

**Health Careers Certification**

**SYLLABUS**

**FOR**

**ELECTROCARDIOGRAPHY TECHNICIAN**

8/14

**Total Hours**

525 hours

**Electrocardiography Technician Career Major Description**

This career major included the area of study, Echocardiography (EKG), the student will learn to set up and operate an electrocardiogram machine, interpret and evaluate electrocardiogram tracings, participate in clinical practicum for the EKG Technician. Upon completion of this career major the student will receive school certification for Electrocardiograph Technician and will be able to take a national certification exam through the National Health Career Association (NHA) for Certified EKG/ECK Technician.

# After completing the Core Curriculum Courses including: [Health Careers Core Curriculum,](http://www.okcareertech.org/okcareerclusters/releases/2008/10/20081001/courses/d68323ef11d4296ee1667d7400ecb5ab.html) [Core Medical Terminology,](http://www.okcareertech.org/okcareerclusters/releases/2008/10/20081001/courses/18cd6a4067cf70970f66ae6745e2592b.html) [Anatomy and Physiology,](http://www.okcareertech.org/okcareerclusters/releases/2008/10/20081001/courses/f53c8ffaa5a2b4f14c69588ba5e37592.html) and [Core Healthcare Provider CPR and First Aid the course sequence is as follows:](http://www.okcareertech.org/okcareerclusters/releases/2008/10/20081001/courses/0ea269ebfc6a4123df1bf288f0f24251.html)

***EKG Management***

**Course Description**

In this course, the student will set up and operate an electrocardiogram machine.

**Course Length**

15 Hours

**Knowledge and Skills**

1. Describe the operation of a 12-lead electrocardiograph machine.
2. Explain the Einthoven triangle related to the cardiac system.
3. Identify the anatomic position of each of the chest leads.
4. Prepare a patient for a 12-Lead EKG.
5. Maintain the EKG machine.
6. Maintain EKG tracings in the patient's chart.

***Analyze EKG Tracing***

**Course Description**

In this course, the technician interprets and evaluates electrocardiogram tracings.

**Course Length**

15 Hours

**Knowledge and Skills**

1. Interpret an EKG.
2. Describe the activity during the P-QRS-T complex.
3. Identify time intervals with the PR and QRS durations.
4. Identify the time intervals represented by the blocks on standard EKG  
   paper.
5. Identify common patterns on an EKG recording.
6. Report significant dysrhythmia to RN/physician.
7. Identify artifact.
8. Perform measures to correct artifact.

***EKG Practicum***

**Course Description**

Students participate in clinical practicum for the EKG Technician. Clinicals may occur in a variety of settings that utilize EKG monitors.

**Course Length**

90 Hours

**Knowledge and Skills**

1.  Notify physician/RN of any significant dysrhythmia.  
2.  Identify artifact and correct causes  
3.  Prepare patient for 12-lead EKG:

* identify self and patient
* skin preparation
* lead placement
* documentation of procedure

4.  Maintain and care for EKG machine and tracings:

* speed of paper
* standard paper
* V1, V2, V3, V4, V5, and V6

5.  Maintain a courteous and responsive attitude.  
6.  Identify and describe legal and ethical issues.  
7.  Use effective communication techniques.  
8.  Participate as a team member.  
9.  Maintain professionalism.  
10.  Demonstrate critical thinking skills.  
11.  Identify and apply medical terminology, symbols, and abbreviations.  
12.  Perform basic keyboarding skills and computer skills.  
13.  Utilize behavioral management techniques and apply management techniques.

**Instructional Procedures**

This course consists of a self-paced curriculum using the listed curriculum resources as a guide moving sequentially through the texts. Complete and turn in chapter questions and take tests on ExamView for EKG chapters 1 through. Upon completion of the text student is required to practice lab skills until clinical skills are at competency level prior to progressing to the next section. The instructor will periodically counsel with the student concerning progression through the course.

