



Course Number and Title: ECH 213 Echocardiography Techniques III

Campus Location:

Wilmington

Effective Date:

2018-51

Prerequisite:

ECH 112

Co-Requisites:

none

Course Credits and Hours:

3.00 credits

3.00 lecture hours/week

1.00 lab hours/week

Course Description:

This course is a continued study of Echocardiography Techniques II. Emphasis is on the performance proficiency of Doppler echocardiography. The study of embryology and congenital heart diseases is also included.

Required Text(s):

Obtain current textbook information by viewing the [campus bookstore - https://www.dtcc.edu/bookstores](https://www.dtcc.edu/bookstores) online or visit a campus bookstore. Check your course schedule for the course number and section.

Additional Materials:

Diagnostic Medical Sonography Program Student Manual

CCHS Non-Employee Orientation Manual

Allied Health/Science Department Program Student Policy Manual Instructor handouts

Schedule Type:

Classroom Course

Disclaimer:

None

Core Course Performance Objectives (CCPOs):

1. Discuss normal and abnormal anatomy of embryology, fetal cardiac development, and cardiac chambers of septation. (CCC 1, 2, 5; PGC 1, 3, 5)
2. Explain cardiac pathology, pathophysiology, and hemodynamics in congenital heart disease. (CCC 1, 2, 5; PGC 1, 3, 5)
3. Discuss clinical preparation and evaluation of echocardiogram. (CCC 1, 2, 5; PGC 1, 3, 5)
4. Discuss clinical cardiology for cardiovascular surgery and interventional cardiology. (CCC 1, 2, 5; PGC 1, 3, 4, 5)
5. Explain other diagnostic cardiac procedures and related echocardiographic diagnostic procedures. (CCC 1, 2, 5; PGC 1, 3, 4, 5)
6. Perform techniques with proficiency using Doppler, color flow, velocity measurements, and calculations in the study of cardiac diseases. (CCC 1, 2, 3, 4, 5, 6; PGC 1, 3, 4, 5)

See Core Curriculum Competencies and Program Graduate Competencies at the end of the syllabus. CCPOs are linked to every competency they develop.

Measurable Performance Objectives (MPOs):

Upon completion of this course, the student will:

1. Discuss normal and abnormal anatomy of embryology, fetal cardiac development, and cardiac chambers of septation.
 1. Discuss basic embryology of the heart.
 2. Describe fetal circulation by tracing a drop of blood from the placenta, through the fetus, and back to the placenta again.
 3. Describe the cardiovascular changes that occur at birth in the infant.
2. Explain cardiac pathology, pathophysiology, and hemodynamics in congenital heart disease.
 1. Discuss the definitions, prevalence, hemodynamics effects, associated anomalies, and echocardiography findings of common congenital heart diseases.
 2. Discuss different surgical procedures to correct a congenital heart defect.
 3. Discuss the appropriate medical management of a patient with congenital heart disease.
3. Discuss clinical preparation and evaluation of echocardiogram.
 1. Discuss indications for echocardiography and the relationship of echocardiography to medical history and physical examination.
 2. Identify differential diagnosis as it relates to the echocardiographic examination.
 3. Discuss effect of systemic diseases on cardiovascular anatomy and physiology.
4. Discuss clinical cardiology for cardiovascular surgery and interventional cardiology.
 1. Discuss the different cardiac surgeries and interventional techniques.
5. Explain other diagnostic cardiac procedures and related echocardiographic diagnostic procedures.
 1. Discuss the indications, utility, and limitations of the following diagnostic cardiac procedures:
 1. Angiography and cardiac catheterization
 2. Electrocardiography, electrophysiologic studies, Holter monitoring, and stress testing
 3. Radionuclide studies and other tomographic imaging procedures
 4. Phonocardiography and external pulse recording
 2. Discuss the indications, utility, limitations, and technical procedures for stress, transesophageal, intraoperative, and contrast echocardiographic diagnostic procedures as well as echo-guided procedures.
 3. Discuss clinical pharmacology as it relates to echocardiography and provocative maneuvers including:
 1. Theory and use of provocative stress agents
 2. Non-pharmacologic stress
 3. Potential effects of cardiac medications on echocardiographic findings
6. Perform techniques with proficiency using Doppler, color flow, velocity measurements, and calculations in the study of cardiac diseases.
 1. Distinguish accurate technique using standard Doppler measurements and calculations.
 2. Differentiate normal and abnormal values of Doppler echocardiography.
 3. Explain and evaluate the severity of valve stenosis and regurgitation by abnormal Doppler wave formation and the principle of color flow.
 4. Compare and contrast normal and abnormal cardiovascular hemodynamics and flow patterns.
 5. Calculate data obtained in the performance of an echocardiogram.
 6. Perform with proficiency two dimensional, color flow, and Doppler echocardiogram.

Evaluation Criteria/Policies:

Students must demonstrate proficiency on all CCPOs at a minimal 75 percent level to successfully complete the course. The grade will be determined using the Delaware Tech grading system:

92	-	100	=	A
83	-	91	=	B
75	-	82	=	C
0	-	74	=	F

Students should refer to the [Student Handbook - https://www.dtcc.edu/handbook](https://www.dtcc.edu/handbook) for information on the Academic Standing Policy, the Academic Integrity Policy, Student Rights and Responsibilities, and other policies relevant to their academic progress.

Final Course Grade:

Calculated using the following weighted average

Evaluation Measure	Percentage of final grade
5 Quizzes (4% each)	20%
Mid-Term Exam	25%
Final Exam	25%
3 Competencies (Total 100 points)	30%
TOTAL	100%

Core Curriculum Competencies (CCCs are the competencies every graduate will develop):

1. Apply clear and effective communication skills.
2. Use critical thinking to solve problems.
3. Collaborate to achieve a common goal.
4. Demonstrate professional and ethical conduct.
5. Use information literacy for effective vocational and/or academic research.
6. Apply quantitative reasoning and/or scientific inquiry to solve practical problems.

Program Graduate Competencies (PGCs are the competencies every graduate will develop specific to his or her major):

1. Perform competently a full range of echocardiography procedures.
2. Perform competently a full range of vascular sonographic procedures.
3. Utilize professional verbal, nonverbal, and written communication skills in patient care, procedure intervention, and professional relationships.
4. Act in a professional and ethical manner and comply with professional scope of practice.
5. Integrate critical thinking and problem solving skills as expected of a healthcare professional.

Disabilities Support Statement:

The College is committed to providing reasonable accommodations for students with disabilities. Students are encouraged to schedule an appointment with the campus Disabilities Support Counselor to request an accommodation needed due to a disability. A listing of campus Disabilities Support Counselors and contact information can be found at the [disabilities services - https://www.dtcc.edu/disabilitysupport](https://www.dtcc.edu/disabilitysupport) web page or visit the campus Advising Center.