RESP 118-DIAGNOSTIC AND THERAPEUTIC TECHNIQUES 5 CREDITS

SYLLABUS

CATALOG DESCRIPTION

This course introduces basic cardiopulmonary diagnostic testing, specifically arterial blood gas (ABG) analysis and pulmonary function testing (PFT). It also covers the various therapeutic modalities used in respiratory care for humidity and aerosol therapy, lung expansion therapy, bronchial hygiene, chest physiotherapy and airway clearance.

Prerequisites:	Acceptance into the Respiratory Therapy Program
Co-Requisites:	RESP 110, 112, 114, 236
Semester Offered:	Fall Semester

Common Student Learning Outcomes

Upon successful completion of San Juan College programs and degrees, the student will demonstrate competency in…

BROAD AND SPECIALIZED LEARNING

Students will actively and independently acquire, apply, and adapt skills and knowledge with an awareness of global contexts.

CRITICAL THINKING

Students will think analytically and creatively to explore ideas, make connections, draw conclusions and solve problems.

CULTURAL AND CIVIC ENGAGEMENT

Students will act purposefully, reflectively, and ethically in diverse and complex environments.

EFFECTIVE COMMUNICATION

Students will exchange ideas and information with clarity in multiple contexts.

INFORMATION LITERACY

Students will be able to recognize when information is needed and have the ability to locate, evaluate, and use it effectively.

INTEGRATING TECHNOLOGIES

Students will demonstrate fluency in the application and use of technologies in multiple contexts.

Student work from this class may be randomly selected and used anonymously for assessment of course, program, and/or institutional learning outcomes. For more information, please refer to the Dean of the appropriate School.

Course Learning Outcomes

GENERAL LEARNING OBJECTIVES

Upon successful completion of the course, the student will be able to:

1. Describe the importance of pulmonary function testing and its different diagnostic measurements.
2. Demonstrate the pulmonary function testing (PFT) procedure, and interpret PFT results.
3. Describe the importance of arterial blood gas analysis (ABG) and its different diagnostic measurements.
4. Demonstrate the ABG procedure, and interpret ABG results.

5. Discuss the clinical applications of humidity therapy.
6. Calculate values for the different terms in humidity.
7. Explain the principles of operation of the different types of humidifiers.
8. Describe the principles of aerosol therapy.
9. Describe and demonstrate the principles, clinical applications and troubleshooting of nebulizers.
10. Explain how lung expansion therapy works.
11. Describe bronchial hygiene therapy.
12. Demonstrate airway clearance techniques.

SPECIFIC LEARNING OBJECTIVES

Upon successful completion of the course, the student will be able to:

1. Describe the importance of pulmonary function testing and its different diagnostic measurements:
   A. Describe the lung volumes and capacities.
   B. Identify predicted values for volumes and capacities.
   C. Measure and describe common flow rate measurements.

2. Demonstrate the PFT procedure and interpret PFT results:
   A. Demonstrate ability to operate spirometry to measure flows, capacities, and volumes.
   B. Interpret PFT results to determine obstructive, restrictive or mixed abnormalities.

3. Describe the importance of arterial blood gas analysis (ABG) and its different diagnostic measurements:
   A. Explain the purpose of arterial blood sampling and its indications.
   B. Explain how to assess oxygenation.
   C. Describe the assessment of acid base balance.
   D. Describe the process of compensation as it relates to acid base disorders.

4. Demonstrate the ABG procedure, and interpret ABG results:
   A. Describe the process of arterial sampling.
   B. Identify the guidelines for running an ABG sample.
   C. Give normal values used to interpret blood gas measurements.
   D. Interpret simple and mixed acid base disorders.
   E. Describe the running of ABG analyzers to include the use of co-oximeters.

5. Discuss the clinical applications of humidity therapy:
   A. Differentiate between humidity and aerosol.
   B. List the indications and hazards of humidity therapy.
   C. List and discuss the three factors influencing humidifier efficiency.

6. Calculate values for each of the following terms:
   A. Relative humidity
   B. Absolute humidity
   C. Body humidity
   D. Humidity deficit

7. Explain the principles of operation for the following types of humidifiers:
   A. Bubble jets
   B. Laminar diffusers
   C. Cascades

D. Wicks
E. Heat and Moisture Exchange (HME)

8. Describe the principles of aerosol therapy:
   A. State the physical characteristics of aerosols.
   B. List the four factors influencing aerosol deposition.
   C. List the indications for aerosol therapy.
   D. List and discuss the hazards of aerosol therapy.
   E. Discuss the AARC clinical practice guidelines for the following.

9. Describe and demonstrate the principles, clinical applications and troubleshooting of the following:
   A. Small volume nebulizers
   B. Large volume nebulizers
   C. Metered Dose Inhalers
   D. Dry powder inhalers
   E. Ultrasonic nebulizers

10. Explain how lung expansion works:
   A. Identify the clinical findings seen in atelectasis.
   B. Determine the primary responsibilities in planning, implementing, and evaluating lung expansion therapy.

11. Describe bronchial hygiene therapy:
   A. Assess the need for bronchial hygiene therapy.
   B. Briefly describe each of the following techniques and their contraindications:
      a. postural drainage
      b. percussion
      c. forced expiratory techniques
      d. autogenic drainage
      e. positive expiratory pressure
      f. high frequency chest wall compression
      g. flutter valve therapy
      h. directed cough

12. Demonstrate airway clearance techniques:
   A. Review thoracic landmarks and segmental anatomy.
   B. Identify all positions used for segmental lung drainage.
   C. Select and perform various bronchial hygiene therapies.
   D. Describe how to monitor and evaluate a patient's response to bronchial hygiene therapy.

ASSESSMENT TECHNIQUES

1. Quizzes
2. Homework/Project.
3. Skills Competencies
4. Mid-term Exam.
5. Final Exam.

ACCOMMODATIONS STATEMENT

Students who need accommodations (i.e., note-taker, interpreter, special seating, etc.) need to provide accommodation notices to the instructor. Students can contact the Students with Disabilities on Campus (SDOC) Coordinator in the Counseling Center, located in the Administration Building, to make arrangements and provide documentation in accordance with the Americans with Disabilities Act of 1990.

ACADEMIC HONESTY RULES

San Juan College expects all students to adhere to the Academic Honesty Rules as posted on our website, http://www.sanjuancollege.edu/academichonesty. All Health Sciences Programs have a responsibility to ensure enrolled students and graduates are safe, ethical and competent practitioners. To ensure professionalism, students and faculty must uphold and abide by college and program accreditation specific policies.

SYLLABUS DEVELOPED AND/OR REVIEWED BY:

Dean of Health Sciences: _____ Date: _____

Director of Respiratory Therapy: _____ Date: _____

Clinical Coordinator of RT: _____ Date: _____