



# **INSTRUCTIONAL PACKAGE**

RES 220  
Hemodynamic Monitoring

Effective Term  
Summer 2022

# INSTRUCTIONAL PACKAGE

## Part I: Course Information

Effective Term: Summer 2020 (202030)

COURSE PREFIX: RES

COURSE TITLE: 220

CONTACT HOURS: 1

CREDIT HOURS: 1

### **RATIONALE FOR THE COURSE:**

Hemodynamic monitoring is a course that will introduce the critical care techniques for hemodynamic monitoring with invasive and noninvasive devices. The course will allow respiratory care students to understand how hemodynamic and laboratory values assist with the management of critically ill patients within the hospital setting.

### **COURSE DESCRIPTION:**

This course is a study of basic hemodynamic monitoring.

### **PREREQUISITES/CO-REQUISITES:**

RES 232. Required prerequisite courses must be completed with a grade of "C" or better.

### **REQUIRED MATERIALS:**

Lough, M. E. ([Insert Year of Publication]). *Hemodynamic Monitoring: Evolving Technologies and Clinical Practice*. Elsevier Health Sciences (US). <https://pageburstfs.elsevier.com/books/9780323085120>

Oakes, Dana. (2017). *Hemodynamic Monitoring an Oakes Pocket Guide*, 6th ed. Health Educator Publications, Inc. ISBN#9780932887566 (Optional)

Please visit the [BOOKSTORE](#) online site for most current textbook information. Use the direct link below to find textbooks.

Enter the semester, course prefix, number and section when prompted and you will be linked to the correct textbook.

### **TECHNICAL REQUIREMENTS:**

Access to Desire2Learn (D2L), HGTC's student portal for course materials.  
WaveNet and D2L email access.

## **CLASSROOM ETIQUETTE:**

As a matter of courtesy to other students and your professor, please turn off cell phones and other communication/entertainment devices before class begins. If you are monitoring for an emergency, please notify your professor prior to class and switch cell phone ringers to vibrate.

It is recognized that personal communication devices, including smart phones, can play a fundamental role in both education and urgent personal connections (for example, a school calling about a sick child). For this reason, use of such devices is permitted in the classroom, with specific reservations:

1. Please set all devices to 'silent' or 'vibrate' during instructional time.
2. Use of devices during testing is NOT allowed.
3. Please limit use of devices to urgent personal connections and educational purposes directly related to the course material being discussed.
4. If you receive an urgent text/call during class that requires immediate attention, please quietly excuse yourself from the classroom to respond to the call.
5. Please refrain from using 'ear buds' or continually using the device as a learning distraction. Professor retains the right to disallow the use of such devices should the policy become a distraction.
6. When on experiential rotations, students are expected to abide by the policies of that institution.

## **PLAGIARISM & CHEATING:**

Refer to the College catalog & Student Handbook. The student may be assigned a failing grade for the course, a zero for the assignment, or may be required by the professor to withdraw from the course and/or the respiratory care program. Such actions are deemed to be unprofessional behavior within this program and will not be tolerated.

## **Part II: Student Learning Outcomes**

### **COURSE LEARNING OUTCOMES and ASSESSMENTS\*:**

Discuss indications and hazards for arterial pressure monitoring, central venous catheters, pulmonary artery catheters, cardiac output measurements, and noninvasive monitoring.

2. Perform or compute arterial pressure values, central venous values, pulmonary artery values, and cardiac output.
3. Discuss and explain the measured value significance of arterial pressures, central venous pressures, pulmonary artery pressures, cardiac output, and noninvasive monitoring values.

### **COURSE OBJECTIVES**

Module 1

Material Covered: Blood Pressure, Hemodynamic Monitoring, and Cardiophysiology

April 2020

## Physiological Principles and Blood Pressure, Hemodynamic Parameters and Cardiophysiology Physical Assessment and Hemodynamic Monitoring

### Assessments:

- Homework
- Quiz
- Exam

### Learning Outcomes:

1. Determine which parameters can be monitored invasively or noninvasively.
2. Identify the 3 routes of invasive measurements.
3. Identify the symbols and acronyms for hemodynamic measurements.
4. List the parameters for normal values for hemodynamic measurements.
5. Define terms for hemodynamic measurements.
6. Complete equations for hemodynamic measurements.
7. Identify the main functions of the cardiopulmonary system.
8. Understand the clinical parameters for assessing tissue perfusion.
9. Explain how the cardiopulmonary system achieves tissue oxygenation.
10. List and perform tissue oxygenation equations.
11. Explain the bodily states and responses to increase tissue O<sub>2</sub> demand (Normal, Cardiopulmonary dysfunction, and Cardiopulmonary failure).
12. List the pressures of right and left side of the heart/pulmonary pressures and waveforms.

## Module 2

### Material Covered: Oxygen Monitoring/Arterial Pressures Monitoring

### Blood Pressure Monitoring

### Oxygen Monitoring

#### Assessments:

- Homework
- Quiz
- Exam

#### Learning Outcomes:

1. Discuss indications and hazards for arterial pressure monitoring.
2. Perform or compute arterial pressure values, pulmonary artery values, and cardiac output.
3. Discuss and explain the measured value significance of arterial pressures, pulmonary artery pressures, cardiac output, and noninvasive monitoring values.

