Florida Department of Education
Curriculum Framework

Program Title: **Electrocardiograph Technology (Postsecondary)**
Program Type: **Career Preparatory**
Career Cluster: **Health Science**

PSAV	
Program Number	H170208
CIP Number	0351090203
Grade Level	30, 31
Standard Length	465 hours
Teacher Certification	Refer to the **Program Structure** section.
CTSO	HOSA: Future Health Professionals
SOC Codes (all applicable)	31-9099 Healthcare Support Workers, All Other 29-2031 Cardiovascular Technologists and Technicians
CTE Program Resources	http://www.fldoe.org/academics/career-adult-edu/career-tech-edu/program-resources.stml
Basic Skills Level	Mathematics:9 Language:9 Reading: 9

Purpose

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Health Science career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of Health Science career cluster.

The program is designed to prepare students for employment as electrocardiograph aides, electrocardiograph technicians, EKG Technicians SOC 29-2031 cardiovascular technologists and technicians or to provide supplemental training for persons previously or currently employed in this occupation.

The content includes but is not limited to communication and interpersonal skills, overview of human anatomy and physiology with emphasis on cardiac and vascular systems, medical terminology and transcription, patient care techniques, medical instrumentation, cardiovascular drugs, interpretation of monitoring and testing results, medical ethics, cardiac wellness and rehabilitation, safe and efficient work practices, CPR, Basic Life Support (BLS) and employability skills.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of 3 occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

A	HSC0003	Basic Healthcare Worker	LAB TECH @7 7G	90 hours	31-9099
B	MEA0540	EKG Aide	EKG 7 G	75 hours	31-9099
C	MEA0541	EKG Technician	REG NURSE 7 G RESP THER @7 7G PARAMEDIC @7 7G PRAC NURSE @7 %7%G *(Must be a Registered Nurse) LAB ASST @7 7G	300 hours	29-2031

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.

2. Apply appropriate academic and technical skills.

3. Attend to personal health and financial well-being.

4. Communicate clearly, effectively and with reason.

5. Consider the environmental, social and economic impacts of decisions.

6. Demonstrate creativity and innovation.

7. Employ valid and reliable research strategies.

8. Utilize critical thinking to make sense of problems and persevere in solving them.

9. Model integrity, ethical leadership and effective management.

10. Plan education and career path aligned to personal goals.

11. Use technology to enhance productivity.

12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

01.0 Demonstrate knowledge of the healthcare delivery system and health occupations.
02.0 Demonstrate the ability to communicate and use interpersonal skills effectively.
03.0 Demonstrate legal and ethical responsibilities.
04.0 Demonstrate an understanding of and apply wellness and disease concepts.
05.0 Recognize and practice safety and security procedures.
06.0 Recognize and respond to emergency situations.
07.0 Recognize and practice infection control procedures.
08.0 Demonstrate an understanding of information technology applications in healthcare.
09.0 Demonstrate employability skills.
10.0 Demonstrate knowledge of blood borne diseases, including HIV/AIDS.
11.0 Apply basic math and science skills.
12.0 Describe the cardiovascular system.
13.0 Identify legal and ethical responsibilities of an EKG aide.
14.0 Demonstrate knowledge of, apply and use medical instrumentation modalities.
15.0 Perform patient care techniques in the health care facility.
16.0 Recognize normal and abnormal monitoring and testing results.
17.0 Describe cardiovascular drugs, their actions, use, and adverse effects.
18.0 Demonstrate knowledge of other cardiovascular diagnostic modalities.
19.0

2017 – 2018

Florida Department of Education
Student Performance Standards

Program Title: **Electrocardiograph Technology**
PSAV Number: **H170208**

The **Basic Health Care Worker (HSC0003)** is referred to as the **Health Science Core** and is the first OCP in the majority of the PSAV health science programs. Secondary and Postsecondary students completing the health science core will not have to repeat the core in any other health science program in which it is a part. When the recommended sequence is followed, the structure allows students to complete at specified points for employment or remain for advanced training or cross-training.

To ensure consistency whenever these courses are offered, the health science core standards (1-11) have been placed in a separate document. You can access the course standards and benchmarks by visiting this link: http://www.fldoe.org/core/fileparse.php/5652/urlt/health_sci_core_psav_cc_1718.rtf

12.0	Describe the cardiovascular system.--The student will be able to:
12.01	Locate the heart and surrounding structures.
12.02	Diagram and label the parts of the heart and list the functions of each labeled part.
12.03	Trace the flow of blood through the cardiopulmonary system.
12.04	Identify and describe the electrical conduction system.
12.05	Describe the function of the autonomic nervous system.
12.06	Describe a patient demonstrating poor perfusion and understand the importance of rapid reporting.
13.0	Identify legal and ethical responsibilities of an EKG aide.--The student will be able to:
13.01	Recognize and practice legal and ethical responsibilities as they relate to an EKG aide.
13.02	Maintain a safe and efficient work environment.
13.03	Maintain EKG equipment so it will be safe and accurate.
13.04	Implement appropriate Joint Commission patient safety goals and other applicable accrediting/regulatory agency guidelines.
14.0	Demonstrate knowledge of, apply and use medical instrumentation modalities.--The student will be able to:
14.01	Calibrate and standardize the cardiograph instrument.
14.02	Identify three types of lead systems.
14.03	State Einthoven's triangle.

