

BIOMEDICAL EQUIPMENT REPAIR TECHNOLOGY

MASTER PLAN OF INSTRUCTION

2022 - 2023

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MISSION

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Lack of English language skills will not be a barrier to admission and participation. The District may assess each student's ability to benefit from specific programs through placement tests and counseling, and, if necessary, will provide services or referrals to better prepare students for successful participation.



Fort Myers Technical College
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Fort Myers, FL 33916
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Biomedical Equipment Repair Technology

INTRODUCTION

The purpose of this program is to provide students the opportunity for employment in a variety of electronic/mechanical related occupations. After completing the 1140-hour program, students are prepared to assemble, install, maintain, troubleshoot and repair biomedical equipment in the industry. Materials used are self-paced which allow students to progress at their own pace. Competencies in each area are completed after both written and performance testing.

PROGRAM MISSION

The mission of the Biomedical Equipment Repair Technology program is to prepare students for employment as a biomedical electronics technician in the local community. With a broad knowledge base, many areas of employment are possible. Students are encouraged to obtain Industry Certification as an Electronics Technician through the Electronics Technicians Association, International (ETA).

PROGRAM PHILOSOPHY

This program is a combination of classroom instruction using the most up-to-date textbooks, computers, software, and equipment available. The student is eligible to test for certification as an Electronics Technician through the Electronics Technicians Association, International (ETA). After completing the Biomedical Equipment Repair Technology program, the student is prepared to enter the workforce as a Biomedical Imaging Equipment Technician (BIET).

PROGRAM CONTENT

- Demonstrate proficiency in Soldering and Basic Laboratory Practices
- Demonstrate proficiency in Basic Direct Current (DC) Circuits
- Demonstrate Employability Skills
- Demonstrate an understanding of Entrepreneurship
- Demonstrate proficiency in Knowledge of Basic Computer Usage
- Demonstrate proficiency in Advanced Direct Current (DC) Circuits
- Demonstrate proficiency in Alternating Current (AC) Circuits
- Demonstrate proficiency in Analog Circuits
- Demonstrate proficiency in Solid State Devices
- Demonstrate proficiency in Digital Circuits
- Demonstrate proficiency in Fundamental Micro-Processors
- Demonstrate appropriate understanding of Basic Math Skills
- Demonstrate an understanding of Basic Science Skills
- Demonstrate Skills in Technical Recording
- Demonstrate appropriate Communication Skills
- Demonstrate Proficiency with Transistor Pulse Amplifiers
- Demonstrate proficiency with Trigger Device Circuits
- Demonstrate proficiency with Operational Amplifiers
- Demonstrate proficiency in knowledge of Electromagnetics
- Demonstrate proficiency with Fiber Optic Applications
- Demonstrate proficiency in DC Motors Systems
- Demonstrate proficiency with Motor Control Systems

- Demonstrate an understanding of Safety Concepts and Best Practices
- Demonstrate appropriate understanding of The Human Machine
- Demonstrate an understanding of Monitoring Systems
- Demonstrate proficiency with Medical Support Equipment
- Demonstrate proficiency with Medical Monitoring Equipment
- Demonstrate proficiency with Motors
- Demonstrate proficiency with Power Systems
- Demonstrate proficiency with Laboratory Equipment
- Demonstrate proficiency with Sterilization Equipment
- Demonstrate an understanding of Biomedical Imaging Systems
- Demonstrate proficiency with Radiographic Imaging Systems
- Demonstrate proficiency with Magnetic Resonance Imaging Systems
- Demonstrate proficiency with Impedance Tomography Systems
- Demonstrate proficiency with Life Support Systems
- Demonstrate proficiency with Respiratory Systems
- Demonstrate proficiency with Cardio Systems
- Demonstrate proficiency with Renal systems
- Demonstrate proficiency with Incubators
- Demonstrate proficiency with Biomedical Optic Systems
- Demonstrate proficiency with Surgical Support Tools
- Demonstrate proficiency using Biomedical Information Systems
- Graphically illustrate an understanding of Anatomy
- Reinforce knowledge of Medical Terminology
- Demonstrate proficiency in Computer Communication
- Demonstrate understanding and knowledge of Electro/Mechanical Safety
- Demonstrate understanding in Building Wiring
- Demonstrate proficiency in Basic Radiographic Equipment
- Demonstrate proficiency in Film Processing
- Demonstrate proficiency in Test Equipment
- Demonstrate an understanding of Magnetic Resonance Imaging
- Demonstrate understanding and knowledge of Computed Tomography
- Demonstrate an understanding of Nuclear Medicine
- Demonstrate an understanding of Codes and Regulations Applications
- Demonstrate proficiency in Troubleshooting
- Demonstrate proper application of Radiation Safety
- Demonstrate an understanding and knowledge of Radiation Physics
- Demonstrate proficiency in Linear Accelerators

