



# 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 process engineering. This career cluster includes occupations ranging from Welder and Machinist to Industrial Engineering Technician, and Semi-Conductor Processing Technician.

## Statewide Program of Study: *Welding*

The Welding program of study focuses on occupational and educational opportunities associated with the development and use of automatic and computer-controlled machines, tools, and robots that perform work on metal or plastic. This program of study addresses 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

<b>Level 1</b>	<ul style="list-style-type: none"> <li>Introduction to Welding</li> </ul>
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Welding I</li> </ul>
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Welding II</li> </ul>
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Extended Career Prep for Programs of Study</li> </ul>

### Aligned Advanced Academic Courses

#### Dual Credit

Dual credit offerings will vary by Local Education Agency.

Students who earn credit for all college courses in this program of study will be eligible to graduate from Southwest Texas Junior College with a Level I Certificate in Welding Technology.

### Work-Based Learning and Expanded Learning Opportunities

<b>Work-Based Learning Activities</b>	<ul style="list-style-type: none"> <li>Job shadow a welder</li> <li>Intern for a local welding company</li> </ul>
<b>Expanded Learning Opportunities</b>	<ul style="list-style-type: none"> <li>Tour a welding shop</li> <li>Participate in SkillsUSA</li> <li>Participate in a welding project that benefits the community</li> </ul>

### Industry-Based Certifications

- AWS Certified Welder
- AWS D1.1 Structural Steel
- AWS D9.1 Sheet Metal Welding
- NCCER Core



### Postsecondary Opportunities

#### Apprenticeships

- Welding

#### Associate Degrees

- Welding Technology
- Building/Construction Site Management
- Operations Management and Supervision

#### Bachelor's Degrees

- Welding Technology
- Construction Management
- Project Management
- Building/Construction Site Management

#### Master's, Doctoral, and Professional Degrees

- Engineering
- Engineering/Industrial Management
- Manufacturing Engineering
- Construction Engineering



### Example Aligned Occupations

#### *Welders, Cutters, Solderers, and Brazers*

Median Wage: \$48,177  
Annual Openings: 6,792  
10-Year Growth: 23%

#### *First-Line Supervisors of Production and Operating Workers*

Median Wage: \$62,584  
Annual Openings: 5,926  
10-Year Growth: 17%

#### *Industrial Production Managers*

Median Wage: \$119,691  
Annual Openings: 1,296  
10-Year Growth: 19%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources>

# COURSE INFORMATION

COURSE NAME	COURSE NUMBER AND CREDITS	PREREQUISITES (PREQ) COREQUISITES (CREQ)	GRADE
Introduction to Welding	8710 (1 credit)	admission criteria in the student handbook	10
Welding I Dual Credit	8711-6 (2 credits)	Introduction to Welding & SWTX requirements	11
Welding II Dual Credit	8712-6 (2 credits)	Welding I Dual Credit & SWTX requirements	12
Extended Career Prep for Programs of Study Reg or DC	8607 (3 credits) or 8607DC & D2 (3 credits)	Welding I DC: pre-req & SWTX reqs.	12

## COURSE DESCRIPTIONS

### Introduction to Welding:

Introduction to Welding will provide an introduction to welding technology with an emphasis on basic welding laboratory principles and operating procedures. Students will be introduced to the three basic welding processes.

### Welding I Dual Credit:

College Credits: WLDG 1313, 1428, & 1430

Welding I provides 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.

### Welding II Dual Credit:

College Credits: WLDG 1317, 1353, 1435, & 1457

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.

### Extended Career Prep for Programs of Study Reg or DC:

College Credit: BMGT 1382

Students are given the opportunity to work in their program of study while earning high school credit and develop employment experiences, which must be related to the student's current program of study alongside advanced classroom instruction. The goal is to prepare students with a variety of skills to transition from job- to career-mindedness. This course provides a continuing focus on collaborative feedback between the employer, teacher, and student. Students are taught about finding their future careers, keeping, as well as leaving, a job, and how to expound on their employable talents.

Courses in yellow are Level 3 or 4 courses.