14.04	Demonstrate proper lead placement including lead placement for patients with special needs to include pediatric, posterior and right sided EKGs.
14.05	Identify artifacts and mechanical problems.
14.06	Perform a 12 lead EKG.
14.07	Recognize normal sinus rhythm.
14.08	Report any rhythm that is not normal sinus rhythm.
14.09	Recognize and respond cardiac emergency as seen on the EKG and understand the importance of rapid reporting.
14.10	Use documentation skills to identify electrocardiographs.
15.0	Perform patient care techniques in the health care facility.--The student will be able to:
15.01	Describe the physical and mental preparation of the patient for EKG testing.
15.02	Identify patient and verify the requisition order.
15.03	Prepare patient for cardiovascular diagnostic testing.
15.04	Take patient's vitals in preparation for cardiovascular diagnostic testing and report abnormalities.
15.05	State precautions required when performing cardiovascular diagnostic procedures.
15.06	Convey the importance of maintaining a safe patient environment and evaluate potential hazards in each environment.
16.0	Recognize normal and abnormal monitoring and testing results.--The student will be able to:
16.01	Measure waves, segments, complexes, rates and intervals.
16.02	Identify electrical axis.
16.03	List purposes for pacemakers and indications for insertion.
16.04	Recognize normal and deviations from normal sinus rhythms.
16.05	Recognize all atrial rhythms.
16.06	Recognize all atrioventricular rhythms.
16.07	Recognize all ventricular rhythms.
16.08	Recognize all types of heart blocks.
16.09	Recognize normal and deviations from normal pacemaker rhythms.
16.10	Recognize indications of myocardial ischemia and infarction.
16.11	Recognize allatrial and ventricular hypertrophies.
16.12	Recognize allextrasystole and other rare phenomena.
16.13	Recognize normal and deviations from normal 12 lead EKG results.
16.14	Describe potential patient responses to brady- or tachy-dysrhythmias as well as other EKG abnormalities.
16.15	Recognize and respond promptly to cardiac emergency through rapid reporting while monitoring rhythms.
17.0	Describe cardiovascular drugs, their actions, use and adverse effects.--The student will be able to:
17.01	Describe mechanisms by which common cardiovascular drugs work including actions and adverse effects..
17.02	Differentiate between normal and abnormal EKG changes due to drugs.
18.0	Demonstrate knowledge of other cardiovascular diagnostic modalities.--The student will be able to:

18.01	Demonstrate knowledge of the application of a Holter Monitor and provide patient education of its use.
18.02	Demonstrate the procedures for preparing the patient for stress testing/scanning exercise treatment.
18.03	Understand and demonstrate patient documentation for all types of monitoring.
18.04	Describe other modalities of cardiovascular diagnosis and interpretation.
18.05	Maintain patient cardiac alarm policy at all times.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

This cluster of programs focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the health care industry; planning, management, finance, technical and production skills, underlying principles of technology, labor issues, community issues and health, safety, and environmental issues.

Students must complete the core, or demonstrate the mastery of skills standards contained in the core, before advancing in the program.

This program meets the Department of Health HIV/AIDS Domestic Violence and Prevention of Medical Errors education requirements. Upon completion of this program, the instructor will provide a certificate to the student verifying that these requirements have been met.

If students in this program are seeking a licensure, certificate or registration through the Department of Health, please refer to 456.0635 F.S. for more information on disqualification for a license, certificate, or registration through the Department of Health.

A voluntary national certification is available through an exam offered by the National Health Career Association, 194 Rt. 46 East, Fairfield, NJ 07004 (973/244-0023) To be eligible students must;

1. Have a High School Diploma or equivalency and have completed an NHA approved training program.

OR

2. Have a High School Diploma or equivalency and have worked in the field for a minimum of one year.

Outcomes 01-11 are referred to as the Health Career Core and do not have to be completed if the student has previously completed the Core in another health occupations program at any level. Following the successful completion of the core, the student is eligible to take the National Health Care Foundation Skill Standards Assessment with instructor approval and the completion of a portfolio. The Core should be taken first or concurrently with the first course in the program.

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student. Access MyCareerShines by visiting: www.mycareershines.org.

Career and Technical Student Organization (CTSO)

HOSA: Future Health Professionals is the intercurricular career and technical student organization providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills

In PSAV programs offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Additional Resources

For additional information regarding articulation agreements, Bright Futures Scholarships, Fine Arts/Practical Arts Credit and Equivalent Mathematics and Equally Rigorous Science Courses please refer to:
http://www.fldoe.org/academics/career-adult-edu/career-tech-edu/program-resources.stml