

Course Syllabus

COURSE: RSPT 2314.200 Mechanical Ventilation
SEMESTER: Summer 2016
CLASS TIMES: 10:00 AM – 12:00 AM (Lecture)
12:10 PM – 1:30 PM (Lab)
Tuesday- Thursday
INSTRUCTOR: Ron Edwards, BS, RRT
OFFICE: 519
OFFICE HOURS: Monday 9:00 AM – 12:00 AM
Tuesday 2:00 PM – 4:00 PM
Wednesday 9:00 AM – 12:00 AM
Thursday 2:00 PM – 4:00 PM
Other Times by Appointment
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"South Plains College improves each student's life."

GENERAL COURSE INFORMATION

COURSE DESCRIPTION

This course includes in-depth coverage and application of therapeutic procedures to achieve adequate, spontaneous, and artificial ventilation with emphasis on ventilator classification, methods, principles, and operational characteristics. Also included are the indications, complications, and physiologic effects/principles of mechanical ventilation, and emphasizes initiation, management, and weaning of ventilator support.

STUDENT LEARNING OUTCOMES

Students will:

1. Describe procedures for mechanical ventilation.
2. Identify and assemble necessary equipment for mechanical ventilation.
3. State clinical goals for mechanical ventilation.

COURSE OBJECTIVES

1. The student will discuss diseases and conditions commonly treated with mechanical ventilation. (F-1, F-2, F-5)
2. The student will recognize various artificial airways and discuss airway management techniques. (F-1, F-2, F-3, F-5, C-5, C-7, C-18, C-19, C-20)
3. The student will explain the principles of mechanical ventilation including airway resistance, lung compliance, ventilatory and oxygenation failure. (F-1, F-2, F-3, F-4, F-5, C-5, C-6, C-7, C-8, C-18, C-19)
4. The student will discuss the effects that positive pressure ventilation has on the body. (F-1, F-2, F-3, F-5, C-18, C-19, C-20)
5. The student will classify various mechanical ventilators. (F-1, F-2, F-5, C-18, C-19, C-20)
6. The student will discuss the operating modes of mechanical ventilation. (F-1, F-2, F-5, C-18, C-19)
7. The student will select, assemble, and modify common adult ventilators. (C-3, C-5, C-8, C-18, C-19, C-20)
8. The student will discuss methods used to initiate, monitor, and manage mechanical ventilation. (F-1, F-2, F-3, F-4, F-5, F-8, F-9, F-10, C-5, C-6, C-7, C-8, C-18, C-19, C-20)
9. The student will recognize and analyze basic ventilator waveforms. (F-8, F-9, F-10, F-12, C-5, C-7, C-8, C-20)
10. The student will discuss the process of weaning patients from mechanical ventilation. (F-1, F-2, F-3, F-4, F-5, F-8, F-9, F-10, C-5, C-6, C-7, C-8, C-18, C-19, C-20)

11. The student will discuss the use of negative pressure ventilation. (C-18, C-19, C-20)

EVALUATION METHODS

Unit examinations, pop quizzes, and lab competencies will be given during the semester, followed by a comprehensive final examination. There will be no make-up examinations. The lowest scored unit exam grade will be dropped and not calculated into the exam percentages.

Ventilation Lab Competencies

Students will be required to successfully complete the following competencies in lab:

1. Ventilator set-up
2. Ventilator parameter change
3. Ventilator circuit change
4. Routine vent check
5. Ventilator graphic analysis
6. Weaning parameters
7. Weaning
8. Non-invasive vent set-up
9. Non-invasive vent check

All competencies MUST be documented in DataArc by the clinical instructor/preceptor evaluating the student. The student will be evaluated as:

-Satisfactory (100%) - ready for clinical application with minimal supervision. Performed procedure accurately, or was able to correct performance without injury to the patient or decreasing effect of therapy being given.

-Unsatisfactory performance - not ready for clinical application. Requires remediation under one of the following categories:

- **Minor – Unsatisfactory (75%):** Needs to review fundamental concepts or requires re-evaluation of minor deficiency(s) (ex. forgets to wash hands during the **Follow-up** stage. Must be re-evaluated on this step not the whole procedure). This may be re-attempted on day.
- **Major – Unsatisfactory (50%):** Requires additional lab practice and complete re-evaluation of the procedure
- If the student receives an unsatisfactory rating (either minor or major), the student may attempt the competency on another laboratory day when he/she has reviewed the procedure and feels prepared. If the student does not successfully complete the competency after the 3rd try, he/she must schedule a conference with the instructor before attempting the competency again.
- Each competency attempt will be scored (as indicated above). Ex: If a student scores a 75% on the first attempt and then a 100% on second attempt, the score entered into the grade book is 87.5 for that particular competency.
- The student is not considered proficient in a lab competency until a satisfactory rating has been achieved.

