

Cardiovascular Technology

The Agnes Binder Weisiger Cardiovascular Technology curriculum prepares individuals to develop attributes necessary to perform procedures leading to the diagnosis and treatment of cardiovascular disease.

Course work emphasizes technical and cognitive skills development with application by applying the concepts of echocardiography, exercise stress testing, electrocardiography, cardiac catheterization, blood gases, electrophysiology, cardiovascular anatomy, and physiology.

Graduates selecting the non-invasive track (Cardiac Sonography) are eligible to become a Registered Diagnostic Cardiac Sonographer (RDCS) for the Noninvasive Registry through the American Registry of Medical Sonography (ARDMS) or a Registered Cardiac Sonography (RCS) through Cardiovascular Credentialing International, Inc. (CCI). Graduates selecting the invasive track (Cardiovascular Invasive Specialist) may be eligible for the Invasive Registry to become a Registered Cardiovascular Invasive Specialist (RCIS) through Cardiovascular Credentialing International, Inc. (CCI).

For specific information about potential positions and wages in cardiovascular employment, visit the Central Piedmont Career Coach website.

ICT 110. Invasive Fundamentals. 3.0 Credits. Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course provides information related to the profession and practice of invasive cardiovascular technology. Emphasis is placed on medical-legal and ethical aspects of healthcare, patient safety principles, basic invasive principles and cardiovascular imaging modalities. Upon completion, students should be able to demonstrate an understanding of basic invasive principles, cardiovascular imaging modalities, medical-legal and ethical aspects and safety practices.

Corequisites: Take all: ICT 113 and NCT 134

ICT 113. Electrocardiography. 4.0 Credits. Class-3.0. Clinical-0.0. Lab-2.0. Work-0.0

This course introduces the principles of electrocardiography, ECG rhythm recognition, methods of arrhythmia intervention and cardiac pacemaker therapy. Topics include rhythm strip and 12-lead analysis, identification of conduction abnormalities, and pharmacologic and electrical treatment methods. Upon completion, students should be able to describe electrical function, detect a variety of arrhythmias and describe their treatment methods and analyze 12-lead electrocardiograms.

Corequisites: Take One: ICT 110, NCT 110, or NCT 134

ICT 136. Cardiac and Peripheral Vascular Invasive I. 6.0 Credits.

Class-3.0. Clinical-6.0. Lab-2.0. Work-0.0

This course provides an introduction to diagnostic techniques and equipment utilized in the invasive labs. Emphasis is placed on diagnostic cardiac and peripheral vascular catheterization principles, instrumentation, patient care techniques and the development of basic invasive lab skills. Upon completion, students should be able to identify cardiovascular anatomy through angiographic assessment, provide basic patient care and demonstrate basic invasive lab skills.

Prerequisites: Take all: ICT 110, ICT 113, and NCT 134

Corequisites: Take ICT 140

ICT 140. Cardiovascular (CV) Hemodynamics I. 2.0 Credits. Class-2.0.

Clinical-0.0. Lab-0.0. Work-0.0

This course provides an introduction to the hemodynamic principles of the cardiac catheterization lab. Emphasis is placed on pressure acquisition, basic waveform analysis and hemodynamic calculations. Upon completion, students should be able to discuss the pressure acquisition process, identify cardiac pressures, determine valve conditions, and perform basic hemodynamic calculations.

Prerequisites: Take all: ICT 110, ICT 113, and NCT 134

Corequisites: Take ICT 136

ICT 214. Cardiac and Peripheral Vascular Invasive II. 9.0 Credits.

Class-3.0. Clinical-15.0. Lab-2.0. Work-0.0

This course introduces the student to advanced diagnostic and interventional techniques and instrumentation used in invasive labs. Emphasis is placed on functional assessment, coronary interventional instrumentation, emergency treatments, and increasing clinical skills in clinical rotations. Upon completion, students should be able to describe peripheral vascular and coronary interventional techniques and demonstrate clinical skills with increased competency in the clinical setting.

Prerequisites: Take ICT 136 ICT 140, minimum grade of C

Corequisites: Take ICT 218

ICT 218. Invasive Pharmacology. 2.0 Credits. Class-2.0. Clinical-0.0.

Lab-0.0. Work-0.0

This course introduces the student to the essential medications and medical therapies used in the invasive catheterization labs. Emphasis is placed on indications, contraindications, routes, dosages, and adverse effects of the primary and secondary medications used in cardiovascular labs. Upon completion, students should be able to identify indications, side effects, contraindications, dosages, complications, identify trade and generic names and perform medication calculations.

Prerequisites: Take all: ICT 136 and ICT 140

Corequisites: Take ICT 214

ICT 234. Cardiac and Peripheral Vascular Invasive III. 13.0 Credits.

Class-3.0. Clinical-30.0. Lab-0.0. Work-0.0

This course introduces the student to advanced cardiac interventional techniques, peripheral vascular intervention techniques and increased clinical rotations. Emphasis is placed on identification of advanced disease states, structural heart and peripheral vascular interventional techniques, and increasing clinical skills in clinical rotations. Upon completion, students should be able to identify advanced diseased states, interventional techniques, and instrumentation and demonstrate entry level skills in the clinical setting.

