RESP-370: MASTERY OF CRITICAL CARE LIFE SUPPORT SYSTEMS

Effective Term
Fall 2026

CC Approval
03/06/2026

AS Approval
03/12/2026

BOT Approval
03/19/2026

SECTION A - Course Data Elements

Send Workflow to Initiator
No

CB04 Credit Status
Credit - Degree Applicable

Discipline

Minimum Qualifications	And/Or
Respiratory Technician (Any Degree and Professional Experience)	

Subject Code
RESP - Respiratory Care
Course Number
370

Department
Respiratory Therapy

Division
Health Occupations (HEOC)

Full Course Title
Mastery of Critical Care Life Support Systems

Short Title
Mastery of Critical Care Life

CB03 TOP Code
1210.00 - *Respiratory Care/Therapy

CIP Code
51.0908

CB08 Basic Skills Status
NBS - Not Basic Skills

CB09 SAM Code
B - Advanced Occupational

Rationale
New upper division course for the Respiratory Care Baccalaureate Program.

SECTION B - Course Description

Catalog Course Description
An advanced study of life support systems focusing on non-conventional mechanical ventilation and neonatal/pediatric specialty care. This course emphasizes technical mastery of ventilator graphics, waveform analysis, and the implementation of evidence-based weaning strategies. Students will validate their ability to manage complex artificial airways and stabilize patients during cardiopulmonary emergencies.

SECTION C - Conditions on Enrollment

Open Entry/Open Exit
No

Repeatability
Not Repeatable

Grading Options
Letter Grade Only

Allow Audit
No

Requisites

Limitation on Enrollment
Enrollment is limited to students accepted into the Respiratory Care Baccalaureate Degree program.

SECTION D - Course Standards

Is this course variable unit?
No

Units
5.00

Lecture Hours
90

Outside of Class Hours
180

Total Contact Hours
90

Total Student Hours
270

Distance Education Approval

Is this course offered through Distance Education?
Yes

Online Delivery Methods

DE Modalities	Permanent or Emergency Only?
Entirely Online	Permanent
Hybrid	Permanent

SECTION E - Course Content

Student Learning Outcomes

	Upon satisfactory completion of the course, students will be able to:
1.	Analyze advanced ventilator waveforms and loops to optimize patient-ventilator synchrony and lung protection.
2.	Formulate evidence-based liberation strategies for long-term ventilated and difficult-to-wean patients.
3.	Apply advanced life support algorithms (ACLS, PALS, or NRP) to manage cardiopulmonary emergencies and stabilize critically ill patients..

Course Objectives

	Upon satisfactory completion of the course, students will be able to:
1.	Identify indications for non-conventional ventilation modes.
2.	Troubleshoot complex ventilator-induced lung injuries (VILI).
3.	Evaluate the role of inhaled nitric oxide and specialty gases in critical care.
4.	Manage emergency airway scenarios using advanced difficult airway algorithms.
5.	Formulate a liberation plan for a patient with "difficult-to-wean" status.

Course Content

1. Advanced Mechanical Ventilation
   a. Dual-control modes and closed-loop ventilation
   b. High-frequency oscillatory ventilation (HFOV)
   c. APRV
   d. NAVA
   e. PRVC
2. Ventilator Graphic Analysis
   a. Identifying auto-PEEP and flow hunger
   b. Interpreting pressure-volume loops
   c. Compliance/resistance changes
3. Neonatal and Pediatric Life Support
   a. Fetal circulation and transitional physiology
   b. Surfactant delivery and pediatric resuscitation
4. Extra-Corporeal Membrane Oxygenation (ECMO)
   a. Indications and RT responsibilities in VA/VV ECMO
5. Pharmacology
   a. Sedatives
   b. Analgetics
   c. Neuromuscular Blocking Agents (NMBAs)
6. Airway Management
   a. Management of difficult airwards
   b. Tracheostomy changes
   c. Cuff pressure manometry

Methods of Instruction

Methods of Instruction

Types	Examples of learning activities
Activity	Screen-sharing demonstration of ventilator simulators (e.g., Hamilton or Draeger simulators) where students identify "ineffective triggering" or "double triggering" in real-time.
Discussion	A collaborative Wiki or Google Doc project where groups of students build a "Weaning Protocol" based on a specific patient profile, incorporating both spontaneous breathing trials (SBT) and sedation holidays.

Online Adaptation

Types	Examples of learning activities
Activity	Students use web-based ventilator simulators (e.g., Hamilton Medical or similar) to complete a series of Clinical Challenges. Students must screen-capture their screen as they fix a specific dysynchrony or alarm and upload the video to Canvas with a written justification of why those specific ventilator changes were made.
Journal	The instructor provides a contemporary clinical trial (e.g., the ROSE trial on NMBAs). Students are required to post a Clinical Impact Statement explaining how they would apply the study's results to their specific workplace protocols, followed by a requirement to critique a peer's implementation strategy.

Instructor-Initiated Online Contact Types

Announcements/Bulletin Boards
Chat Rooms
Discussion Boards
E-mail Communication
Telephone Conversations
Video or Teleconferencing

Student-Initiated Online Contact Types

Discussions
Group Work

Course design is accessible

Yes

Methods of Evaluation

Methods of Evaluation

Types	Examples of classroom assessments
Simulation	Students are provided with a digital file of a pediatric patient. They must submit a comprehensive weaning and liberation plan, including a troubleshooting guide for potential failure, documented with citations from current AARC Clinical Practice Guidelines.
Exams/Tests	Students are presented with high-resolution videos of moving ventilator scalars and must identify specific pathologies (e.g., Auto-PEEP, secretion damping, or flow-cycle asynchrony) and select the appropriate intervention.

Assignments

Reading Assignments

Example 1. Textbook chapters on Neonatal/Pediatric mechanical ventilation.

Example 2. Evidence-based reviews of "Ventilator-Associated Pneumonia (VAP) Bundles."

Writing Assignments

Example 1. A 5-page comparative analysis between Volume-Targeted and Pressure-Targeted ventilation.

Example 2. A "Ventilator Graphics Log" interpreting 5 different abnormal waveforms.

Outside-of-Class Assignments

Example 1. Comparison of two different manufacturer ventilator manuals for the same mode of ventilation.

Example 2. Creation of a "Patient Safety Checklist" for ICU transport of a vented patient.

SECTION F - Textbooks and Instructional Materials

Material Type

Textbook

Author

Kacmarek, R.

Title

Egan's Fundamentals of Respiratory Care

Edition/Version
13th

Publisher
Mosby

Year
2024

ISBN #
9780323931991

SECTION G - Diversity, Equity and Inclusivity

How does your course and/or course outline of record reflect strategies for accommodating and engaging diverse student populations, advancing equitable outcomes, and fostering inclusion for all students?

The Respiratory Care program at Napa Valley College is committed to equitable student outcomes through the use of Universal Design for Learning (UDL). This course utilizes diverse case studies that highlight health disparities in respiratory disease among marginalized communities. By providing multi-modal instruction and various pathways for assessment, we ensure that students of all backgrounds and learning styles are positioned to succeed as future leaders in healthcare.

Course Codes (Admin Only)

CB10 Cooperative Work Experience Status
N - Is Not Part of a Cooperative Work Experience Education Program

CB11 Course Classification Status
Y - Credit Course

CB13 Special Class Status
N - The Course is Not an Approved Special Class

CB23 Funding Agency Category
Y - Not Applicable (Funding Not Used)

CB24 Program Course Status
Program Applicable

Allow Pass/No Pass
No

Only Pass/No Pass
No