ESSENTIAL TRAINING TASKS

Physical Requirements

Student must have the following: good hand-eye coordination, able to grasp small objects, good manual dexterity, able to see colors, assemble objects and parts, and move freely to observe and evaluate projects.

Cognitive Requirements

Students must be able to follow written and oral instructions; interpret electrical schematics and mechanical drawings; have excellent communication and troubleshooting skills; be able to interpret test results to determine circuit faults; be a team player; and work well with others.

ACCOMMODATIONS

Federal and state legislation requires the provision of accommodations for students with disabilities as identified on the secondary student's IEP or 504 plan or post-secondary student's accommodations plan to meet individual needs to ensure

equal access. Post-secondary students with disabilities must self-identify, present documentation, required accommodations if needed, and develop a plan with their post-secondary service provider. Accommodations received in post-secondary 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 services provided are maintained in a confidential file.

TUITION

Tuition is charged for adult students at a reasonable rate that may vary slightly from year to year and is due prior to the first day of each semester. Current fee information is available from Student Services. Tuition is waived for eligible high school dual-enrolled students. Failure to pay all fees due at the time class begins will result in the student not being able to attend class and/or clinical.

CLASS SCHEDULE

Daytime certificated classes meet Monday through Friday from 8:00 A.M. until 2:30 P.M. This amounts to 30 hours of classroom instruction per week. Lunch breaks are 30 minutes in length.

ATTENDANCE POLICY

In an effort to develop appropriate employability skills, FMTC students are expected to attend all class sessions. As is expected in the workplace, when it is necessary to be absent due to illness or emergency situations, all students are to notify the instructor on or before the date of the absence. The student attendance policy for each post-secondary program is consistent with industry standards.

Campus attendance is kept via a computerized system. It is the responsibility of the student to **log in and out** in order to receive credit for class time. This allows the school to keep accurate attendance records for the actual number of hours and minutes attended.

All adult students are expected to be in attendance at least 90% of their scheduled hours during each semester. Adult students failing to maintain the 90% attendance standard may not be permitted to continue in their program and may be required to sit out one full semester unless administration approves to waive the 90% standard based on special circumstances.

Absences

A student who is absent for 6 consecutive class sessions, without prior approval and without contacting the instructor, will be withdrawn from enrollment in his/her program. Students exhibiting a pattern of 4 consecutive absences may be subject to dismissal as determined by a School Intervention Team. School Intervention Team meetings will be held as necessary to attempt to alleviate issues resulting in excessive absences and to counsel the student of possible alternatives and consequences.

Students who are late for class, including returning late from lunch, must clock in. Students who leave school early must notify their instructor and clock out. This time out of class is recorded as time absent and is counted against the required 90% attendance. Excessive tardies or early departures will be reported to the Student Affairs Specialist and will result in a meeting with the School Intervention Team.

Adult students who know they will be out of school for an extended period of time (4 days or longer) may apply for a Leave of Absence from their program. A Leave of Absence will be granted only once during a twelve-month period. **STUDENTS WHO EXERCISE A LEAVE OF ABSENCE MAY HAVE TO EXTEND THEIR TIME IN THEIR PROGRAM AND PAY ADDITIONAL FEES.**

Leaving Campus During School Hours

Students must notify their instructor when leaving campus early. This is for the safety of students, to accurately track time, and to allow the instructor to best utilize instructional resources.

PLAN OF INSTRUCTIONAL PRACTICES

Teaching Methods

Lecture, demonstration, discussion, group interaction, verbal and written quizzes, skill practice, individualized instruction, computerized tutorials, interactive learning, web-based learning, and online courses are among the teaching methods utilized.

