



TENNESSEE COLLEGE
OF APPLIED TECHNOLOGY
SHELBYVILLE

**Welding Technology
Dual Credit Agreement**

Program Description: This program is designed to provide technical instruction and skill development for the student to become gainfully employed in the welding field. The highly individualized instruction provides for both classroom instruction and practical work experience using hand tools and welding equipment. The major emphasis of the course is placed on electric arc, oxy-acetylene, tig and mig welding. Practical experience is gained by shop practice, projects and repair work using a variety of metals including steel, stainless steel and aluminum along with various other metals and alloys. For more information, visit <https://tcatshelbyville.edu/programs/welding>.

Instructor(s): Tim Holder - tim.holder@tcatshelbyville.edu

Total Time Commitment of Program: 1296 clock hours

Aligned Secondary Program of Study: Welding

Postsecondary Course(s) for which Dual Credit will be Awarded: Cutting Processes; Basic Shielded Metal Arc Welding

Assessment Range and Hours Awarded:

0-83 = 0 clock hours

84-100 = See below

Skill Assessment:

Assessment will include both hands-on and written evaluations.

Cutting Processes – Set-up: 10 clock hours

- Demonstrate how to properly set up cutting torch.
- Demonstrate how to safely light and adjust an Oxy/fuel cutting torch flame.
- Demonstrate how to safely shut down an Oxy/fuel cutting torch.
- Describe the use of Oxy/Fuel cutting processes, materials that can be effectively cut with Oxy/Fuel process.

Cutting Processes – Operation: 5 clock hours

- Demonstrate the following cuts on material.
- Demonstrate a straight line cut with cutting torch. (Freehand)
- Demonstrate a circle cut with cutting torch. (Freehand)
- Demonstrate a pierce hole thru min. of 3/8" or thicker material.

- Demonstrate a bevel cut on material.
- Demonstrate shave cut in vertical and horizontal positions. (Remove one piece of material from another without damage to opposite plate).

Basic Shielded Metal Arc Welding: 60 clock hours

- Student will be able to demonstrate knowledge of.....
- The ability to strike an arc at a specific point.
- Describe the terms work-angle and travel angles.
- Identify and select proper type, size, and class of SMAW electrode for given application.
- Identify proper weld bead profile as determined by bead width, height, and appearance including tie-ins.
- Demonstrate how to perform stringer beads on plate (including start/stops), to make pad weldments in 1G, 2G, and 3G positions.
- Demonstrate how to prepare a 30 degree beveled surface on plate steel with backing bar, and be able to properly set up and tack weld a AWS D1.1 test plate.
- Describe how to properly weld an AWS D.1.1 multiple pass code test.

Aligned Industry Certifications and Hours Awarded:

- N/A

Total Possible Dual Credit Hours Awarded from TCAT Shelbyville Assessment: 75 clock hours

Total Possible Dual Credit Hours Awarded from Industry Certifications: 0 clock hours

Disclaimer: The maximum possible award that a student can earn is 432 clock hours.