| **PROFESSOR:** |  |
| --- | --- |
| **OFFICE LOCATION:** |  |
| **OFFICE HOURS:** |  |
| **PHONE NUMBER:** |  |
| **E-MAIL:** |  |
| **SEMESTER:** |  |
| **DELIVERY METHOD:** |  |

1. **COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDITS:**

**CVT 2205 ADVANCED CARDIAC CARE (3 CREDITS)**

This course presents an in-depth study of critical care hemodynamic measurements for medical, surgical, and emergency patients. Intra-Aortic balloon pumping, Swan-Ganz monitoring, artificial airways, oxygen delivery devices, cardiovascular pharmacology, and basic ACLS algorithms are also presented.

1. **PREREQUISITES FOR THIS COURSE:**

CVT 1200 and CVT 2420

**CO-REQUISITES FOR THIS COURSE:**

CVT 2421 and CVT 2840L

1. **GENERAL COURSE INFORMATION:** Topic Outline.

* Abnormal hemodynamics
* Shock (hypovolemic, distributive, cardiogenic, and septic)
* Circulatory assist devices, including LVAD/RVAD/ECMO and Intra-Aortic Balloon Pump
* Advanced Cardiac Life Support preparation

1. **All courses at Florida SouthWestern State College contribute to the general education program by meeting one or more of the following general education competencies:**

**C**ommunicate clearly in a variety of modes and media.

**R**esearch and examine academic and non-academic information, resources, and evidence.

**E**valuate and utilize mathematical principles, technology, scientific and quantitative data.

**A**nalyze and create individual and collaborative works of art, literature, and performance.

**T**hink critically about questions to yield meaning and value.

**I**nvestigate and engage in the transdisciplinary applications of research, learning, and knowledge.

**V**isualize and engage the world from different historical, social, religious, and cultural approaches.

**E**ngage meanings of active citizenship in one’s community, nation, and the world.

**A.**  **General Education Competencies and Course Outcomes**

1. Listed here are the outcomes/objectives assessed in this course which play an *integral* part in the student’s general education along with the general education competency they support.

General Education Competency: **Think**

Course Outcomes or Objectives Supporting the General Education Competency:

The student will:

* Gather and consider the appropriate patient related clinical data/information.
* Evaluate the patient’s condition.
* Make correct decisions regarding care and treatment of critically ill patients with various life threatening/emergency conditions, including Advanced Cardiac Life Support (ACLS).

**B. Other Course Objectives/Standards**

The student will gain an understanding of the cardiovascular technology field as well as cardiovascular anatomy and physiology. Upon completion of this course, students will be able to:

