

**Common Course Outline**  
**RESP 202**  
**Principles of Ventilation Management**  
**4 Credits**

**Community College of Baltimore County**

**Description**

**RESP 202 – Principles of Ventilation Management** builds upon patient monitoring and treatment modalities in critical care covered during RESP 200. This course provides a theoretical and mechanical basis of the principles and practices of ventilatory support for patients in the clinical setting. Various modes of mechanical ventilation are explained including pressure, volume, dual control, and spontaneous modes. Topics discussed are indications, goals, hazards, safety settings, and graphics associated with mechanical ventilation. Additionally, pharmacology associated with the management and care of mechanically ventilated patients are examined.

**4 Credits**

**Prerequisite:** RESP 200

**Co-requisites:** RESP 201 and RESP 203

**Overall Course Objectives**

Upon completion of this course students will be able to:

1. explain the different mechanical ventilation modes;
2. distinguish between positive pressure and negative pressure ventilation;
3. describe ventilator controls, alarms and limits;
4. describe all phases of the ventilator breath;
5. describe Positive End-Expiratory Pressure (PEEP) and when to initiate;
6. manage abnormal arterial blood gas values through ventilator controls;
7. distinguish whether a ventilator is volume, flow, or time controlled;
8. explain compliance, dead space, and the effects on positive pressure ventilation (PPV);
9. list the indications for mechanical ventilation;
10. list the common criteria for initiating mechanical ventilation;
11. list the goals and complications of mechanical ventilation;
12. analyze patient assessment findings in relation to mechanical ventilation;
13. recognize when discontinuation of mechanical ventilation is appropriate;
14. explain the medications utilized during mechanical ventilation;
15. identify the signs and symptoms of respiratory failure and oxygen failure;
16. recognize signs of Adult Respiratory Distress Syndrome;
17. differentiate between normal and abnormal ventilator graphics; and
18. describe corrective actions for abnormal ventilator graphics.

## **Major Topics**

- I. Principles of mechanical ventilation
  - A. Airway resistance and compliance
  - B. Ventilatory failure
  - C. Oxygenation failure
- II. Effects of mechanical ventilation
  - A. Cardiovascular considerations
  - B. Hemodynamic considerations
  - C. Organ systems and positive pressure ventilation
- III. Classification of mechanical ventilators
  - A. Pressure controller
  - B. Time controller
  - C. Volume controller
  - D. Flow controller
- IV. Operating modes of mechanical ventilation
  - A. Negative pressure ventilation
  - B. Volume ventilation
  - C. Pressure ventilation
  - D. Weaning modes
- V. Initiation of mechanical ventilation
  - A. Indications for mechanical ventilation
  - B. Contraindications for mechanical ventilation
  - C. Hazards for mechanical ventilation
  - D. Initial ventilator settings/ alarm settings
- VI. Patient monitoring and management
  - A. Assessment of the mechanically ventilated patient
  - B. Patient comfort
  - C. Hemodynamic assessment
  - D. Patient-ventilator synchrony vs. asynchrony
  - E. Assessing for auto-PEEP
- VII. Pharmacology for mechanical ventilation
  - A. Neuromuscular blocking agents
  - B. Central nervous system agents
  - C. Drawbacks of pharmacotherapy use on ventilated patients
- VIII. Ventilator waveform analysis
  - A. Flow-time waveforms
  - B. Pressure-time waveforms
  - C. Pressure-volume loop
  - D. Flow-volume loop
- IX. Discontinuing mechanical ventilation
  - A. Pulmonary mechanics
  - B. Spontaneous breathing trial
  - C. Non-invasive positive pressure ventilation
  - D. Extubation

## **Course Requirements**

Grading procedures will be determined by the individual faculty member but will include the following:

### **Grading/exams**

- A minimum of three exams
- Weekly quizzes
- Group project presentation
- A minimum of two written assignments
- A cumulative final examination
- Professionalism
- Participation

Written Assignments: Students are required to use appropriate academic resources and use proper APA format.

### **Other Course Information**

This course is a Respiratory Care Therapy program core course. This course is part of a program sequence that requires admission to the program. This course is offered during the fall semester only.

Date Revised: 11/12/2018