## Module 3

### Material Covered: Central Venous Catheters and

### Central Venous Pressure Monitoring

#### Assessments:

- Homework
- Quiz

- Exam

Learning Outcomes:

1. Discuss indications and hazards for central venous catheters, cardiac output measurements, and noninvasive monitoring.
2. Perform or compute central venous values and cardiac output.
3. Discuss and explain the measured value significance of central venous pressures and noninvasive monitoring values.

#### Module 4

Material Covered: Pulmonary Artery Catheters and Pulmonary Artery Pressure Monitoring

Assessments:

- Homework
- Quiz
- Exam

Learning Outcomes:

1. Discuss indications and hazards for arterial pressure monitoring, pulmonary artery catheters, cardiac output measurements, and noninvasive monitoring.
2. Perform or compute arterial pressure values, central venous values, pulmonary artery values, and cardiac output.
3. Discuss and explain the measured value significance of arterial pressures, central venous pressures, pulmonary artery pressures, cardiac output, and noninvasive monitoring values.

#### Module 5

Material Covered: Cardiac Output Measurements and Pump Function and Cardiac Output Monitoring

Assessments:

- Homework
- Quiz
- Exam

Learning Outcomes:

1. Discuss indications and hazards for arterial pressure monitoring, central venous catheters, pulmonary artery catheters, cardiac output measurements, and noninvasive monitoring.
2. Perform or compute arterial pressure values, central venous values, pulmonary artery values, and cardiac output.
3. Discuss and explain the measured value significance of arterial pressures, central venous pressures, pulmonary artery pressures, cardiac output, and noninvasive monitoring values.

#### Module 6

Material Covered: Pump Function and IABP

Assessments:

- Homework
- Quiz
- Exam

Learning Outcomes:

1. Discuss indications and contraindications for intraaortic balloon pumps.
2. Identify the areas of insertion of vascular catheter and values observed during insertion and implementation.
3. Discuss and explain the waveforms for setting ratio of the IABP.
4. List the complications for IABP.
5. Identify the problems and how to solve issues that arise while using an IABP.

Module 7

Material Covered: O<sub>2</sub>, CO<sub>2</sub> Monitoring, Vasoactive Medications

Assessments:

- Homework
- Quiz
- Exam

Learning Outcomes:

1. Identify reference ranges for both arterial blood gases and oximetry parameters.
2. Identify the indications for blood gas and oximetry analysis.
3. Specify methods used to assuring valid measurement and use of blood gas data.
4. Accurately interpret arterial blood gas and/or oximetry data.

## Part III: Grading and Assessment

### EVALUATION OF REQUIRED COURSE MEASURES/ARTIFACTS\*:

Students' performance will be assessed and the weight associated with the various measures/artifacts are listed below.

#### EVALUATION\*

Homework/Projects/Discussion Post	15%
Unit Test	60%
Final Exam	25%
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	100%

#### LATE ASSIGNMENTS:

1. All exams are mandatory and must be completed on date of exam. Exams cannot be made up unless for extenuating circumstances or doctors excuse is provided. Any subsequently missed exams will receive a grade of 0.
2. Makeup examinations will be taken in the testing center on campus, or a location designated by the

instructor.

3. A 10% overall deduction will be applied to the makeup examination score for missed examinations unless faculty are notified in advance (more than 12 hours), or medical documentation is provided.
4. Final exams cannot be made up. Missing a final exam will result in a failure for the course an "F" will be given for the final grade and removal from the program.
5. The discretion of the professor will decide if an absence is excused only under this circumstance will a makeup exam be allowed.

## **GRADING SYSTEM:**

A grade of "C" or better must be achieved in all required respiratory care program courses in order for a student to progress through the program. A final grade of less than 75 is not passing in the Respiratory Care Program and does not meet the requirements for progression within the program. This policy is different than the Horry Georgetown Technical College Grading Policy.

### **GRADING SCALE:**

100-90 =	A
89-80 =	B
79-75 =	C
74-69 =	D
68-0 =	F

Grades earned in courses impact academic progression and financial aid status. Before withdrawing from a course, be sure to talk with your instructor and financial aid counselor about the implications of that course of action. Ds, Fs, Ws, WFs and Is also negatively impact academic progression and financial aid status.

The Add/Drop Period is the first 5 days of the semester for **full term** classes. Add/Drop periods are shorter for accelerated format courses. Please refer to the [academic calendar](#) for deadlines for add/drop. You must attend at least one meeting of all of your classes during that period. If you do not, you will be dropped from the course(s) and your Financial Aid will be reduced accordingly.

