COURSE SYLLABUS

LAST REVIEW	Spring 2021
COURSE TITLE	Therapeutic Interventions III
COURSE NUMBER	RSCR 0274
DIVISION	Health Professions
DEPARTMENT	Respiratory Therapy
CIP CODE	51.0809
CREDIT HOURS	2
CONTACT HOURS/WEEK	Class: 2
PREREQUISITES	None
COURSE PLACEMENT	This course is part of a selective admission program. Students must be admitted to the Respiratory Therapy program to enroll in this course.

COURSE DESCRIPTION
This is a comprehensive Respiratory Therapy course beyond the introductory and foundational level. Content from previous classes in the Respiratory Therapy program sequence is applied, expanded, added to, and extended to scenarios, questions, discussions, and simulations in this class. Key content areas of the course are mechanical ventilation principles, effects, and modes, initiating mechanical ventilation, as well as monitoring and caring for patients receiving mechanical ventilation.

PROGRAM ALIGNMENT
This course is part of a program aligned through the Kansas Board of Regents and Technical Education Authority. For more information, please visit:
https://kansasregents.org/workforce_development/program-alignment

PROGRAM LEARNING OUTCOMES
1. Formulate the knowledge and critical reasoning skills necessary to pass the National Board for Respiratory Care Therapist Multiple Choice Exam.
2. Execute the variety of assessment and intervention skills necessary to provide respiratory care in the clinical setting at the entry Registered Respiratory Therapist level.
3. Integrate professional behaviors necessary at the entry Registered Respiratory Therapist level.

TEXTBOOKS
http://kckccbookstore.com/

METHODS OF INSTRUCTION

A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE

I. Indications for mechanical ventilation
   A. General examination; level of consciousness, airway patency, color
   B. Work of breathing assessment; f_b, V_E, MVV, R_{aw}, P_{peak}, C_T, C_L, P_{plat}
   C. V/Q ratio assessment; mismatches, V_D/V_T, shunt
   D. Ventilatory failure assessment; pH, PaCO2, ETCO2
   E. Oxygenation failure assessment; PaO2, P/F ratio, P(A-a)O2, OI, a/A

II. Physiological effects of positive pressure ventilation
   A. Assessment of pulmonary effects
   B. Evaluation of renal effects
   C. Evaluation of cardiovascular effects
   D. Evaluation of hemodynamic effects
   E. Evaluation of neurological effects
   F. Evaluation of hepatic effects

III. Modes of mechanical ventilation
   A. Negative pressure
   B. Positive pressure
   C. Spontaneous
   D. Positive end expiratory pressure
   E. Continuous positive airway pressure
   F. Bi-level positive airway pressure
   G. Controlled mandatory ventilation
   H. Assist control; pressure, volume
   I. Intermittent mandatory ventilation
   J. Synchronized intermittent mandatory ventilation; pressure, volume
   K. Pressure support ventilation
   L. Advanced and emerging modes of ventilation

IV. Mechanical ventilation settings
   A. Ventilation settings; mode, f_b, V_T, V_E, T_I, T_E, TCT, I: E ratio
   B. Oxygenation settings; Fi02, PEEP, mPaw
   C. Flow patterns
   D. Trigger settings
   E. Limit and cycle settings
   F. Alarms; pressure, volume, rate, F_IO2, apnea, temperature

V. Manage care for patients on mechanical ventilation
   A. General appearance; level of consciousness, airway patency
   B. Chest inspection
   C. Chest auscultation; heart and lungs
   D. Trends in monitoring results; fluid balance, vital signs, intracranial pressure
   E. Laboratory results
   F. Arterial blood gas and hemoximetry results
   G. Noninvasive monitoring; oximetry, capnography, transcutaneous O_2/CO_2, ECG
   H. Hemodynamic monitoring
   I. Ventilator waveforms
   J. Nutrition assessment

VI. Care for patients on mechanical ventilation
   A. Manage ventilation
   B. Manage oxygenation
   C. Manage acid-base balance
   D. Manage cardiac status
   E. Manage pain and anxiety
   F. Prevent ventilator associated events; VAP bundle
   G. Ensure patient: ventilator synchrony
   H. Manage advanced airways; humidification, intubation, RSI, confirm placement, MLT, MOV, cuff pressures, secretion clearance
   I. Weaning from mechanical ventilation

