



## Manufacturing

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.



### Program of Study: **Welding (Dual Credit)**

Limited Seating

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.

#### Courses

<b>9<sup>th</sup> Grade</b>	Introduction to Welding
<b>10<sup>th</sup> Grade</b>	Welding I
<b>11<sup>th</sup> Grade</b>	Welding II (San Jacinto College Course)
<b>12<sup>th</sup> Grade</b>	Practicum in Manufacturing @ San Jacinto College

#### Work-Based Learning/Expanded Learning Opportunities

<b>Work-Based Learning Activities</b>	<ul style="list-style-type: none"> <li>Earn industry certification</li> <li>Join the American Welding Society</li> </ul>
<b>Expanded Learning Opportunities</b>	<ul style="list-style-type: none"> <li>SkillsUSA</li> <li>Earn dual credit hours</li> </ul>

#### Aligned Industry-Based Certifications

- AWS D1.1 Structural Steel



#### Example 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%

Successful completion of this program of study will fulfill requirements of the Business and Industry Endorsement.  
Approved Statewide Program of Study. C. E. King High School – 2024-25



## Welding Course Information

### Level 1

#### Introduction to Welding

13032250

**Grade: 9-12**

**Credit: 1**

*Recommended Prerequisite: Algebra I*

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. 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. Students will develop knowledge and skills related to welding 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 will prepare students for future success.

### Level 2

#### Welding I

13032300

**Grade: 10-12**

**Credit: 2**

*Recommended Prerequisite: Introduction to Welding*

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. 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.

### Level 3

#### Welding II

13032400

**Grade: 11-12**

**Credit: 2**

*Prerequisite: Welding I*

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.

Industry Based Certifications: AWS D1.1 Structural Steel

### Level 4

#### Practicum in Manufacturing @ San Jacinto College

13033000

**Grade: 12**

**Credit: 2**

*Prerequisite: Welding II*

The Practicum in Manufacturing 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.