CVT A150: ADVANCED ELECTROCARDIOGRAPHY

Item	Value
Curriculum Committee Approval Date	10/18/2023
Top Code	121500 - Electrocardiography
Units	2 Total Units
Hours	36 Total Hours (Lecture Hours 36)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	Yes
Basic Skills	Not Basic Skills (N)
Repeatable	No
Open Entry/Open Exit	No
Grading Policy	Standard Letter (S)

Course Description

Advanced procedures in electrocardiographic testing, including stress testing, Holter monitoring, and pacemakers. Advanced arrhythmias including ventricular conduction disturbances effects of drugs, electrolyte imbalances, myocardial infarction, and cardiac pharmacology. PREREQUISITE: CVT A100. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Analyze advanced arrhythmias and effects of cardiac drugs on the heart.
2. Demonstrate and apply skills in the performance of ECG's, Holter monitoring and treadmill stress testing.

Course Objectives

- 1. Discuss procedures, contraindications and precautions for cardiovascular stress testing and Holter monitoring.
- 2. Perform cardiovascular stress testing and Holter monitoring in the laboratory.
- 3. Describe the operation of cardiac pacemakers and how they are routinely evaluated for correct function.
- 4. Recognize cardiac pacing on an electrocardiogram including pacing malfunctions.
- 5. Recognize advanced arrhythmias on the electrocardiogram and the electrophysiology causing it.
- 6. Recognize normal and abnormal atrial and ventricular ECG rhythms on ECG/EKG examples/

Lecture Content

Course introduction Clinical communication skills Identify and analyze normal and abnormal ECG rhythms on printed examples.

Demonstrate correct ECG electrode lead placement on patient subjects. ECG leads and artifacts - 12 lead ECG calculations and measurements. ECG waves - Rhythm recognition and analysis of their origins. ECG calculations/AXIS Caliper measurements of the ECG components including rate and axis. Sinus and atrial rhythms/AXIS Sinus Atrial Junctional Ventricular Asystole Evaluation of ECG and normal ECG review monitoring leads (MCL). Correct ECG lead placement and patient preparation to obtain diagnostic readings for physician interpretation. Cardiovascular stress testing normal response to exercise Response to exercise of patients with coronary artery disease Stress testing procedures Holter monitoring equipment operation and set-up Scanning techniques Cardiac pharmacology Review sympathetic and parasympathetic nervous system Specific drugs:beta blockers, nitrates, calcium-antagonists; antiarrhythmic agents, digitalis and sympathomimetics, vasocilators, antithrombotic agents,lipid-lowering agents

Method(s) of Instruction

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

Instructional Techniques

Lecture and demonstration. Digital image projections. ECG measurement exercises ECG/EKG lead placement demonstrations. ECG/EKG performance labs. ECG/EKG patient etiquette, patient and equipment safety. Guest lecturers

Reading Assignments

Students will spend approximately 2 hours per week reading from assigned course text, course handouts, and other provided materials.

Writing Assignments

Students will spend approximately 2 hours per week on written assignments, including: written case study of patient history, treatment and outcome supplemented with supporting diagnostic test results; perform ECG and tread mill stress testing and evaluate and record results; preparation of cardiac drug index cards; written exams

Out-of-class Assignments

Students will spend approximately 3-4 hours per week on out-of-class assignments, including assigned reading and written assignments.

Demonstration of Critical Thinking

Written exams; performance ECG testing

Required Writing, Problem Solving, Skills Demonstration

perform ECG testing and evaluate and record results; preparation of cardiac drug index cards; written exams

Eligible Disciplines

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

Textbooks Resources

1. Required Wesley, Kieth. Huszar's ECG and 12-Lead interpretation, 6 ed. Elsevier, 2022 Rationale: -