COURSE LEARNING OUTCOMES AND COMPETENCIES

Upon successful completion of this course, the student will:

A. Evaluate and recommend clinical data to identify indications for mechanical ventilation.
   1. Evaluate and recommend general examination.
   2. Evaluate and recommend work of breathing assessment.
   3. Evaluate and recommend V/Q ratio assessment.
   4. Evaluate and recommend ventilatory failure assessment.
   5. Evaluate and recommend oxygenation failure assessment.

B. Evaluate and recommend clinical data related to the physiological effects of mechanical ventilation.
   6. Evaluate and recommend clinical data of pulmonary effects.
   7. Evaluate and recommend clinical data of renal effects.
   8. Evaluate and recommend clinical data of cardiovascular effects.
   9. Evaluate and recommend clinical data of hemodynamic effects.
   10. Evaluate and recommend clinical data of neurologic effects.
   11. Evaluate and recommend clinical data of hepatic effects.

C. Evaluate and recommend modes of mechanical ventilation.
   12. Evaluate and recommend negative pressure.
   13. Evaluate and recommend positive pressure.
   14. Evaluate and recommend spontaneous.
   15. Evaluate and recommend positive end expiratory pressure.
   16. Evaluate and recommend continuous positive airway pressure.
   17. Evaluate and recommend bi-level positive airway pressure.
   18. Evaluate and recommend controlled mandatory ventilation.
   19. Evaluate and recommend assist-control ventilation.
   20. Evaluate and recommend intermittent mandatory ventilation.
   21. Evaluate and recommend synchronized intermittent mandatory ventilation.
   22. Evaluate and recommend pressure support ventilation.
   23. Evaluate and recommend advanced and emerging modes.

D. Evaluate and recommend mechanical ventilation settings.
   24. Evaluate and recommend ventilation settings.
   25. Evaluate and recommend oxygenation settings.
   26. Evaluate and recommend flow settings.
   27. Evaluate and recommend trigger settings.
   28. Evaluate and recommend limit and cycle settings.
   29. Evaluate and recommend alarm settings.

E. Evaluate and recommend clinical data to manage care for patients on mechanical ventilation.
   30. Evaluate and recommend clinical data to assess general appearance, level of consciousness, airway patency.
   31. Evaluate and recommend clinical data for chest inspection.
   32. Evaluate and recommend clinical data for chest auscultation, heart and lungs.
   33. Evaluate and recommend monitoring for trends; fluid balance, vital signs, intracranial pressure.
   34. Evaluate and recommend laboratory analysis.
   35. Evaluate and recommend arterial blood gas analysis.
   36. Evaluate and recommend noninvasive monitoring; oximetry, capnography, transcutaneous O_2/CO_2, ECG.
   37. Evaluate and recommend hemodynamic monitoring.
   38. Evaluate and recommend ventilator waveform analysis.
   39. Evaluate and recommend nutrition assessment.

F. Evaluate and recommend care for patients on mechanical ventilation.
   40. Evaluate and recommend management of oxygenation.
   41. Evaluate and recommend management of ventilation.
   42. Evaluate and recommend management of acid-base balance.
   43. Evaluate and recommend management of cardiac status.
   44. Evaluate and recommend management of pain and anxiety.

45. Evaluate and recommend care to prevent ventilator associated events; VAP bundle.
46. Evaluate and recommend care to ensure patient: ventilator synchrony.
47. Evaluate and recommend care to manage advanced airways; humidification, intubation, RSI, confirm placement, MLT, MOV, cuff pressures, secretion clearance.
48. Evaluate and recommend care to wean patients from mechanical ventilation.

ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES

Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor's course information document.

COLLEGE POLICIES AND PROCEDURES

Student Handbook
https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf

College Catalog
https://www.kckcc.edu/academics/catalog/index.html

College Policies and Statements
https://www.kckcc.edu/about/policies-statements/index.html

Accessibility and Accommodations
https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html.