Textbooks, workbooks, projects, journals, reports, simulations, hands-on computer experience, collaborative learning, guest speakers, board examples, field trips, customer service projects, program job shadowing, cooperative on-the-job training, computerized tutorials, computerized assessment, interactive learning, web-based learning, and online courses are used for instruction.

Among the provisions made to allow for individual differences are pre-testing to determine entry level, workbooks and study guides for progress at individual rate, progress grading, individualized instruction, individual project assignments, and referral for basic skills remediation. Curriculum may be adapted to meet the individual needs and individual goals of students.

Safety

A basic outline of safety standards and practices is covered the first week of class along with a continuous implementation of safety principles.

Evaluation

Class performance, quizzes, tests, attendance, portfolio assessments, completion of project assignments, decision-making, work habits, achievement of entry-level competencies, and other methods are used for evaluation.

Work-Based Activities

Work-based learning activities play an integral part of the curriculum of FMTC's career-technical training programs. These activities are planned with two objectives in mind. First, the activity provides students with the opportunity to develop and apply 'real world' experience using the knowledge and skills attained in the program. Second, the activity provides the instructor with objective input from potential employers or customers of program graduates. Each work-based activity has a written instructional plan outlining objectives, experiences, competencies, and evaluation required during the activity.

Work-based activities are program specific and may include:

- Unpaid in-school shop activities to provide customer service opportunities under the direct supervision of the program instructor.
- Unpaid job shadowing experiences that may include in-school or off-campus employer-based experiences under the supervision of a qualified employer representative who is working closely with the program instructor.
- Paid or unpaid cooperative training experiences conducted at the employer's work location under the supervision of a qualified employer representative and under the direction of the program instructor.

Cooperative Education

Cooperative training is available for students and coordinated by the instructor and career specialist. Cooperative training is for students who have shown competence in program training that indicates readiness for placement in an on-the-job program. High school students participating in the cooperative job placement program must be in the 12th grade. To be eligible for a cooperative education experience, students must have completed at least one-half of the required program hours and requirements.

Student may be returned to the program for additional training if they do not function satisfactorily on the job or when the cooperative agreement is terminated at the request of the student, parent, employer, or program instructor. Veterans will be accepted into the program in accordance with the Department of Veterans Affairs approved program.

Additional information regarding cooperative training opportunities may be obtained from the program instructor or career specialist.

Job Shadowing

Job shadowing experiences, or volunteer experiences, are available to students as part of their program training. These experiences are designed to give the student actual hands-on experience doing a variety of related tasks. Length and type of experiences will vary. The program instructor determines appropriateness of the experience. Additional information regarding job-shadowing experiences may be obtained from the program instructor or career specialist.

GRADING PROCEDURES

Student evaluations are based on a once-a-month Student Progress. This allows the student to know exactly where they are at any given point in time. The grading policy for the Biomedical Equipment Repair Technology program at Fort Myers Technical College is as follows:

Assessments	60% of total weekly grade
Employability Skills	15% of total weekly grade
Investigations	25% of total weekly grade

Each category is given a weekly grade and put into the Focus grade book. The grades are recorded in Focus and included as part of the student's permanent record.

Fort Myers Technical College is a post-secondary institute designed to provide trained individuals to industry. The approved post-secondary program grading requirements must be met if the student is to receive a certificate.

Program Progress

Students are required to complete the program of training within the hours allotted by the state of Florida for completion. Progress must be at a rate that will allow completion of the program with the number of membership hours stated in the Curriculum Frameworks.

Failure to progress at this rate will require the student to meet with the program instructor, career specialist, and an administrator in order to identify an appropriate completion point or to assist the student in selecting a more appropriate training program.

Work Habits

Effective work habits are the cornerstone to successful employment. Students are expected to demonstrate productive work habits during all phases of enrollment. Instructors will work with students who need assistance in this area to improve all overall possibility for successful employment.

Attendance: Attends class, arrives/leaves on time; begins and ends work as expected.

Character: Displays loyalty, honesty, trustworthiness, dependability, reliability, initiative, self-discipline, and self-responsibility; displays a high level of effort and commitment to performing and completing work.