Prerequisites: Take ICT 214, minimum grade of C

Corequisites: Take ICT 236

ICT 236. Cardiovascular (CV) Hemodynamics II. 2.0 Credits.

Class-2.0. Clinical-0.0. Lab-0.0. Work-0.0

This course introduces students to advanced cardiac conditions and disease states found in the invasive lab environment. Emphasis is placed on identifying advanced cardiovascular conditions, performing advanced hemodynamic calculations, and identifying congenital malformations through hemodynamic pressures. Upon completion, students should be able to identify advanced cardiovascular conditions, perform hemodynamic calculations and identify congenital malformations through hemodynamic pressures.

Prerequisites: Take all: ICT 214 and ICT 218

Corequisites: Take ICT 234

NCT 110. Echo Fundamentals. 3.0 Credits.

Class-2.0. Clinical-0.0. Lab-3.0. Work-0.0

This course provides information related to the profession and practice of echocardiography. Emphasis is placed on medical-legal and ethical aspects of healthcare, patient centered care, understanding basic echocardiography imaging views and cardiovascular imaging modalities. Upon completion, students should be able to demonstrate an understanding of basic echocardiography imaging views, cardiovascular imaging modalities, medical-ethical issues and patient care practices.

Corequisites: Take all: ICT 113 and NCT 134

NCT 133. Cardiovascular Ultrasound Principles. 3.0 Credits.

Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0

This course introduces the principles of ultrasound applications and instrumentation of cardiovascular imaging procedures. Emphasis is placed on the physical principles of cardiovascular imaging as a diagnostic tool, instrumentation and applicable effects, and biosafety issues. Upon completion, students should be able to discuss applications of ultrasound imaging, understand instrumentation applications and improve quality imaging while maintaining bioeffects standards.

Prerequisites: Take all: ICT 113, NCT 110, and NCT 134

Corequisites: Take NCT 143

NCT 134. Cardiovascular Anatomy and Physiology. 4.0 Credits.

Class-4.0. Clinical-0.0. Lab-0.0. Work-0.0

This course provides information related to cardiovascular anatomy and physiology. Emphasis is placed on the hemodynamics of pathophysiological disease states, embryology and the diagnosis and treatment of cardiovascular diseases. Upon completion, students should be able describe normal and abnormal cardiovascular diseases, associated hemodynamic findings, and treatment options.

Corequisites: Take One Set: Set 1: ICT 113 and ICT 110; Set 2: ICT 113 and NCT 110

NCT 143. Echocardiography I. 6.0 Credits.

Class-3.0. Clinical-6.0. Lab-3.0. Work-0.0

This course introduces echocardiography procedures, cardiovascular imaging modalities and their applications in the diagnosis of cardiovascular diseases. Emphasis is placed on the diagnostic capabilities of echocardiography related to clinical presentations of cardiovascular diseases and development of basic imaging skills. Upon completion, students should be able to perform basic echocardiography/Doppler examinations and describe the diagnostic information obtained by noninvasive procedures.

Prerequisites: Take all: ICT 113, NCT 110, and NCT 134

Corequisites: Take NCT 133

NCT 251. Echocardiography II. 8.0 Credits.

Class-2.0. Clinical-15.0. Lab-2.0. Work-0.0

This course introduces advanced echocardiography/Doppler techniques, modalities, and hemodynamic assessments utilized for the diagnosis of acquired and congenital cardiovascular diseases. Emphasis is placed on protocols, interpretation of echocardiography/Doppler data with correlation to the clinical presentation of disease states in the clinical setting. Upon completion, students should be able to identify abnormal heart diseases through analysis and correlation of imaging data and demonstrate increasing clinical skill development.

Prerequisites: Take NCT 133 NCT 143, minimum grade of C,

Corequisites: Take NCT 253

NCT 253. Hemodynamic Echocardiographic Principles. 3.0 Credits.

Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course provides an introduction to the hemodynamic approach in performing an echocardiogram to detect cardiovascular heart disease. Emphasis is placed on the applications of hemodynamic calculations in valvular heart disease and development of quality standard practices for quality patient care outcomes. Upon completion, students should be able to perform hemodynamic calculations on an echocardiogram.

Prerequisites: Take NCT 133 NCT 143, minimum grade of C

Corequisites: Take NCT 251

NCT 273. Echocardiography III. 14.0 Credits.

Class-3.0. Clinical-30.0. Lab-2.0. Work-0.0

This course provides expanded techniques and applications required for a comprehensive echocardiography procedure. Emphasis is placed on interpretation of advanced qualitative and quantitative calculations of various heart diseases with increasing skill development in the clinical setting. Upon completion, students should be able to independently perform a comprehensive diagnostic echocardiography examination with relative quantitative calculations with entry level skill competency.

Prerequisites: Take all: NCT 251 and NCT 253