

**Bossier Parish Community College
Master Syllabus**

Course Prefix and Number: RSTH 221

Credit Hours: 4

Course Title: Critical Care Concepts

Course Prerequisites: RSTH 202, RSTH 204, RSTH 210, RSTH 220, RSTH 226

Textbooks:

Kacmarek, R., Stoller, J., & Heuer, A. (2016). EGAN'S Fundamentals of Respiratory Care (latest edition): Elsevier.

White, G; Basic Clinical Lab Competencies in Respiratory Care, latest edition

Course Description:

Lecture/laboratory course continuing with principles of respiratory care therapeutics and equipment utilized in the intensive care environment. Content includes adult mechanical ventilators, intubation, ventilation techniques, critical care monitoring and assessment/care of the critically ill patient. Enrollment in Respiratory Therapy courses is limited to students who have applied, been interviewed and have been selected for the Respiratory Therapy Clinical Program.

Learning Outcomes:

At the end of this course the student will

- A. perform advanced, common respiratory care procedures and display minimum competency in the performance of these advanced, intensive care-level inpatient respiratory care modalities in accordance with implementation and management of mechanical ventilation as directed by a physician's order;
- B. apply critical thinking to prescribe appropriate respiratory care modalities based on patient assessment and diagnosis while proposing modifications as indicated; and
- C. determine appropriateness of mechanical ventilator settings as indicated by patient assessment, diagnostic data, and American Association for Respiratory Care clinical practice guidelines.

To achieve the learning outcomes, the student will

- 1. describe and perform the typical sequence and format for assessing and recording the physical exam of the critically ill patient (A)
- 2. define and employ common terms utilized during assessment and management of the critically ill patient (A)
- 3. review and demonstrate the technique for evaluation of vital signs (A)
- 4. describe various types of respiratory failure and recognize each category based on various metrics and physical assessment (A)

5. distinguish between the various means of initiating a breath during mechanical ventilation (A)
6. list and assemble equipment utilized for obtaining weaning parameters and performing extubation (A)
7. relate the importance of medical history to the physical exam of the critically ill patient (A, C)
8. identify and describe the function of the various parts and types of resuscitation equipment and perform techniques utilized during manual resuscitation (A, B)
9. identify factors that influence oxygen delivery during resuscitation and modify oxygen delivery to optimize patient response (A, B)
10. identify and describe the indications and hazards of artificial airways and perform appropriate selection and placement of each for adult patients (A,B)
11. describe indications and hazards of extubation (A, B)
12. distinguish between various mechanisms that cause inspiration to terminate (A,C)
13. describe the various mechanisms used to manipulate the expiratory phase (A,C)
14. identify various types of mechanical ventilators and unique features of each (A,C)
15. describe causes, characteristics, and typical diseases associated with mechanical ventilation need (A,B,C)
16. review terms associated with pulmonary symptomology (A,B,C)
17. review normal values and potential causes for abnormal vital signs for adults, children, and infants (A,B,C)
18. describe the physiologic effects of altered metabolic states frequently found in the critically ill patient and its influence on respiration. (A,B,C)
19. discuss the cardiovascular and pulmonary significance of findings from examination of the critically ill patient (A,B,C)
20. review indications, hazards, interpretations, procedures, analysis, and equipment for arterial blood gas sampling (A,B,C)
21. discuss the various clinical causes of airway obstruction, identify signs of airway obstruction, recommend appropriate interventions, and manage airway obstruction utilizing various techniques (A,B,C)
22. list, measure, or calculate the parameters that would necessitate initiating or allow discontinuation of mechanical ventilation (A,B,C)
23. distinguish among the various types of ventilation methodologies (A,B,C)
24. distinguish between volume and pressure-driven ventilation related to parameters ordered and those best controlled by the practitioner during mechanical ventilation (A,B,C)
25. discuss the effects of lung mechanics during mechanical ventilation and the physiologic effects of mechanical ventilation. (A,B,C)
26. identify, interpret, and troubleshoot pressure, flow, and volume waveforms produced during the various modes of mechanical ventilation. (A,B,C)
27. discuss the setting of ventilator alarms and troubleshooting the cause of sounding alarms (A,B,C)
28. calculate and interpret various intensive care related respiratory therapy formulas utilizing patient simulation data (A,B,C)
29. discuss the body's compensatory mechanisms in response to disease or injury (A,B,C)
30. review the identification, pathophysiology, and management of respiratory failure (A,C)