Teamwork: Respects the right of others; respects confidentiality; is cooperative; is assertive; displays a customer service attitude; seeks opportunities for continuous learning; demonstrates mannerly behavior; encourages and facilitates cooperation, pride, trust, and group identity; fosters commitment and team spirit.

Appearance: Displays appropriate dress, grooming, hygiene, and etiquette; wears full regulation uniform.

Attitude: Displays a willingness to cooperate and accept constructive criticism; sets realistic expectations; approaches assignments with interest.

Productivity: Is prepared for class by reading assignments and completing homework; contributes to class discussions; and involvement in lab activities (in other words, no sleeping or daydreaming). Follows safety practices; conserves and maintains equipment and supplies; keeps work area neat and clean; follows directions and procedures; makes up assignments and tests punctually; notifies proper authorities of situations presenting potential safety hazards; does not use or knowingly permit others to use tools and equipment improperly; stays on task and utilizes time constructively.

Organization: Manifests skill in prioritizing and managing time and stress; demonstrates flexibility in adapting to changes.

Communication: Communicates accurate information to others in a professional and courteous manner; displays appropriate nonverbal (eye contact, body language) and oral (listening, telephone etiquette, grammar) skills; asks pertinent questions; listens attentively to others, notifies instructor in advance of absences or tardies.

SATISFACTORY ACADEMIC PROGRESS

In order to receive and continue to receive financial assistance of any type, a student must maintain satisfactory academic progress. The Financial Aid Advisor will require a progress report to be completed by the student's instructor and submitted to the Financial Aid Office prior to each disbursement.

Students are considered to be making Satisfactory Academic Progress (SAP) if they successfully complete their scheduled clock hours, achieve a specific cumulative grade evaluation or grade point average (GPA), and do not exceed the maximum time limits to complete their course of study. Each SAP will be checked at 450 clock hours and prior to subsequent disbursements for students enrolled in programs one academic year or greater. Progress will be checked at the half-way point for programs less than one academic year. No SAP is required prior to the first disbursement.

REQUIREMENTS FOR CERTIFICATE

All competencies specified in the Florida Department of Education Curriculum Frameworks for the program must be successfully completed. Successful completion is at least a 75% average in the areas of skills, knowledge, and work habits.

Proficiency in the competency standards listed in the Master Plan of Instruction must be demonstrated.

Students must meet minimum Basic Skills Assessment requirements (or qualify for an exemption) prior to graduation.

In addition to the requirements above, the recommendation of the instructor for certification includes: consideration of employability skills, personal appearance, a willingness to learn and to work, punctuality, cooperative attitude, and appropriate work habits.

Students who exit the program early and have successfully completed each course or the competencies of an Occupational Completion Point (OCP), will be issued a partial certificate. This certificate does not require a student to master the state-mandated basic skills level.

STUDENT DRESS CODE

Students who attend FMTC shall dress in a manner appropriate for the job in which they are receiving training, including any special protective gear and professional uniforms. All clothing must be neither distracting nor offensive and be clean, neat, modest, in good repair, and appropriately sized.

Administration has the final authority for determining whether or not a student's apparel conforms to the dress code. When it is determined that it does not, students will be required to change into appropriate clothing.

Dress Code/Uniforms Required: FMTC uniform polo shirt, slacks (no sweatpants), appropriate length skirts, appropriate shoes (no rubber flip flops, athletic shoes, or shower shoes). No spandex or tight-fitting clothing. Hats are not allowed. All students read, agree to, and abide by the rules and sign the dress code policy.

OCP DESCRIPTIONS

Occupational Completion Point A – Basic Electronics Troubleshooter

Course #AVS0095

- 01.0 Demonstrate proficiency in Soldering and Basic Laboratory Practices
- 02.0 Demonstrate proficiency in Basic Direct Current (DC) Circuits
- 03.0 Demonstrate Employability Skills
- 04.0 Demonstrate an understanding of Entrepreneurship
- 05.0 Demonstrate proficiency in knowledge of Basic Computer Usage
- 06.0 Demonstrate proficiency in advanced DC Circuits
- 07.0 Demonstrate proficiency in AC Circuits