ACADEMIC INTEGRITY

It is the aim of the faculty of South Plains College to foster a spirit of complete honesty and a high standard of integrity. The attempt of any student to present as his or her own any work which he or she has not honestly performed is

regarded by the faculty and administration as a most serious offense and renders the offender liable to serious consequences, possibly suspension.

Cheating - Dishonesty of any kind on examinations or on written assignments, illegal possession of examinations, the use of unauthorized notes during an examination, obtaining information during an examination from the textbook or from the examination paper of another student, assisting others to cheat, alteration of grade records, illegal entry or unauthorized presence in the office are examples of cheating. Complete honesty is required of the student in the presentation of any and all phases of coursework. This applies to quizzes of whatever length, as well as final examinations, to daily reports and to term papers.

Plagiarism - Offering the work of another as one's own, without proper acknowledgment, is plagiarism; therefore, any student who fails to give credit for quotations or essentially identical expression of material taken from books, encyclopedias, magazines and other reference works, or from themes, reports or other writings of a fellow student, is guilty of plagiarism.

SCANS and FOUNDATION SKILLS

This course completes the following Foundation Skills: F-1, F-2, F-3, F-4, F-5, F-8, F-9, F-10, F-12. This course completes SCANS competencies: C-5, C-6, C-7, C-8, C-18, C-19, C-20. Refer also to Course Objectives. SCANS and Foundation Skills attached.

VERIFICATION OF WORKPLACE COMPETENCIES – Technical Education Division.

Eligibility for Credentialing Exam. Successful completion of this course is required for the student to be eligible to sit for the Certification Exam for Entry-Level Therapists.

SPECIFIC COURSE INFORMATION

TEXT AND MATERIALS

Textbook and Other Materials. Students are required to obtain the following:

1. Pilbeam's Mechanical Ventilation, Physiological and Clinical Applications, 6th Ed., (Copyright 2016 by Elsevier, Inc.) ISBN: 978-0-323-32009-2
2. Oakes, Dana. Oakes' Ventilator Management: A bedside reference guide
3. Class Notes

ATTENDANCE POLICY

Students are expected to attend all classes in order to be successful in a course. The student may be administratively withdrawn from the course when absences become excessive as defined in the course syllabus.

When an unavoidable reason for class absence arises, such as illness, an official trip authorized by the college or an official activity, the instructor may permit the student to make up work missed. It is the student's responsibility to complete work missed within a reasonable period of time as determined by the instructor. Students are officially enrolled in all courses for which they pay tuition and fees at the time of registration. Should a student, for any reason, delay in reporting to a class after official enrollment, absences will be attributed to the student from the first class meeting.

Students who enroll in a course but have "Never Attended" by the official census date, as reported by the faculty member, will be administratively dropped by the Office of Admissions and Records. A student who does not meet the attendance requirements of a class as stated in the course syllabus and does not officially withdraw from that course by the official census date of the semester, may be administratively withdrawn from that course and receive a grade of "X" or "F" as determined by the instructor. Instructors are responsible

for clearly stating their administrative drop policy in the course syllabus, and it is the student's responsibility to be aware of that policy.

It is the student's responsibility to verify administrative drops for excessive absences through MySPC using his or her student online account. If it is determined that a student is awarded financial aid for a class or classes in which the student never attended or participated, the financial aid award will be adjusted in accordance with the classes in which the student did attend/participate and the student will owe any balance resulting from the adjustment.

*Regular attendance is necessary to successfully meet the course objectives. The student is responsible for all class work covered during absences from class. Students are expected to be in class, on time. A student is tardy if he/she arrives more than 5 minutes after class begins. If a student is tardy to class three times, it will be counted as one absence. It is the student's responsibility to inform the instructor of the reason for an absence and to do so in a timely fashion. A student may be administratively withdrawn from the course if he/she has more than **three** absences from class and the instructor determines the student is unable to successfully meet the course objectives.*

Students who are tardy are asked to respect their peers and enter the classroom quietly in order not to disrupt the class. Students who are late to a class starting with an examination will not be given additional time to complete the exam. The exam will be finished when the last on-time student has completed.

ASSIGNMENT POLICY

Students are expected to maintain a reading schedule at home to keep current with classroom discussions. There will be pop quizzes over reading assignments.

