CVT A200: INTRODUCTION TO ECHOCARDIOGRAPHY

Item	Value
Curriculum Committee Approval Date	11/01/2023
Top Code	121300 - Cardiovascular Technician
Units	3 Total Units
Hours	54 Total Hours (Lecture Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)

Course Description

Theory, equipment, and procedures for echocardiography to include M-mode, 2D, and Doppler. Recognition of specific echocardiographic patterns and abnormalities. Relates anatomical cardiac images to echocardiographic images. PREREQUISITE: CVT A160. COREQUISITE: CVT A205. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Apply the learned principles of entry level competencies, published and recommended by the American Society of Echocardiography (ASE.)
2. Identify normal and abnormal cardiac anatomy as presented on M-mode, 2-Dimensional (2D) and Doppler printed and/or real time ultrasound images.

Course Objectives

- 1. Apply the principles of entry level competencies (ASE/Scope of Practice) including nomenclature and terminology in cardiac and vascular imaging.
- 2. Differentiate normal cardiac anatomy from pathologies in M-mode and 2D cardiac imaging.
- 3. Acquire the illustrated cardiac ultrasound images according to the ASE Protocol.
- 4. Perform M-mode and 2D measurements and analyze for diagnostic presentation.
- 5. Apply principles of ultrasound physics to acquire correct transducer and instrument settings for imaging.
- 6. Correlate pathological findings of cardiac valves and chambers with ECG, M-mode, 2D and Doppler.
- 7. Identify images and procedures produced by new modalities, i.e., TEE and contrast echocardiography.

Lecture Content

Introduction Scope of practice for the Diagnostic Cardiac Sonographer Normal cardiac anatomy ECG and coronary circulation relating to the fundamentals of ultrasound imaging Physics and instrumentation Transducers Nomenclature of cardiac imaging M-mode tracing 2D images and measurements of valves, chambers and cardiac vessels M-mode and 2D measurements - continued Introduction of valvular morphology and their pathologies Doppler and color flow principles Doppler and color flow valvular assessment and measurements Doppler and color flow - continued Echo assessment of left/right heart/CAD Echo assessment of cardiac myopathies Prosthetic valve assessment/Pericardial disease assessment Stress echo/Interventional echocardiography New modalities Transesophageal echocardiography (TEE) Stress and contrast echo Comprehensive Review

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)

Instructional Techniques

1. Lecture and demonstration 2. Digital image and video projections 3. PowerPoint presentaitons 4. Group question/discussion sessions 5. Paired/group exercises

Reading Assignments

Student will spend approximately 2 hours per week reading from assigned course text, course hand-outs and other provided materials

Writing Assignments

Students will spend approximately 2 hours per week on written assignments, including; written study guides to include disease processes, pathology, treatments and imaging quantifications

Out-of-class Assignments

Students will spend approximately 2-3 hours per week on out-of-class assignments, including assirgned reading and written assignments.

Demonstration of Critical Thinking

Pathology case presentations to include class discussion on disease processes, treatment and how to quantify using Doppler

Required Writing, Problem Solving, Skills Demonstration

Group study guide compilation. Exams and quizzes. Domonstation of correct Doppler quantification.

Eligible Disciplines

Cardiovascular technology: Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience.

Textbooks Resources

1. Required Dewitt, S, K. Echocardiography from a sonographers Perspective The notebook 8, 8 ed. Launch Printing Promotions, 2022

Other Resources

1. Supplement: Internet site listings. 2. Selected handout materials will be provided and distributed by the instructor.