Program Title: Electrocardiography (EKG) Technician

Circle one: AA/AS/AS/One-Year Certificate/Less-than-One-Year Certificate

(CIPS number: 51.0902) **Minimum 4 hours** **(PN 1120)**

Program Description:

The Electrocardiography Technician (EKG) program at Shawnee Community College is designed to prepare students for a career as an EKG technician in healthcare settings, such as hospitals, clinics, and diagnostic laboratories. The program combines theoretical knowledge, hands-on lab practice, and a supervised clinical internship to ensure students develop the skills needed to perform electrocardiograms (EKGs) effectively and accurately. To provide students with practical experience, the electrocardiography certificate program includes an internship course. Students will demonstrate competence in application of electrocardiography on live patients in an approved medical setting under the supervision of a licensed health provider. Upon successful completion of the program, students will be eligible to sit for the National Certified ECG Technician (NCET) certification examination through the National Center of Competency Testing (NCCT).

First Year

FALL SEMESTER		Credit Hours
EKG 0120	Electrocardiography	3
EKG 0121	Electrocardiography Internship	0.5
CPR 0120	CPR for Healthcare Professionals	0.5
	TOTAL HOURS	**4**

Second Year

FALL SEMESTER		Credit Hours
	TOTAL HOURS	

Possible Career Opportunities:

Cardio Tech (Cardiovascular Technician), Cardiology Technician, Cardiopulmonary Technician, Cardiovascular Technologist (CVT), Electrocardiogram Technician (EKG Tech), Monitor Technician.

O*NET Links: www.onetonline.org SOC Codes: 29-2031.00

SYLLABUS

(Semester, Year)

EKG 120 – Electrocardiography - section #

Delivery method:

__Online _X_Face-to-Face __Hybrid __ITV __Dual Credit _Early Bird

Instructor Information:

Lead Instructor: **Course Instructor: Phone:** **__Full-Time __Part-Time**

Email: Phone: Office Location: **Email:**

Office Hours: **Office Location:**

Office Hours:

Course Description:

This course is designed to provide practical instruction in the proper techniques used in collecting blood and body fluid specimens for laboratory analysis. It includes basic anatomy and physiology of the circulatory system, collection techniques, specimen processing, infection control, laboratory safety, quality control, and quality assurance procedures.

Prerequisites:

Must be 18 years of age or older to take this course.

Credit Hours:

3 credit hours (2 lecture and 2 lab hour per week)

Textbook and Additional Materials:

Goldberger, A. L., Goldberger, Z. D., & Shvilkin, A. (2023). *Goldberger's clinical electrocardiography: A simplified approach* (10th ed.). Elsevier - Health Sciences Division.

Instructional Mode:

1. Lecture
2. Discussion/group critical thinking exercises
3. Handouts
4. Hands on demonstration

Assessment Process

Objective	Core Competency	Artifact (activity or assignment) for students to demonstrate knowledge	Evaluation Tool
1. Describe the role of an Electrocardiography (ECG) Technician.	Oral Communication Written Communication	Class Discussion	Exam
2. Describe the ethical conduct for a required for an Electrocardiography Technician, including patient confidentiality, informed consent, and adherence to professional standards in ECG practice.	Oral Communication Written Communication	Class Discussion	Exam
3. List precautions to prevent HIPAA and OSHA violations in a ECG setting.	Written Communication	Class Discussion	Worksheet/Quiz

4. Describe all the Electrocardiography equipment and its uses.	Oral Communication	Demonstration	Exam

5. Discuss strategies to perform electrocardiography on difficult patients such as children, combative and confused patients, patients with implanted devices (pacemakers, etc.) and patients from different cultures.	Oral Communication Written Communication Global and Cultural Awareness Problem Solving	Demonstration Class Discussion	Return demonstration Exam
6. Demonstrate proper electrode placement for different types of ECGs, including 12-lead ECGs, Holter monitors, stress tests, and telemetry.	Oral Communication Written Communication	Hands on practice	Return demonstration
7. Locate anatomical landmarks for accurate electrode placement to ensure accurate interpretations of heart rhythms.	Oral Communication Written Communication	Hands on practice	Return demonstration
8. Demonstrate the proper use of infection control and safety devices and procedures during ECG testing	Oral Communication Written Communication	Hands on practice	Return demonstration

9. Understand preparation and procedures for stress tests, minimizing patient risk and discomfort.	Oral Communication Written Communication Problem Solving	Demonstration Hands on practice	Return demonstration Exam
10. Demonstrate the ability to recognize common arrhythmias and waveform abnormalities on an ECG.	Oral Communication Written Communication	Demonstration Hands on practice	Return demonstration

Student Expectations:

1. Attend class regularly and be on time.
2. Read, prepare and turn in assignments on time.
3. Be prepared for exams over assigned material. Take tests at regularly scheduled times unless extenuating circumstances interfere. Quizzes may be announced or unannounced.
4. Tape recorders may be used in this class. Cell phones and beepers are to be muted during this class or lab.

Course Attendance Policy:

Attendance is required for this course. Attendance and tardiness will be documented by the instructor as well as repeatedly leaving class before the scheduled dismissal time. Attendance will be used as a criterion in student evaluation, particularly if a student is close to the next higher letter grade. Missing one lecture period is usually very apparent in the grade of the next exam and disables a student in practical experience. Students missing 2 class periods will be dropped one (1) LETTER GRADE. Students missing 3 class periods will be administratively DROPPED from the class. The instructor reserves the right to consider exceptions. After two tardies, it will be considered an absence. After missing class time, it is the student's responsibility to obtain missed lecture notes, handouts, and assignments. The instructor will not turn over lecture notes to the student.

