

# Manufacturing Career Cluster

The Manufacturing Career Cluster focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.

## Welding Statewide Program of Study



The Welding program of study focuses on the development and use of automatic and computer-controlled machines, tools, and robots that perform work on metal or plastic. CTE learners will learn how to modify parts to make or repair machine tools or maintain individual machines, and how to use hand-welding or flame-cutting equipment.

### Secondary Courses for High School Credit

#### Level 1

- Introduction to Welding+ (1)

#### Level 2

- Welding I+ (2)

#### Level 3

- Welding II\* (2)

#### Level 4

- Practicum in Welding\* (2)

\*Required Prerequisite +Recommended Prerequisite

**Specific course offerings and availability are subject to change due to interest and enrollment.**

### Industry-Based Certifications

- AWS D1.1 Structural Steel
- AWS D9.1 Sheet Metal Welding
- AWS SENSE Level 1: Entry Welder

#### Introduction to Welding+ (1)

Introduction to Welding will introduce welding technology with an emphasis on basic welding laboratory principles and operating procedures. Students will be introduced to the three basic welding processes. Topics include: industrial safety and health practices, hand tool and power machine use, measurement, laboratory operating procedures, welding power sources, welding career potentials, and introduction to welding codes and standards. Introduction to Welding will provide students with the knowledge, skills, and technologies required for employment in welding industries. This course supports integration of academic and technical knowledge and skills. Students will reinforce, apply, and transfer knowledge and skills to a variety of settings and problems. Knowledge about career opportunities, requirements, and expectations and the development of workplace skills will prepare students for future success.

#### Welding I+ (2)

Welding I provide the knowledge, skills, and technologies required for employment in metal technology systems. Students will develop knowledge and skills related to this system and apply them to personal career development. This course supports integration of academic and technical knowledge and skills. Students will reinforce, apply, and transfer knowledge and skills to a variety of settings and problems. Knowledge about career opportunities, requirements, and expectations and the development of workplace skills prepare students for future success.

#### Welding II\* (2)

Welding II builds on the knowledge and skills developed in Welding I. Students will develop advanced welding concepts and skills as related to personal and career development. Students will integrate academic and technical knowledge and skills. Students will have opportunities to reinforce, apply, and transfer knowledge and skills to a variety of settings and problems.

#### Practicum in Welding\* (2)

The Practicum in Welding course is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience. Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.



| Occupations  | Median Wage | Annual Openings | % Growth |
|--|-------------|-----------------|----------|
| Welders, Cutters, Solderers, and Brazers                             | \$41,350    | 6,171           | 9%       |
| Welding Soldering and Brazing Machine Setters, Operators and Tenders | \$40,040    | 280             | 9%       |

Successful completion of the Welding program of study will fulfill requirements of the Business and Industry endorsement. Revised – August 2022