## **Part IV: Attendance**

Horry-Georgetown Technical College maintains a general attendance policy requiring students to be present for a minimum of 80 percent (80%) of their classes in order to receive credit for any course. Due to the varied nature of courses taught at the college, some faculty may require up to 90 percent (90%) attendance. Pursuant to 34 Code of Federal Regulations 228.22 - Return to Title IV Funds, once a student has missed over 20% of the course or has missed two (2) consecutive weeks, the faculty is obligated to withdraw the student and a student may not be permitted to reenroll.  
services.

## Part V: Student Resources



### THE STUDENT SUCCESS AND TUTORING CENTER (SSTC):

The SSTC offers to all students the following **free** resources:

1. **Academic tutors** for most subject areas, **Writing Center support**, and **college success skills**.
2. Online **tutoring** and academic support resources.
3. Professional and interpersonal communication **coaching** in the EPIC Labs.

Visit the [Student Success & Tutoring Center](#) website for more information. To schedule tutoring appointments using TutorTrac, visit the Student Services tab in WaveNet. Email [ssc@hgtc.edu](mailto:ssc@hgtc.edu) or call SSTC Conway, 349-7872; SSTC Grand Strand, 477-2113; and SSTC Georgetown, 520-1455, or go to the [Online Resource Center](#) to access on-demand resources.



### STUDENT INFORMATION CENTER: TECH Central

TECH Central offers to all students the following **free** resources:

1. **Getting around HGTC:** General information and guidance for enrollment!
2. Use the [Online Resource Center \(ORC\)](#) including scheduled technology training, Office 365 support, password resets, and username information.
3. **Drop-in technology support or scheduled training** in the Center or in class.
4. **In-person workshops, online tutorials and more services** are available.
5. **Chat with our staff on TECH Talk**, our live chat service. TECH Talk can be accessed on the student portal and on TECH Central's website, or by texting questions to (843) 375-8552.

Visit the [Tech Central](#) website for more information. Live Chat and Center locations are posted on the website. Or please call (843) 349 – TECH (8324).

### STUDENT TESTING:

Testing in an **online/hybrid** course may be accomplished in a variety of ways:

- Test administered within D2L
- Test administered in writing on paper
- Test administered through Publisher Platforms

Further more tests may have time limits and/or require a proctor.

Proctoring can be accomplished either face-to-face at an approved site or online through RPNOW, our



online proctoring service. To find out more about proctoring services, please visit the [Online Testing](#) section of the HGTC's Testing Center webpage.

The **Instructor Information Sheet** will have more details on test requirements for your course.

### **DISABILITY SERVICES:**

HGTC is committed to providing an accessible environment for students with disabilities. Inquiries may be directed to HGTC's [Accessibility and Disability Service webpage](#). The Accessibility and Disability staff will review documentation of the student's disability and, in a confidential setting with the student, develop an educational accommodation plan.

Note: It is the student's responsibility to self-identify as needing accommodations and to provide acceptable documentation. After a student has self-identified and submitted documentation of a disability, accommodations may be determined, accepted, and provided.

### **STATEMENT OF EQUAL OPPORTUNITY/NON-DISCRIMINATION STATEMENT:**

Horry-Georgetown Technical College prohibits discrimination and harassment, including sexual harassment and abuse, on the basis of race, color, sex, national or ethnic origin, age, religion, disability, marital or family status, veteran status, political ideas, sexual orientation, gender identity, or pregnancy, childbirth, or related medical conditions, including, but not limited to, lactation in educational programs and/or activities.

### **TITLE IX REQUIREMENTS:**

All students (as well as other persons) at Horry-Georgetown Technical College are protected by Title IX—regardless of their sex, sexual orientation, gender identity, part- or full-time status, disability, race, or national origin—in all aspects of educational programs and activities. Any student, or other member of the college community, who believes that he/she is or has been a victim of sexual harassment or sexual violence may file a report with the college's Chief Student Services Officer, campus law enforcement, or with the college's Title IX Coordinator, or designee.

\*Faculty and Staff are required to report incidents to the Title IX Coordinators when involving students. The only HGTC employees exempt from mandatory reporting are licensed mental health professionals (only as part of their job description such as counseling services).

### **INQUIRIES REGARDING THE NON-DISCRIMINATION/TITLE IX POLICIES:**

**Student and prospective student** inquiries concerning Section 504, Title II, and Title IX and their application to the College or any student decision may be directed to the Vice President for Student Affairs.

**Dr. Melissa Batten, VP Student Affairs**

*Title IX Coordinator*

Building 1100, Room 107A, Conway Campus

PO Box 261966, Conway, SC 29528-6066

843-349-5228

[Melissa.Batten@hgtc.edu](mailto:Melissa.Batten@hgtc.edu)

**Employee and applicant** inquiries concerning Section 504, Title II, and Title IX and their application to the College may be directed to the Vice President for Human Resources.

**Jacquelyne Snyder, VP Human Resources**

*EEO and Title IX Coordinator*

Building 200, Room 212A, Conway Campus

PO Box 261966, Conway, SC 29528-6066

843-349-5212

[Jacquelyne.Snyder@hgtc.edu](mailto:Jacquelyne.Snyder@hgtc.edu)