* Describe the role Frank Starlings Law of the Heart has on cardiac performance.
* Identify other factors that affect cardiac performance.
* Describe the determinants of myocardial oxygen supply and demand.
* Identify and describe physiologic causes of intracardiac (atrial, ventricular) and vascular (arterial, venous) hemodynamic events.
* Graphically relate the phases of the cardiac pressure cycle with the EKG including atrial, venous, ventricular, and arterial waveforms.
* From memory, draw and label simultaneous pressure curves showing the correct sequence of cardiac events including venous, atrial, ventricular, and arterial waveforms.
* Identify and label pressure waves seen on intracardiac pressure curves and state the physiologic origin of each, including a, c, v, x, y, dicrotic notch, EDP, etc.
* List the normal sequence of pressures recorded during right and left heart catheterization.
* Read and interpret the three numbers used to read pressures in each chamber and the great vessels.
* List the normal pressure levels for each cardiac chamber and vessels going to and from the heart.
* Describe the normal pressure values, hemodynamic waveforms, SaO2 and CaO2 in the chambers of the heart and the great vessels.
* Perform mathematical calculations to determine: Fick Cardiac Output, Systemic Vascular Resistance, Pulmonary Vascular Resistance and quantify shunts.
* Identify limitations of the various methods of C.O. determination.
* Explain and list the characteristics of basic pressure monitoring systems.
* Describe the principles of operation of standard fluid filled pressure recording systems.
* Describe the correct set up pressure transducers.
* Explain how wedge pressure is obtained with Swan-Ganz or other catheters.
* Explain the significance of PAW pressure and some of its uses.
* Describe the selection and set up equipment for Swan-Ganz monitoring.
* Identify complications associated with Swan-Ganz catheterization, and their prevention and treatment.
* Identify and evaluate eight arterial pulse sites.
* Identify, describe, and demonstrate operation of the parts of an arterial monitoring line.
* Describe the effect of various recording scales, i.e., X40, X50, X100, X200, X400.
* Identify and describe the sequence of simultaneous events (Wiggers diagram).
* Identify normal pressure levels and relationships.
* Identify, interpret, and label pressure waveforms.
* Perform various hemodynamic calculations.
* Identify and describe the significance of pressures in cardiac pathologies.
* Discuss the clinical indications, hazards, and contraindications of Intra-Aortic Balloon Pumps, ventricular assist devices, and extracorporeal membrane oxygenation (ECMO).
* Evaluate the efficiency of counter pulsation efforts through the use of peripheral arterial waveform and ECG tracings.
* Describe and differentiate hypovolemic, cardiogenic, septic, neurogenic, and anaphylactic shock with respect to etiology, clinical manifestations, hemodynamics and treatment.
* Evaluate and differentiate the various presentations of shock in the clinical setting by using hemodynamic and laboratory indices.
* Understand the application of appropriate pharmacological intervention for shock in its various presentations.
* Describe the emergency interventions required to treat cardiac tamponade and ACS/M.I.
* Describe and differentiate various causes of elevations in pulmonary artery pressure (COPD, pulmonary arteriole hypertension, left side heart failure) with respect to etiology, clinical manifestations, hemodynamics and treatment.
* Describe the indications and actions of various cardiovascular medications.
* Describe the treatment of various cardiovascular conditions using ACLS algorithms, including cardiac arrest (VF, pulseless VT, PEA, and asystole), tachyarrhythmias, bradyarrhythmias, post-resuscitation efforts, and ACS/myocardial infarction.

1. **DISTRICT-WIDE POLICIES:**

**Programs for Students with Disabilities**

Florida SouthWestern State College, in accordance with the Americans with Disabilities Act and the College’s guiding principles, offers students with documented disabilities programs to equalize access to the educational process. Students needing to request an accommodation in this class due to a disability, or who suspect that their academic performance is affected by a disability should contact the Office of Adaptive Services at the nearest campus. The office locations and telephone numbers for the Office of Adaptive Services at each campus can be found at <http://www.fsw.edu/adaptiveservices>.

**REPORTING TITLE IX VIOLATIONS**

Florida SouthWestern State College, in accordance with Title IX and the Violence Against Women Act, has established a set of procedures for reporting and investigating Title IX violations including sexual misconduct.  Students who need to report an incident or need to receive support regarding an incident should contact the Equity Officer at [equity@fsw.edu](mailto:equity@fsw.edu).  Incoming students are encouraged to participate in the Sexual Violence Prevention training offered online.  Additional information and resources can be found on the College’s website at <http://www.fsw.edu/sexualassault>.

1. **REQUIREMENTS FOR THE STUDENTS:**

List specific course assessments such as class participation, tests, homework assignments, make-up procedures, etc.

1. **ATTENDANCE POLICY:**

The professor’s specific policy concerning absence. (The College policy on attendance is in the Catalog and defers to the professor.)

1. **GRADING POLICY:**

Include numerical ranges for letter grades; the following is a range commonly used by many faculty:

| **Grade Percent** | **Letter Grade** |
| --- | --- |
| 90 - 100 | A |
| 80 - 89 | B |
| 70 - 79 | C |
| 60 - 69 | D |
| Below 60 | F |

(Note: The “incomplete” grade [“I”] should be given only when unusual circumstances warrant. An “incomplete” is not a substitute for a “D,” “F,” or “W.” Refer to the policy on “incomplete grades.)

1. **REQUIRED COURSE MATERIALS:**

Other special learning resources.

1. **RESERVED MATERIALS FOR THE COURSE:**

This section includes assignments for each class meeting or unit, along with scheduled Library activities and other scheduled support, including scheduled tests.

1. **CLASS SCHEDULE:**

Class schedule will be posted in the Canvas course.

1. **ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:**

(Which would be useful to the students in the class.)