Artifacts (activities or assignments) for Student Evaluation:

Written exams, quizzes, lab reports, practical exams and attendance are methods used for student grade evaluation in the course.

Exams:

There will be three major exams. Each exam is worth 100 points.

Attendance for scheduled exams is strongly recommended. Each student will be allowed only one make-up exam. This make-up exam may be different than original one and will be scheduled by the instructor.

Missed exams in excess of one (1) may not be made up and the student will receive a "zero" (0) score for the additional exam missed. Exceptions are jury duty (with appropriate documentation), a hospital stay with a doctor's written statement, and a death in the immediate family.

Graded exams will be reviewed by the students and instructor during the next class period.

Quizzes:

Pop quizzes may be given during the class. **If the quiz is missed due to absence, tardiness, or leaving class early, it cannot be made up.**

It is the student's responsibility to keep informed as the class progresses. If a student misses assignments, class information, or announcements, it is the responsibility of the student to make this up or acquire the information. If a student is not comprehending course information or is concerned about his/her progress in class, it is the student's responsibility to keep the instructor informed of these concerns. Laboratory Activities: Hands on Electrocardiography, laboratory testing and practice with laboratory equipment will be included.

Grading Scale:

Final grades will be determined with the following grading scale and will be based upon the total number of points accumulated.

A = 90 – 100 %
B = 80 – 89%
C = 70 – 79%
D = 60 – 69%
F = 0 – 59%

Semester Topical Outline and Schedule of Assignments:

Week	Dates	In-Class Time	Out-of-class Time	Content, Assigned Reading, and Assessments

1		3.5 hours	7 hours	Introduction to ECG and Basic Concepts Topic 1: Essential Concepts: What Is an ECG? Topic 2: Electrocardiogram Basics: Waves, Intervals, and Segments Quiz/ Exam
2		3.5 hours	7 hours	ECG Measurements and Leads Topic 3: How to Make Basic ECG Measurements Topic 4: Electrocardiogram Leads Quiz/Exam Skills
3		3.5 hours	7 hours	Normal ECG and Electrical Axis Topic 5: The Normal Electrocardiogram Topic 6: Electrical Axis and Axis Deviation Quiz/Exam/ Skills check-off
4		3.5 hours	7 hours	Atrial and Ventricular Abnormalities Topic 7: Atrial and Ventricular Overload/Enlargement Topic 8: Ventricular Conduction Disturbances: Bundle Branch Blocks and Related Abnormalities Quiz/Exam/ Skills check-off

5		3.5 hours	7 hours	Myocardial Ischemia and Infarction, Part I Topic 9: Myocardial Ischemia and Infarction, Part I: ST Segment Elevation and Q Wave Syndromes Quiz/Exam/ Skills check-off
6		3.5 hours	7 hours	Myocardial Ischemia and Infarction, Part II, and Other ECG Effects Topic 10: Myocardial Ischemia and Infarction, Part II: Non-ST Segment Elevation and Non-Q Wave Syndromes Topic 11: Drug Effects, Electrolyte Abnormalities, and Metabolic Disturbances Topic 12: Pericardial, Myocardial, and Pulmonary Syndromes Quiz/Exam/ Skills check-off
7		3.5 hours	7 hours	Sinus and Supraventricular Arrhythmias Topic 13: Sinus and Escape Rhythms Topic 14: Supraventricular Arrhythmias, Part I: Premature Beats and Paroxysmal Supraventricular Tachycardias Topic 15: Supraventricular Arrhythmias, Part II: Atrial Flutter and Atrial Fibrillation Quiz/Exam/ Skills check-off

8		3.5 hours	7 hours	Ventricular Arrhythmias and Conduction Abnormalities Topic 16: Ventricular Arrhythmias Topic 17: Atrioventricular (AV) Conduction Abnormalities, Part I: Delays, Blocks, and Dissociation Syndromes Quiz/Exam/ Skills check-off
9		3.5 hours	7 hours	Advanced Conduction Disorders Topic 18: Atrioventricular (AV) Conduction Disorders, Part II: Preexcitation (Wolff–Parkinson–White) Patterns and Syndromes Quiz/Exam/ Skills check-off
10		3.5 hours	7 hours	Review of Cardiac Rhythms and Complications Topic 19: Bradycardias and Tachycardias: Review and Differential Diagnosis Topic 20: Digitalis Toxicity Topic 21: Sudden Cardiac Arrest and Sudden Cardiac Death Syndromes Quiz/Exam/ Skills check-off
11		3.5 hours	7 hours	Pacemakers, Defibrillators, and Advanced Interpretation Topic 22: Pacemakers and Implantable Cardioverter–Defibrillators: Essentials for Clinicians Topic 23: Interpreting ECGs: An Integrative Approach Quiz/Exam/ Skills check-off

12		3.5 hours	7 hours	Final Review and ECG Limitations
				Topic 24: Limitations and Uses of the ECG Topic 25: ECG Differential Diagnoses: Instant Replays Final Exam

Note: The above schedule and procedures in this course are subject to change in the event of extenuating circumstances or at the discretion of the instructor.

*See the Syllabus Supplement for college policies and relevant college-wide information.

Student Signature Sheet

I have read, understand, and agree to the terms of the syllabus for this class.

Course _____

Name (printed) _____

Signature _____

Current phone number _____

Date _____