

El Paso Community College

Syllabus

Part II

Official Course Description

SUBJECT AREA	<u>Respiratory Care Technology</u>
COURSE RUBRIC AND NUMBER	<u>RSPT 2414</u>
COURSE TITLE	<u>Mechanical Ventilation</u>
COURSE CREDIT HOURS	<u>4 4 : 1</u> Credits Lec Lab

I. Catalog Description

Studies mechanical ventilation with emphasis on ventilator classification, methods, principles, and operational characteristics. A grade of "C" or better is required in this course to take the next course. **Corequisite: RSPT 2360. (4:1). Lab fee.**

II. Course Objectives

- A. Unit I. Principles of Mechanical Ventilation**
1. Identify factors affecting airway resistance.
 2. Describe the effects of airway resistance on ventilation & oxygenation.
 3. Discuss the effects static and dynamic compliance have on ventilation & oxygenation.
 4. Distinguish between anatomic, alveolar and physiologic Deadspace.
 5. Calculate anatomic alveolar and physiologic Deadspace.
 6. Discuss the causes of ventilatory and oxygenation failure.
 7. Describe the clinical conditions leading to mechanical ventilation.
- B. Unit II. Classification of Mechanical Ventilators**
1. Describe how ventilators are classified.
 2. Describe input power.
 3. Discuss four different drive mechanisms of mechanical ventilators.
 4. Discuss the five control circuits of mechanical ventilators.
 5. Discuss four control variables of mechanical ventilators.
 6. Discuss phase variables of mechanical ventilation.
 7. Identify the output waveforms on a ventilator screen.
 8. Discuss the three ventilator alarm systems
- C. Unit III. Operating Modes of Mechanical Ventilation**
1. Discuss the concept of negative vs. positive pressure ventilation.
 2. Describe spontaneous operating mode.
 3. Discuss Positive End Expiratory Pressure (PEEP) indications and complications.
 4. Discuss the concept of non-invasive positive pressure ventilation (NIPPV).
 5. Describe Controlled Mandatory Ventilation (CMV) mode.
 6. Discuss Assist Control (A/C) mode of ventilation.
 7. Discuss Intermittent Mandatory Ventilation (IMV) mode.
 8. Describe Synchronized Intermittent Mandatory Ventilation (SIMV).
 9. Describe Pressure Support Ventilation (PSV) mode.

10. Discuss the Pressure Control Ventilation (PCV) mode.
11. Discuss the concept of Inverse Ratio Ventilation (IRV)

D. Unit IV. Initiation of Mechanical Ventilation

1. Evaluate the four indications for initiating mechanical ventilation.
2. Restate contraindications for mechanical ventilation.
3. Verify proper operation of ventilator and initiate basic ventilator settings.
4. Set up ventilator alarm systems.
5. Educate patient on use of BiPAP/CPAP.

E. Unit V. Weaning from Mechanical Ventilation.

1. Define weaning success and weaning failure.
2. Discuss weaning criteria
3. Identify combined weaning indices
4. List a variety of weaning procedures

F. Unit VI. Laboratory Exercises

1. Initiate and monitor the PB 840 ventilator
2. Compare the interrelationships pressure, volume, flow, and time.
3. Practice communication skills needed for ignition of mechanical ventilation.
4. Determine the proper setting of available alarms on the PB 840 and BiPAP ventilators.
5. Given patient scenarios, determine the most appropriate mode of ventilation, tidal volume, respiratory rate, FiO₂, max flow or percent inspiratory time, I:E ratio time

III. THECB Learning Outcomes (WECM)

1. Describe procedures for mechanical ventilation as related to spontaneous and artificial ventilation with emphasis on ventilator classification, methods, principles, and operational characteristics.
2. Explain indications, complications, and physiologic effects/principles of mechanical ventilation.
3. Apply initiation, management, and weaning of ventilatory support.

IV. Evaluation

6 Unit Tests	50%	90 to 100%	A
1 Final	20%	80 to 89%	B
Homework, Quizzes	10%	75 to 79%	C
Lab Exercises	<u>20%</u>	74 or below	I or F
Total	100%		

A minimum grade of "C" or 75% is necessary for successful completion of this course.

**NOTE: 74.4=74, 74.5=75

V. Disability Statement (Americans with Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL,

Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.

VII. Title IX and Sex Discrimination

Title 9 (20 U.S.C. 1681 & 34 C.F.R. Part 106) states the following "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity receiving Federal financial assistance." The Violence Against Women Act (VAWA) prohibits stalking, date violence, sexual violence, and domestic violence for all students, employees and visitors (male and female). If you have any concerns related to discrimination, harassment, or assault (of any type) you can contact the Assistant to the Vice President for Student and Enrollment Services at 915-831-2655. Employees can call the Manager of Employee Relations at 915-831-6458. Reports of sexual assault/violence may also be reported to EPCC Police at 915-831-2200.