**SOUTHEAST COMMUNITY COLLEGE**
**HEALTH SCIENCES DIVISION**
**RESPIRATORY CARE**
**Revision Date: 11/2025**

## I. CATALOG DESCRIPTION

| | |
|---|---|
| **Course Number:** | **RESP 1161** |
| **Course Title:** | **Respiratory Mechanical Ventilation** |
| **Prerequisites:** | **Admission to the Program** |
| **Catalog Description:** | **Study of adult, pediatric and neonatal mechanical ventilators, ventilation techniques, advanced modes and therapies, and critical care monitoring and management. Lab complements the material presented in lecture by utilizing knowledge from class in a laboratory setting. Ventilator interaction with various ventilators from hospital settings are used for practicing setup, application, and monitoring of patients using case studies and scenarios. Lab is concurrent with lecture.** |
| **Credit Hours:** | **5** |
| **Class Hours:** | **45** |
| **Lab Hours:** | **90** |
| **Total Contact Hours:** | **135** |

## *II.* COURSE OBJECTIVES *Course will:*

1. Determine the characteristics of invasive and non-invasive mechanicalventilators.
2. Identify how changes in lung characteristics affect oxygenation and ventilation.
3. Demonstrate knowledge and skill in initiation of invasive/non-invasive mechanical ventilation.
4. Demonstrate knowledge and skill in the management of mechanical ventilation.
5. Demonstrate knowledge and skill in ventilator weaning.
6. Demonstrate knowledge and skill in discontinuing mechanical ventilation.
7. Demonstrate knowledge and skill in advanced modes of ventilation.
8. Demonstrate knowledge and skill in the management and assessment of the critically ill patient.

## III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

### *A.* STUDENT LEARNING OUTCOMES: *Student will be able to:*

1. Based on a patient scenario the student will be able to perform the following skills:
    a. Inline MDI
    b. Inline SVN
    c. Ventilator Initiation
    d. Airway Management
    e. Ventilator Management
    f. Inline Suctioning
    g. Non-invasive Mechanical Ventilation
    h. Troubleshooting

i. Advanced ventilator management
j. Ventilator weaning and discontinuation
k. Ventilator waveform interpretation
l. Critical thinking and decision making

***B.*** **GENERAL EDUCATION LEARNING OUTCOMES**

**(GELO 3) Critical Thinking & Problem Solving:**

**Outcome:**

1. Collect, identify, interpret and analyze data.
2. Synthesize information to arrive at reasoned solutions to problems.

***IV.*** **CONTENT/TOPICAL OUTLINE (*Course outline may provide more detailed information)***

**A. Basic Concepts of Mechanical Ventilation**

1. Airway Resistance
2. Lung Compliance
3. Dead Space Ventilation
4. Indications & Contraindications

**B. Non-Invasive Ventilation**

1. CPAP
2. Bipap
3. AVAPS

**C. Initiation of Mechanical Ventilation**

**D. Ventilator Settings & Modes**

1. Basic Settings
2. Assist Control Modes
3. SIMV Modes
4. Spontaneous Modes

**E. Management of Mechanical Ventilation**

1. Improving Ventilation
2. Improving Oxygenation
3. Weaning- Post-op, Long-term and tracheostomy
4. Long-term mechanical ventilation

**F. Monitoring Mechanical Ventilation**

1. Non-Invasive & Invasive Monitoring
2. Basic Ventilator Waveforms and Loops
3. EtCO2

**G. Alarms & Troubleshooting**

1. Volume Alarms
2. Pressure Alarms
3. Identifying and Responding to Alarms

**H. Advanced Mechanical Ventilation**

1. VDR
2. High frequency ventilation
3. Liquid Ventilation
4. APRV/BiLevel
5. Inverse I:E ratio
6. NAVA

**I. Advanced Therapies**

1. Inline IPV
2. Heliox

3.Nitric Oxide

**IV.** INSTRUCTIONAL MATERIALS

**A. Required text(s)/Supplies:**

Cairo, *Pilbeam's Mechanical Ventilation,* current edition. Elsevier

*AARC Clinical Practice Guidelines*

Butler, Thomas J., *Laboratory Exercised for Competency in Respiratory Care*, current edition, F.A. Davis Company

**B. Other resources:**

Microsoft Office (word, PowerPoint, excel)

Internet Connection

Firefox Browser (recommended)

Computer/Laptop purchased in last 5 years

**V. METHODS OF PRESENTATION/INSTRUCTION**

**A. Methods of presentation typically include a combination of thefollowing:**

1. Video
2. Interactive Activities
3. Technology
4. Hands-on Practice
5. Lecture
6. Demonstration
7. Case Studies

**VI. METHODS OF EVALUATION**

**A. Methods of evaluation typically include:**

A combination of assignments, quizzes, exams, projects, skill checkoffs, etc. For grading expectations please see the course information document.

**SCC STANDARD GRADING SCALE POLICY:**

| | | | |
|---|---|---|---|
| **A+** | **95-100** | **C+** | **75-79** |
| **A** | **90-94** | **C** | **70-74** |
| **B+** | **85-89** | **D+** | **65-69** |
| **B** | **80-84** | **D** | **60-64** |
| | | **F** | **Below 60** |

**VII. SPECIFIC COURSE REQUIREMENTS**

**A. ATTENDANCE**

Attendance is crucial to the success of this course. Any class missed could mean valuable missed information, which is difficult to obtain. Please notify the instructor of any pending absences or if you will be late. Absences in excess of four hours may result in failing the course.

**B.** Must pass all program courses with a C+ to progress to the next term.

Please see course information document for course policies related to grading, expectations, assignments, assessments, and participation