Students that score less than 80% on their course average should seek remedial help from the instructor on record or any program faculty for specific remediation instructions and assistance.

GRADING POLICY - Grades in this course will be determined using the following criteria:

Pop Quizzes	10%
Lab Competency	10%
Unit Exams	60%
Comprehensive Final Exam	20%
A = 90 – 100	
B = 80 – 89	
C = 75 - 79	
F = 0 – 74	

Successful completion of this course requires a final grade average of 75 or better.

COMMUNICATION POLICY

- Electronic communication between instructor and students in this course will utilize the South Plains College "My SPC", blackboard, and email systems. Instructor will not initiate communication using private email accounts. Students are encouraged to check SPC email and blackboard on a regular basis.
- If necessary, students may contact me on my personal cell phone between the hours 8:00 am-8:30 pm M-F. On the weekends/holidays, please do not contact me before 10:00 am and after 6:00 pm. If you need to reach me after the

hours listed, please send an email to my SPC email. If you will be absent from clinic, do not contact me on my personal cell phone.

- Blackboard is an e-Education platform designed to enable educational innovations everywhere by connecting people and technology. This educational tool will be used in this course throughout the semester.

FACEBOOK

The Respiratory Care Program has a Facebook page at <http://www.facebook.com/SouthPlainsCollegeRespiratoryCare>.

In addition to the South Plains College website, this Facebook page will be used to keep students up-to-date on program activities, weather delays, South Plains College announcements and will help with program recruitment. “Liking” the South Plains College Respiratory Care Facebook page is not mandatory, nor are personal Facebook accounts, in order to access this page.

CHANGES AND AMENDMENTS TO SYLLABUS

- The program director or the clinical coordinator reserve the right to make reasonable changes to the syllabus at any time during the semester. If this occurs, the students will be notified and furnished a copy of all applicable changes or amendments.

STUDENT CONDUCT

- Students in this class are expected to abide by the standards of student conduct as defined in the SPC Student Guide pages 11-14.

SPECIAL REQUIREMENTS

- **Cell Phones** – Cell phones are to be turned OFF during scheduled class periods, unless prior approval has been given from the instructor. This includes text messaging. Cell phones are to be used outside the classroom only.

COURSE OUTLINE

UNIT 1: PRINCIPLES OF MECHANICAL VENTILATION

Reading Assignment:

Pilbeam :	Chapter 1	Basic Terms & Concepts
	Chapter 2	How Ventilators Work/ Ventilator Classification
	Chapter 3	Breath Delivery

TEST #1

UNIT 2: INITIATING VENTILATION

Reading Assignment:

Pilbeam:	Chapter 4	Establish Ventilator Need
	Chapter 5	Ventilator and Mode Selection
	Chapter 6	Initial Ventilator Settings
	Chapter 7	Final Considerations in Ventilator Setup

Lab Competencies: ventilator set-up

TEST #2

UNIT 3: MONITORING IN MECHANICAL VENTILATION

Reading Assignment:

Pilbeam:	Chapter 8	Initial Patient Assessment
	Chapter 9	Ventilator Graphics

Lab Competencies : vent graphic analysis and routine ventilator check

UNIT 4: THERAPEUTIC INTERVENTIONS

Reading Assignment:

Pilbeam: Chapter 12 Ventilation Improvement Methods
Chapter 13 Improving Oxygenation and Management of ARDS
Chapter 15 Sedatives, Analgesics, and Paralytics

Lab Competencies: ventilator parameter change

TEST # 4

UNIT 5: EFFECTS AND COMPLICATIONS OF MECHANICAL VENTILATION

Reading Assignment:

Pilbeam: Chapter 16 Extrapulmonary Effects of Mechanical Ventilation
Chapter 17 Effects of Positive Pressure Ventilation on Pulmonary System
Chapter 18 Basic Troubleshooting and Problem Solving

Lab Competencies: vent circuit change

TEST #5

UNIT 6: WEANING FROM MECHANICAL VENTILATION

Reading Assignment:

Pilbeam: Chapter 19 Basic Concepts of NIV (NPPV)

Lab Competencies: non-invasive vent set-up and non-invasive vent check

Chapter 20 Weaning and Discontinuation from Mechanical Ventilation

Lab Competencies: weaning parameters and weaning

COMPREHENSIVE FINAL EXAMINATION

ACCOMMODATIONS

DIVERSITY STATEMENT

In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

DISABILITIES STATEMENT

Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Special Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Coordinator of Special Services. For more information, call or visit the Special Services Office in rooms 809 and 811, Reese Center Building 8, (806) 885-3048 ext. 4654.

