

# WELDING TECHNOLOGY

## MASTER PLAN OF INSTRUCTION

2023 – 2024

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### MISSION

The mission of Fort Myers Technical College is to provide high quality career and technical training, in order to prepare students for current and emerging industries, delivered by a professional and caring staff in a positive learning environment.

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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.



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The Welding Technology program includes classroom and practical experiences in the cutting or joining of metal parts through the application of intense heat, using gas welding or electric arc welding equipment. Selection of proper torch tips and filler rods, adjustment of gas pressure and flame according to size and characteristics of metal are covered. Flame cutting and use of equipment introducing a shield of inert gas (MIG –TIG) around the electric arc to prevent oxidation will be covered. Metal fabrication is included in the program and will contain instruction in metals gauging and the use of cut off shears, brake,drill press, and punch and rollers. Blueprint reading and steel layout will be covered. Emphasis is placed on safety and interpretation of blueprints and layouts.

### **PROGRAM MISSION**

The mission of the Welding Technology program is to prepare students for employment or advanced training in the welding industry.

### **PROGRAM PHILOSOPHY**

We believe that competent workers in the high-performance workplace need:

1. Skills in communication, mathematics, critical thinking, teamwork, and effective work habits
2. Training in emerging concepts and technologies
3. Relevant work-based learning experience

We will provide a caring atmosphere that promotes a high degree of student-faculty interaction and fosters development of business and industry partnerships.

### **PROGRAM CONTENT**

Topics include:

- Shop and personal safety
- Proper use of welding equipment and products
- Basic and advanced welding
- Weld positioning
- Flux-cored arc welding (FCAW or FCA)
- Gas metal arc welding (GMAW); gas tungsten arc welding (GTAW)
- Shielded metal arc welding (SMAW)
- Preparation for the American Welding Society (AWS) certification exam

### **ESSENTIAL TRAINING TASKS**

#### **Physical Requirements**

Student must have:

- Good hand to eye coordination
- Must be able to work in hot, dirty conditions
- Must be able to lift and carry 50 lbs.
- Must be able to communicate with others
- Must be able to move freely to observe and evaluate project requirements

#### **Cognitive Requirements**

- Measure accurately
- Understand basic instructions, written and oral

### **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 payment period. 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**

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 payment period. Adult students failing to maintain the 90% attendance standard may not be permitted to continue in their program and may be withdrawn.

#### **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 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.

Adult students who know they will be out of school for an extended period of time may apply for a Leave of Absence from their program. 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**

The Welding Technology program combines classroom study with hands-on welding in the shop area. It advances students at their own pace using study modules, films, and slide study materials. Program standards require competency levels to be completed with at least 75% accuracy. The Welding Technology program uses A.W.S. welding standards for work appraisal and welding performance standards.

#### **Safety**

Safety equipment and clothing requirements:

1. Eye protection, safety glasses with side shields – clear lens. If the student requires the use of personal prescription glasses, he or she will need a set of prescription safety glasses rated to 1 level of Z-87.1.
2. FMTC Welding Uniform Shirt (included in tuition and fees)

3. Blue jeans
4. Safety shoes, protective toe style (shoes must cover the ankle)
5. Green Welding jacket

**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 12<sup>th</sup> 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.

**GRADING POLICIES**

**Grading Categories:**

Assessments	25%
Career Application	50%
Employability Skills	25%

**Grading Scale:**

- A 90-100
- B 80-89
- C 70-79
- D 60-69
- F 0-59

Each program has an employability skills rubric based on employee expectations in the industry.

## **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 hours stated in the Curriculum Frameworks.

## **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 Administrator will require a progress report to be completed 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 average (CGA), and do not exceed the maximum time limits to complete their course of study. Each student's academic progress will be checked at 450 clock hours (300 hours for CHCA) 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**

Certification for FULL program completion is determined by (1) mastery of 85% of program competencies as determined by the instructor, (2) a final grade of 75% or better (80% Health Sciences) in each course, and (3) proof of state-mandated basic skills levels; (4) attendance of a minimum of 90% of scheduled program hours (95% of scheduled hours for some Health Science programs). Under unique circumstances, instructors in our competency-based programs have the discretion to graduate students who fall short of 90% as long as #1-3 above are met. Students meeting these requirements are awarded a full program certificate.

A record of the student's progress is kept up-to-date by the instructor and available to the student in the FOCUS Student Portal. High school grades are reported to the assigned high school.

## DRESS CODE

Each program at FMTC has a designated uniform.

**Uniform Required:** FMTC Uniform khaki shirt, blue jeans, leather belt (must be worn at all times), boots that cover the ankle (8-inch boots preferred – Examples: Bates, Danner, Redwing), and visible FMTC student ID badge.

## PROGRAM STRUCTURE

Below is a summary of the Welding Technology program structure. For more detailed information for each course, visit the FLDOE Curriculum Framework website: <https://www.fl DOE.org/academics/career-adult-edu/career-tech-edu/curriculum-frameworks/2023-24-frameworks/manufacturing.stml>.

### **OCP A Welder Assistant 1&2**

Students completing OCP A should be able to assist a welder in basic functions in the welding field, such as grinding, clean-up, and getting materials ready.

### **OCP B Welder, SMAW 1&2**

Students will have the ability to do basic welding and tacking under the guidance and supervision of a qualified person with the SMAW process.

### **OCP C Welder**

Students may operate and perform welding in all positions and different sized wire (electrode) and cover gases and maintain machinery in the GMAW process.

## TEXTBOOKS

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

## REQUIRED MATERIALS

Required Tools:

- Welding helmet (auto dark)
- Welding jacket
- Stick welding gloves
- MIG welding gloves
- TIG welding gloves
- Leather material handling gloves
- Welding cap or beanie
- Lock for toolbox