**Curriculum Resources**

Ellis, K.M. **EKG Plain and Simple 2nd ed.** (2007) Prentice Hall Health ISBN 0131708147

Kinn’s, **The Medical Assistant 11th ed.** (2011) Elsevier ISBN 9781416054399 (Meets National Standards for preparation of certification exams)

**EKG Skills Standards**

1. Describe The Cardiovascular System--The student will be able to:
   1. Locate the heart and surrounding structures.
   2. Diagram and label the parts of the heart and list the functions of each labeled part.
   3. Trace the flow of blood through the cardiopulmonary system.
   4. Identify and describe the electrical conduction system.
2. Identify Legal And Ethical Responsibilities Of An EKG Aide--The student will be able to:
   1. Recognize and practice legal and ethical responsibilities as they relate to an EKG aide.
   2. Maintain a safe and efficient work environment.
   3. Maintain EKG equipment so it will be safe and accurate.
   4. Implement appropriate JCAHO patient safety goals.
3. Demonstrate Knowledge Of, Apply And Use Medical Instrumentation Modalities--The student will be able to:
   1. Calibrate and standardize the cardiograph instrument.
   2. Identify three types of lead systems.
   3. State Einthoven's triangle.
   4. Demonstrate proper lead placement including lead placement for patients with special needs.
   5. Identify artifacts and mechanical problems.
   6. Perform a 12 lead EKG.
   7. Recognize normal sinus rhythm.
   8. Report any rhythm that is not normal sinus rhythm.
   9. Recognize a cardiac emergency as seen on the EKG.
   10. Use documentation skills to identify electrocardiographs.
4. Perform Patient Care Techniques In The Health Care Facility--The student will be able to:
   1. Describe the physical and mental preparation of the patient for EKG testing.
   2. Identify patient and verify the requisition order.
   3. Prepare patient for EKG testing.
   4. Measure and record patient's vital signs and recognize and report abnormalities.
   5. State precautions required when performing an EKG.
5. Recognize Normal And Abnormal Monitoring And Testing Results--The student will be able to:
   1. Measure waves, segments, complexes, rates and intervals.
   2. Identify electrical axis.
   3. List purposes for pacemakers and indications for insertion.
   4. Recognize normal and deviations from normal sinus rhythms.
   5. Recognize normal and deviations from normal atrial rhythms.
   6. Recognize normal and deviations from normal atrio-venticular rhythms.
   7. Recognize normal and deviations from normal ventricular rhythms.
   8. Recognize normal and deviations from normal types of heart blocks.
   9. Recognize normal and deviations from normal pacemaker rhythms.
   10. Recognize normal and deviations from normal types of myocardial ischemia and infarction.
   11. Recognize normal and deviations from normal atrial and ventricular hypertrophies.
   12. Recognize normal and deviations from normal extrasystole and other rare phenomena.
   13. Recognize normal and deviations from normal 12 lead EKG results.
   14. Recognize and describe AV block.
6. Describe Cardiovascular Drugs, Their Actions, Use And Adverse Effects--The student will be able to:
   1. Describe mechanisms by which cardiovascular drugs work.
   2. List common cardiovascular drugs.
   3. Identify and respond to cardiac emergency.
   4. State actions and adverse effects of commonly used cardiovascular drugs.
   5. Differentiate between normal and abnormal EKG changes due to drugs.
7. Demonstrate Knowledge Of Other Cardiovascular Diagnostic Modalities--The student will be able to:
   1. Describe the Holter monitoring and scanning exercise treatment.
   2. Describe other modalities of cardiovascular diagnosis and interpretation.

**EVALUATION OF STUDENT ACHIEVMENTS**

For the purpose of evaluations, points will be earned in the following areas; weighted by

percentages shown:

A. Attendance/Work Ethic 25% of overall grade

B. Written assignments 15%

C. Quizzes 20%

D. Projects/presentations 15%

E. Tests 25%

**Students will be required to maintain 90% class attendance for the preceding 9 week session to be eligible for clinical assignment. In addition, 90% clinical attendance must be maintained for a passing clinical evaluation.**

Clinical skills must be completed at competency level prior to progressing to the next section.

Clinical evaluations will be entered as a test grade for each occupational area.

Final grades will be assigned on the following scale:

90-100%=A Incomplete=I

80-89%=B No Grade=NG

70-79%=C Withdraw Passing=W/P

60-69%=D Withdraw Failing=W/F

Students will be kept informed of their grades and notified when examinations are scheduled. Quizzes will be unannounced. Students are encouraged to make an appointment with the instructor (before or after class, during break times and/or during lunch break) if he/she does not understand or disagrees with the grade earned. The rationale for scheduling an appointment is so the student and instructor may have a one-on-one discussion without unnecessary interruptions. The instructor will critique tests and student assignments in a classroom setting.