FOUNDATION SKILLS

BASIC SKILLS—Reads, Writes, Performs Arithmetic and Mathematical Operations, Listens and Speaks

F-1 Reading—locates, understands, and interprets written information in prose and in documents such as manuals, graphs, and schedules.

F-2 Writing—communicates thoughts, ideas, information and messages in writing and creates documents such as letters, directions, manuals, reports, graphs, and flow charts.

- F-3 Arithmetic—performs basic computations; uses basic numerical concepts such as whole numbers, etc.
- F-4 Mathematics—approaches practical problems by choosing appropriately from a variety of mathematical techniques.
- F-5 Listening—receives, attends to, interprets, and responds to verbal messages and other cues.
- F-6 Speaking—organizes ideas and communicates orally.

THINKING SKILLS—Thinks Creatively, Makes Decisions, Solves Problems, Visualizes and Knows How to Learn and Reason

- F-7 Creative Thinking—generates new ideas.
- F-8 Decision-Making—specifies goals and constraints, generates alternatives, considers risks, evaluates and chooses best alternative.
- F-9 Problem Solving—recognizes problems, devises and implements plan of action.
- F-10 Seeing Things in the Mind’s Eye—organizes and processes symbols, pictures, graphs, objects, and other information.
- F-11 Knowing How to Learn—uses efficient learning techniques to acquire and apply new knowledge and skills.
- F-12 Reasoning—discovers a rule or principle underlying the relationship between two or more objects and applies it when solving a problem.

PERSONAL QUALITIES—Displays Responsibility, Self-Esteem, Sociability, Self-Management, Integrity and Honesty

- F-13 Responsibility—exerts a high level of effort and perseveres towards goal attainment.
- F-14 Self-Esteem—believes in own self-worth and maintains a positive view of self.
- F-15 Sociability—demonstrates understanding, friendliness, adaptability, empathy and politeness in group settings.
- F-16 Self-Management—assesses self accurately, sets personal goals, monitors progress and exhibits self-control.
- F-17 Integrity/Honesty—chooses ethical courses of action.

SCANS COMPETENCIES

- C-1 **TIME** - Selects goal - relevant activities, ranks them, allocates time, prepares and follows schedules.
- C-2 **MONEY** - Uses or prepares budgets, makes forecasts, keeps records and makes adjustments to meet objectives.
- C-3 **MATERIALS AND FACILITIES** - Acquires, stores, allocates, and uses materials or space efficiently.
- C-4 **HUMAN RESOURCES** - Assesses skills and distributes work accordingly, evaluates performances and provides feedback.

INFORMATION - Acquires and Uses Information

- C-5 Acquires and evaluates information.
- C-6 Organizes and maintains information.
- C-7 Interprets and communicates information.
- C-8 Uses computers to process information.

INTERPERSONAL—Works With Others

- C-9 Participates as member of a team and contributes to group effort.

C-10 Teaches others new skills.

C-11 Serves Clients/Customers—works to satisfy customer’s expectations.

C-12 Exercises Leadership—communicates ideas to justify position, persuades and convinces others, responsibly challenges existing procedures and policies.

C-13 Negotiates—works toward agreements involving exchanges of resources; resolves divergent interests.

C-14 Works With Diversity—works well with men and women from diverse backgrounds.

SYSTEMS—Understands Complex Interrelationships

C-15 Understands Systems—knows how social, organizational, and technological systems work and operates effectively with them.

C-16 Monitors and Corrects Performance—distinguishes trends, predicts impacts on system operations, diagnoses systems performance and corrects malfunctions.

C-17 Improves or Designs Systems—suggests modifications to existing systems and develops new or alternative systems to improve performance.

TECHNOLOGY—Works with a Variety of Technologies

C-18 Selects Technology—chooses procedures, tools, or equipment, including computers and related technologies.

C-19 Applies Technology to Task—understands overall intent and proper procedures for setup and operation of equipment.

C-20 Maintains and Troubleshoots Equipment—prevents, identifies, or solves problems with equipment, including computers and other technologies.

Course Agreement

RSPT 2314.200

I have received a copy of the course syllabus. I have reviewed the syllabus thoroughly, and understand the course format, attendance and tardy policies, and examination system. I further understand my responsibilities and rights, as explained by the instructor and listed also in the syllabus, and agree to all course requirements as stated in the syllabus.

Student's Name (print)

Student's Signature

Date_____