Occupational Completion Point B – Electronics Equipment Repairer

Course #EER006

- 08.0 Demonstrate proficiency in Analog Circuits
- 09.0 Demonstrate proficiency in Solid State Devices

- 10.0 Demonstrate proficiency in Digital Circuits
- 11.0 Demonstrate proficiency in Fundamental Micro-Processors
- 12.0 Demonstrate appropriate understanding of Basic Math Skills
- 13.0 Demonstrate an understanding of Basic Science Skills
- 14.0 Demonstrate skills in Technical Recording
- 15.0 Demonstrate appropriate Communication Skills

Occupational Completion Point C – (1 of 2) Biomedical Electronics Troubleshooter 1

Course #EER0090

- 16.0 Demonstrate proficiency with Transistor Pulse Amplifiers
- 17.0 Demonstrate proficiency with Trigger Device Circuits
- 18.0 Demonstrate proficiency with Operational Amplifiers
- 19.0 Demonstrate proficiency in knowledge of Electromagnetics
- 20.0 Demonstrate proficiency with Fiber optic Applications
- 21.0 Demonstrate proficiency in DC Motor Systems
- 22.0 Demonstrate proficiency with Motor Control Systems
- 23.0 Demonstrate an understanding of Safety Concepts and Best Practices
- 24.0 Demonstrate appropriate understanding of The Human Machine
- 25.0 Demonstrate an understanding of Monitoring Systems
- 26.0 Compile and compare data through the usage of Basic Monitoring Equipment
- 27.0 Demonstrate proficiency with Medical Support Equipment
- 28.0 Demonstrate proficiency with Motors
- 29.0 Demonstrate proficiency with Power Systems
- 30.0 Demonstrate proficiency with Laboratory Equipment
- 31.0 Demonstrate Proficiency with Sterilization Equipment

Occupational Completion Point C – (2 of 2) Biomedical Electronics Repair Technician

Course #EER0091

- 32.0 Demonstrate an understanding of Sound Imaging Systems
- 33.0 Demonstrate proficiency with Radiographic Imaging Systems
- 34.0 Demonstrate proficiency with Nuclear Imaging Systems
- 35.0 Demonstrate proficiency with Impedance Tomography Systems
- 36.0 Demonstrate proficiency with Life Support Systems
- 37.0 Demonstrate proficiency with Respiratory Systems
- 38.0 Demonstrate proficiency with Cardio Systems
- 39.0 Demonstrate proficiency with Renal Systems
- 40.0 Demonstrate proficiency with Incubators
- 41.0 Demonstrate proficiency with Biomedical Optic Systems
- 42.0 Demonstrate proficiency with Surgical Support Systems
- 43.0 Demonstrate proficiency using Biomedical Information Systems

Occupational Completion Point D – (1 of 2) Medical Imaging Equipment 1

Course #EER0092

- 44.0 Graphically illustrate an understanding of Anatomy
- 45.0 Reinforce knowledge of Medical Terminology
- 46.0 Demonstrate proficiency in Computer Communication
- 47.0 Demonstrate understanding and knowledge of Electro/Mechanical Safety
- 48.0 Demonstrate understanding of Picture Archive Communication Systems
- 49.0 Demonstrate understanding knowledge of Diagnostic Ultrasound Equipment
- 50.0 Demonstrate proficiency in Building Wiring
- 51.0 Demonstrate proficiency in Basic Radiographic Equipment
- 52.0 Demonstrate Proficiency in Film Processing

Occupational Completion Point D – (2 of 2) Biomedical Imaging Equipment Technician

Course #EER0093

- 53.0 Demonstrate proficiency in Test Equipment
- 54.0 Demonstrate an understanding of Magnetic Resonance Imaging
- 55.0 Demonstrate understanding and knowledge of Computed Tomography
- 56.0 Demonstrate an understanding of Nuclear Medicine
- 57.0 Demonstrate an understanding of Codes and Regulations Applications
- 58.0 Demonstrate proficiency in Troubleshooting
- 59.0 Demonstrate proper application of Radiation Safety
- 60.0 Demonstrate an understanding and knowledge of Radiation Physics
- 61.0 Demonstrate proficiency in Linear Accelerators

JOB DESCRIPTIONS

All students are strongly encouraged to become full program completers and become certified biomedical electronics technicians **by passing the Electronics Technicians Association International certification test.** In cases where students are unable to complete the entire program the following opportunities are available:

OCP A Basic Electronics Troubleshooter (150 Hours)

Students completing OCP A will be able to obtain employment as troubleshooters of AC and DC circuits for firms in the electronics industry.

