



## **RESP 210 - Principles & Applications of Mechanical Ventilation/Lab Course Outline**

**Approval Date:** 03/08/2018

**Effective Date:** 08/13/2018

### **SECTION A**

**Unique ID Number** CCC000592829

**Discipline(s)** Respiratory Technologies

**Division** Health Occupations

**Subject Area** Respiratory Care

**Subject Code** RESP

**Course Number** 210

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

**TOP Code/SAM Code** 1210.00 - Respiratory Care Therapy/Therapist\* / C - Occupational

**Rationale for adding this course to the curriculum** Bring the lecture and lab portions of the course together into one course to streamline and create continuity for student progression.

**Units** 4

**Cross List** N/A

**Typical Course Weeks** 18

**Total Instructional Hours**

#### **Contact Hours**

**Lecture** 54.00

**Lab** 54.00

**Activity** 0.00

**Work Experience** 0.00

**Outside of Class Hours** 108.00

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**Total Contact Hours** 108

**Total Student Hours** 216

**Open Entry/Open Exit** No

**Maximum Enrollment** 30

**Grading Option** Letter Grade Only

**Distance Education Mode** On-Campus  
**of Instruction** Hybrid

## SECTION B

**General Education Information:**

## SECTION C

### Course Description

**Repeatability** May be repeated 0 times

**Catalog 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-ventilators.

### Schedule Description

## SECTION D

### Condition on Enrollment

#### 1a. Prerequisite(s)

- RESP 185 with a minimum grade of C or better

#### 1b. Corequisite(s)

- RESP 220 and
- RESP 250

1c. **Recommended:** *None*

1d. **Limitation on Enrollment:** *None*

## SECTION E

### Course Outline Information

#### 1. Student Learning Outcomes:

- A. Initiate mechanical ventilator support for a patient simulator (adult, pediatric, neonate).
- B. Initiate ventilator strategies on age-specific patient simulators.
- C. Optimize patient ventilator interactions.

#### 2. Course Objectives: Upon completion of this course, the student will be able to:

- A. Describe indications for mechanical ventilation by assembling and applying ventilator circuitry.
- B. Classify approaches for the initiation of mechanical ventilation.
- C. Evaluate the management of patients with various disease processes and demonstrate monitoring techniques used on patients in the ICU.
- D. Differentiate modes of mechanical ventilation and manipulate ventilatory parameters.
- E. Compare various ventilatory strategies.
- F. Describe complications of mechanical ventilation.
- G. Discuss intubation avoidance strategies by demonstrating assistance at intubation.
- H. Perform ventilatory techniques on infant models.
- I.

#### 3. 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

#### 4. Methods of Instruction:

**Activity:** Set up ventilator in volume control for a post-op male patient 5ft. 10in.

**Discussion:** Explain how APRV is lung protective.

**Distance Education:**

**Lab:** Activities to support lecture portion in a concurrent format.

**Lecture:** Reviewing Dual Modes on current ventilators.

**Other:** Lecture Group activities Student presentation

**5. Methods of Evaluation:** Describe the general types of evaluations for this course and provide at least two, specific examples.

#### Typical classroom assessment techniques

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 deadspace?

Quizzes -- Calculate the amount of oxygen dissolved given the hemoglobin, oxygen partial pressure, and oxygen saturation.

Home Work -- 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).

Final Exam -- A 28 year-old woman is seen in the emergency room with paralysis of the of the lower extremities. Her initial ABGs were pH 7.49 PaCO<sub>2</sub> 29 mmHg, PaO<sub>2</sub> 63mmHg, HCO<sub>3</sub> 24mEq/liter on room air. Respiratory rate was 30 and MIP was -30 cm H<sub>2</sub>O.- What is your initial recommendation?

Mid Term --

Additional assessment information:

Completion of computer programs and internet research assignments

Quizzes

Midterm exam

Oral exam

Final exam

Letter Grade Only

**6. Assignments:** State the general types of assignments for this course under the following categories and provide at least two specific examples for each section.

##### A. 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.

##### B. 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.

C. Other Assignments

Internet research on monitoring techniques and complications of mechanical ventilation

**7. Required Materials**

**A. EXAMPLES of typical college-level textbooks (for degree-applicable courses) or other print materials.**

Book #1:

Author: Pilbeam, Susan

Title: Mechanical Ventilation: Physiological and Clinical Applications

Publisher: Mosby Elsevier

Date of  
Publication: 2015

Edition: 6th

Book #2:

Author: Pilbeam, Susan

Title: Workbook for Mechanical Ventilation: Physiological and Clinical  
Applications

Publisher: Mosby Elsevier

Date of  
Publication: 2015

Edition: 6th

**B. Other required materials/supplies.**