at the end of the chapter.
2. Read - Pilbeam chapter 4 and answer the review questions at the end of the chapter.
3. Read - Pilbeam chapter 6 and answer the review questions at the end of the chapter.

**Writing Assignments**

Computer programs: Management of patients on mechanical ventilation, Intubation avoidance strategies:

1. Answer assigned questions Pilbeam workbook.
2. Questions 1 thru 21 on page 29 of the workbook.
3.Workbook - chapter 4, critical thinking questions 1 thru 8, and case studies 1 and 2.

**Outside-of-Class Assignments**

Internet research on monitoring techniques and complications of mechanical ventilation

## SECTION F - Textbooks and Instructional Materials

**Material Type**

Textbook

**Author**

Pilbeam, Susan

**Title**

Mechanical Ventilation: Physiological and Clinical Applications

**Edition/Version**

8th

**Publisher**

Elsevier

**Year**

2024

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**Material Type**

Textbook

**Author**

Pilbeam, Susan

**Title**

Workbook for Mechanical Ventilation: Physiological and Clinical Applications

**Edition/Version**

8th

**Publisher**

Mosby Elsevier

**Year**

2024

## SECTION G - Diversity, Equity and Inclusivity

**How does your course and/or course outline of record reflect strategies for accommodating and engaging diverse student populations, advancing equitable outcomes, and fostering inclusion for all students?**

The course outline of record reflects inclusive practices by detailing flexible instruction, diverse course materials, equitable assessments, and supportive policies that ensure accessibility and engagement for all students.

## Course Codes (Admin Only)

**CB00 State ID**

CCC000592829

**CB10 Cooperative Work Experience Status**

N - Is Not Part of a Cooperative Work Experience Education Program

**CB11 Course Classification Status**

Y - Credit Course

**CB13 Special Class Status**

N - The Course is Not an Approved Special Class

**CB23 Funding Agency Category**

Y - Not Applicable (Funding Not Used)

**CB24 Program Course Status**

Program Applicable

**Allow Pass/No Pass**

No

**Only Pass/No Pass**

No