OCP B Electronics Equipment Repairer (150 Hours)

Students working as electronic equipment repairers would be able to follow established test procedures ensuring that both incoming purchased parts and manufactured parts meet engineering specifications. They would be able to maintain quality control performance charts and write detailed reports for management's review.

OCP C (1 of 2) Biomedical Electronics Troubleshooter 1 (150 Hours)

A completer of Biomedical Electronics Troubleshooter 1 would be able to perform the tasks of an electronics troubleshooter or an electronics equipment repairer plus be able to troubleshoot and repair electronic/mechanical equipment. They would also be able to meet with customers and vendors to discuss repairs or necessary circuit revisions.

OCP C (2 of 2) Biomedical Repair Technician (150 Hours)

A completer of Biomedical Repair Technician would be able to perform the tasks of an electronics troubleshooter or an electronics equipment repairer plus be able to troubleshoot and repair electronic/mechanical and medical equipment. They would also be able to meet with customers and vendors to discuss repairs or necessary circuit revisions.

OCP D (1 of 2) Medical Imaging Equipment 1 (270 Hours)

A completer of Medical Imaging Equipment 1 would understand electronics, circuits, medical terminology, and advance imaging techniques. They would have excellent organizational skills, be able to train team members and possess leadership capabilities.

OCP D (2 of 2) Biomedical Imaging Equipment Technician (270 Hours)

A biomedical imaging equipment technician would understand advanced electronics, circuits: medical terminology, and advance imaging techniques. They would have excellent organizational skills, be able to train team members and possess leadership capabilities.

TEXTBOOKS

Required textbooks can be found on the disclosure fee sheet located on the program's page on the FMTC website:
<https://fortmyerstech.edu/course/biomedical-equipment-repair-technology/>

REQUIRED MATERIALS

Paper, pencils, pens, erasers

Florida Department of Education Curriculum Framework

Program Title: Biomedical Equipment Repair Technology
Program Type: Career Preparatory
Career Cluster: Manufacturing

Career Certificate Program – Career Preparatory		
Program Number	J400100	
CIP Number	0615040106	
Grade Level	30, 31	
Standard Length	1140 hours	
Teacher Certification	Refer to the Program Structure section	
CTSO	SkillsUSA	
SOC Codes (all applicable)	49-9062 – Medical Equipment Repairer 49-2094 – Electrical and Electronics Repairers, Commercial and Industrial 49-9071 – Maintenance and Repair Workers, General	
CTE Program Resources	http://www.fldoe.org/academics/career-adult-edu/career-tech-edu/program-resources.stml	
Basic Skills Level	Computation (Mathematics): 10	Communications (Reading Language Arts): 10

Purpose

The purpose of this program is to prepare students for employment as biomedical equipment repair technicians. 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 Manufacturing 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 the Manufacturing career cluster.

The course content includes, but is not limited to, hydraulics, pneumatics, optics and mechanics to troubleshoot, service and repair equipment commonly used for treatment, diagnosis and monitoring of patients in a medical environment.

The course content should also include training in communication, leadership, human relations and employability skills; and safe, efficient work practices.

This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the Equipment Repair industry; planning, management, finance, technical and product skills, underlying principles of technology, labor issues, community issues and health, safety, and environmental issues.

