GROSSMONT COLLEGE

 COURSE OUTLINE OF RECORD

Curriculum Committee Approval: 03/22/2022

 GCCCD Governing Board Approval: 04/19/2022

CARDIOVASCULAR TECHNOLOGY 116 – INTRODUCTION TO INVASIVE CARDIOLOGY

 1. Course Number Course Title Semester Units

 CVTE 116 Introduction to Invasive Cardiology 4

 Semester Hours

 2 hours lecture: 32-36 hours 64-72 outside-of-class hours

 6 hours laboratory: 96-108 hours 192-216 total hours

 2. Course Prerequisites

A “C” grade or higher in CVTE 100 and 101 and 102 and 103

Corequisite

None

Recommended Preparation

 None

 3. Catalog Description

 An introductory course in Invasive Cardiology with instruction in specialized techniques used in Invasive Cardiology and designed to provide lecture and laboratory practicum necessary to develop cognitive and manipulative skills in the clinical operation of specified cardiovascular instrumentation, and in the performance of diagnostic tests in cardiac catheterization procedures.

 4. Course Objectives

 The student will:

 a. Recognize and interpret basic concepts of hemodynamic monitoring, physiologic calculations and arrhythmia detection using criteria established by the course texts and instructor.

 b. Identify and differentiate catheters, guide wires and introducers according to the type of cardiac catheterization procedure using criteria established by the course texts and instructor.

 c. Practice and contrast the responsibilities of the invasive cardiovascular technologist in the Cardiac Catheterization Lab as defined by the roles of Monitor, Scrub and Circulator during diagnostic studies.

 d. Acquire basic skills used for diagnostic cardiac catheterization procedures to prepare the student for the summer clinical experience in the Cardiac Cath Lab.

 5. Instructional Facilities

 a. Standard classroom.

 b. Classroom laboratory.

 6. Special Materials Required of Student

 None

7. Course Content

a. Catheterization laboratory (Cath Lab) environment

 1) Roles

 i. Scrub

 ii. Monitor

 iii. Circulator

 2) Responsibilities

b. Cath Lab equipment

 1) Manifold

 2) Procedure Packs

 3) Catheters

 4) Wires

 5) Monitoring systems

 6) Emergency equipment

 7) Transducers

 8.) Introducers

c. Cath Lab Procedures

 1) Patient Preparation

 2) Vascular Access

 3) Left heart Catheterization

 4) Right heart Catheterization

 5) Simulations

d. Cath Lab Measurements

 1) Hemodynamics

 i. Normal recognition

 ii. Abnormal recognition

 iii. Troubleshooting

 iv. Calculations

 2) Cardiac Output

 3) Valve Area

 4) Cardiac shunts

 5) Arrhythmias

 e. Aseptic technique

 1) Gowning and gloving

 2) Opening sterile products.

 8. Method of Instruction

 a. Lectures.

 b. Class discussion.

 c. Multimedia presentations.

 d. Classroom laboratory demonstration.

 e. Structured classroom exercises.

 9. Methods of Evaluating Student Performance

 a. Exams based on course content such as left heart catheterization.

 b. Quizzes focused on applying course content such as hemodynamic calculations.

 c. Practical examination on skills such as manifold set-up and catheter exchange.

 d. Written comprehensive final examination.

10. Outside Class Assignments

 a. Assigned reading from texts, medical journals, and online references.

 b. Problem-solving homework assignments such as calculating heart valve area.

 c. Preparation for student classroom presentations.

11. Representative Texts

 a. Representative Text(s):

 1) Kern, Morton J*. The Cardiac Catheterization Handbook:* 7thEdition. Philadelphia, PA: Elsevier Publishers.2019.

2)Baim, Donald S. *Grossman’s Cardiac Catheterization, Angiography, and Intervention: 9th Edition.*

 Philadelphia, PA: Lippincott, Williams & Wilkens. 2020

 b. Supplementary texts and workbooks:

 Instructor prepared handouts and study guides.

 Addendum: Student Learning Outcomes

 Upon completion of this course, our students will be able to do the following:

* 1. Demonstrate and contrast proper calibration, measurement of quality assurance procedures for blood pressure transducer in monitoring systems using criteria established by the operator’s manual and the instructor.
	2. Articulate and implement the principles of the practice of sterile technique for vascular access procedures.
	3. Identify and interpret normal versus abnormal hemodynamic waveforms.
	4. Prepare a patient, assemble a sterile field, setup equipment and perform the steps required for a standard left heart catheterization.
	5. Demonstrate proper aseptic technique in gowning, gloving and opening sterile product.