31. select the appropriate ventilator, mode of ventilation, and ventilator settings based on scenarios of various disease processes or patient lung characteristics for age-specific patient populations (A,B,C)
32. discuss invasive and non-invasive methods to measure, monitor, and manipulate ventilation, oxygenation, and cardiopulmonary status (A,B,C)
33. develop a respiratory care plan for clinical scenarios to include respiratory treatments, initial vent settings, vent management strategies, and weaning procedures (A,B,C)
34. review the phases of the cough mechanism and the impact of diseases or injury on function (B)
35. review methods of obtaining temperature and discuss optimal methods as it relates to the patient population, site availability, and accuracy (B)
36. describe the implications of monitoring tracheal cuff pressure and the associated adjustments sequence(A)
37. describe and be able to detect Auto-PEEP (B)
38. discuss and describe the types of speaking tubes and valves (A)
39. describe the uses of the various artificial airways to include standard ET tube, tracheostomy, LMA, and combitube-types (A)
40. describe infection control standards for suctioning devices, gas delivery, and diagnostic devices (A)
41. discuss vacuum systems used for suctioning and chest tube setup (A)
42. describe and be able to follow an infection control and ventilator association event(s) (VAE) protocol (B)
43. discuss QC procedure for ABG analyzers, co-oximeters, point of care analyzers, and mechanical ventilators (A)
44. demonstrate competency in the performance of:

ARTIFICIAL AIRWAY MAINTENANCE

- a. Intubation
- b. Trach Care
- c. Extubation
- d. Securing and repositioning ET Tube
- e. Cuff Management
- f. Oral Care

BLOOD GASES

- a. A-Line Sampling (articulation)
- b. Needle sampling

ADULT VENTILATORY MANAGEMENT

- a. Non-Invasive Ventilation
- b. Routine Ventilator Check (adult)
- c. Adjusting Ventilation
- d. Titration
- e. Ventilator Circuit Change
- f. Ventilator Set Up

CALCULATIONS

- a. Compliance
- b. Airway Resistance
- c. $P(A-a)O_2$

- d. P(a-v)O₂
- e. PAO₂
- f. PaO₂/FiO₂
- g. V_d/V_t

ASSIST WITH PROCEDURES

- a. Bronchoscopy (articulation)
- b. Intubation
- c. Tracheostomy (articulation)
- d. Arterial Line Insertion (articulation)
- e. Chest tube insertion (articulation)

Course Requirements: To earn a grade of “C” or higher the student must earn 70% of the total points for the course and meet all of the following course requirements.

- minimum overall average of 70% in the course
- successful completion of the lab practicum with average of 70%
- successful performance of competencies in lab

Course Grading Scale:

- A- 90% or more of total possible points and successful completion of the lab practicum with average of 70%, and successful performance of competencies
- B- 80% or more of total possible points and successful completion of the lab practicum with average of 70%, and successful performance of competencies
- C- 70% or more of total possible points and successful completion of the lab practicum with average of 70%, and successful performance of competencies
- D- less than 70% of total possible points but not less than 60% of total possible points
- F- less than 60% of total possible points

Attendance Policy: The college attendance policy, which is available at <http://www.bpcc.edu/catalog/current/academicpolicies.html>, allows that “more restrictive attendance requirements may apply to some specialized classes such as laboratory, activity, and clinical courses because of the nature of those courses.” The attendance policy of the Respiratory Therapy program is described in the Respiratory Therapy Clinical Handbook.

Nondiscrimination Statement

Bossier Parish Community College does not discriminate on the basis of race, color, national origin, gender, age, religion, qualified disability, marital status, veteran's status, or sexual orientation in admission to its programs, services, or activities, in access to them, in treatment of individuals, or in any aspect of its operations. Bossier Parish Community College does not discriminate in its hiring or employment practices.

COORDINATOR FOR SECTION 504 AND ADA

Angie Cao, Student and Disability Services Specialist

Disability Services, F254, 6220 East Texas Street, Bossier City, LA 71111
318-678-6511

acao@bpcc.edu

Hours: 8:00 a.m.-4:30 p.m. Monday - Friday, excluding holidays and weekends.

Equity/Compliance Coordinator

Teri Bashara, Director of Human Resources

Human Resources Office, A-105

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Bossier City, LA 71111

Phone: 318-678-6056

Hours: 8:00 a.m.-4:30 p.m. Monday - Friday, excluding holidays and weekends.

Reviewed by T. Gilmore, March 2019