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 four 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 course(s) listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	AVS0095	Basic Electronics Troubleshooter	BIOMED EQ 7G ELECTRONIC @7 7G MED EQUIP TEC 7G	150 hours	49-2094
B	EER0006	Electronics Equipment Repairer		150 hours	49-9071
C	EER0090	Biomedical Electronics Troubleshooter 1		150 hours	49-9062
	EER0091	Biomedical Electronics Repair Technician		150 hours	49-9062
D	EER0092	Biomedical Imaging Equipment 1		270 hours	49-9062
	EER0093	Biomedical Imaging Equipment Technician		270 hours	49-9062

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 proficiency in soldering and basic laboratory practices.
- 02.0 Demonstrate proficiency in basic DC circuits.
- 03.0 Demonstrate employability skills.
- 04.0 Demonstrate an understanding of entrepreneurship.
- 05.0 Demonstrate proficiency in knowledge of basic computer usage.
- 06.0 Demonstrate proficiency in advanced DC circuits.
- 07.0 Demonstrate proficiency in AC circuits.
- 08.0 Demonstrate proficiency in analog circuits.
- 09.0 Demonstrate proficiency in solid state devices.
- 10.0 Demonstrate proficiency in digital circuits.
- 11.0 Demonstrate proficiency in fundamental micro-processors.
- 12.0 Demonstrate appropriate understanding of basic math skills.
- 13.0 Demonstrate an understanding of basic science skills.
- 14.0 Demonstrate skills in technical recording.

- 15.0 Demonstrate appropriate communication skills.
- 16.0 Demonstrate proficiency with Transistor Pulse Amplifiers.
- 17.0 Demonstrate proficiency with Trigger Device Circuits.
- 18.0 Demonstrate proficiency with Operational Amplifiers.
- 19.0 Demonstrate proficiency in knowledge of Electromagnetics.
- 20.0 Demonstrate proficiency with Fiber Optic Applications.
- 21.0 Demonstrate proficiency in DC Motor Systems.
- 22.0 Demonstrate proficiency with Motor Control Systems.
- 23.0 Demonstrate an understanding of safety concepts and best practices.
- 24.0 Demonstrate appropriate understanding of “The Human Machine”.
- 25.0 Demonstrate an understanding of Monitoring Systems.
- 26.0 Demonstrate proficiency with Basic Monitoring Equipment.
- 27.0 Demonstrate proficiency with Medical Support Equipment.
- 28.0 Demonstrate proficiency with Motors.
- 29.0 Demonstrate proficiency with Power Systems.
- 30.0 Demonstrate proficiency with Laboratory Equipment.
- 31.0 Demonstrate proficiency with Sterilization Equipment.
- 32.0 Demonstrate an understanding of Biomedical Imaging Systems.
- 33.0 Demonstrate proficiency with Radiographic Imaging Systems.
- 34.0 Demonstrate proficiency with Magnetic Resonance Imaging Systems.
- 35.0 Demonstrate proficiency with Impedance Tomography Systems.
- 36.0 Demonstrate proficiency with Life Support Systems.
- 37.0 Demonstrate proficiency with Respiratory Systems.
- 38.0 Demonstrate proficiency with Cardio Systems.
- 39.0 Demonstrate proficiency with Renal Systems.
- 40.0 Demonstrate proficiency with Incubators.
- 41.0 Demonstrate proficiency with Biomedical Optic Systems.
- 42.0 Demonstrate proficiency with Surgical Support Tools.
- 43.0 Demonstrate proficiency using Biomedical Information Systems.
- 44.0 Graphically illustrate an understanding of anatomy.
- 45.0 Reinforce knowledge of Medical Terminology.
- 46.0 Demonstrate proficiency in Computer Communication.
- 47.0 Demonstrate understanding and knowledge of Electro/Mechanical Safety.
- 48.0 Demonstrate understanding of Picture Archive Communication Systems.
- 49.0 Demonstrate understanding and knowledge of Diagnostic Ultrasound Equipment.
- 50.0 Demonstrate proficiency in Building Wiring.
- 51.0 Demonstrate proficiency in Basic Radiographic Equipment.
- 52.0 Demonstrate proficiency in Film Processing.
- 53.0 Demonstrate proficiency in Test Equipment.
- 54.0 Demonstrate an understanding of Magnetic Resonance Imaging.
- 55.0 Demonstrate understanding and knowledge of Computed Tomography.
- 56.0 Demonstrate an understanding of Nuclear Medicine.
- 57.0 Demonstrate an understanding of Codes and Regulations Applications.
- 58.0 Demonstrate proficiency in Troubleshooting.
- 59.0 Demonstrate proper application of Radiation Safety.
- 60.0 Demonstrate an understanding and knowledge of Radiation Physics.
- 61.0 Demonstrate proficiency in Linear Accelerators.