

# Welding

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## Welding Technician

### Program Description

Designed to prepare the graduate for employment as a welder or a welder helper in the metal trades. The major types of welding covered are shielded arc, acetylene gas welding, metal inert gas, tungsten inert gas, automatic and semi-automatic welding machines.

### Certificate of Achievement and Associate in Science Degree

A Certificate of Achievement can be obtained upon completion of the 15-unit Certificate Courses. The Associate in Science Degree can be obtained by completing the 15-unit Certificate Courses, the 12-unit Associate Courses, SCC General Education - Option A, and electives. All courses for this major must be completed with a minimum grade of C or a P if the course is taken on a Pass/No Pass basis. Completion of this program prepares the student to take the welders' certification AWS D1.1 exam.

### Program Outcomes

Students who complete the Welding Technician Certificate of Achievement/ Associate Degree will be able to:

1. Demonstrate competency in major welding processes used in industry.
2. Apply welding processes and the use of hand tools and shop equipment to fabricate projects.
3. Recognize and interpret technical drawings in the planning and fabrication of projects.
4. Demonstrate appropriate workplace safety policies and procedures during welding and fabrication operations.
5. Apply mathematical concepts to solve problems related to an industrial/ technical environment.

<b>CERTIFICATE COURSES</b>	<b>Units</b>
DRFT 079 Blueprint Reading .....	3
WELD 130 Beginning Shielded Metal Arc Welding (Stick 7018/6010 Basic) .....	3
WELD 131 Intermediate Shielded Metal Arc Welding (Stick Welding) .....	3
WELD 132 Advanced SMAW (Stick Welding) .....	3
IT 151 Vocational Mathematics .....	3
<b>Total Units</b> .....	<b>15</b>

<b>ADDITIONAL COURSES FOR ASSOCIATE DEGREE</b>	<b>Units</b>
IT 101 Introduction to Mechatronics .....	3
OCED 070 Occupational Soft Skills .....	1.5
OCED 071 Occupational Portfolio Development .....	1.5
WELD 136 Beginning Structural Steel and Flux Core Arc Weld (FCAW) .....	3
WELD 145 Intermediate Pipe Welding 7018 STK (SMAW) .....	3
<b>Total Units</b> .....	<b>27</b>

<b>Required Major Total Units</b> .....	<b>27</b>
<b>Solano General Education</b> .....	<b>21</b>
<b>Electives (as needed to reach 60 units)</b> .....	<b>12</b>
<b>Total Degree Units Solano GE</b> .....	<b>60</b>

This is a Gainful Employment Program. For additional information, please visit [http://www.solano.edu/gainful\\_employment/](http://www.solano.edu/gainful_employment/) and select "Welding Technician."

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## **WELD 130**

### **Beginning Shielded Metal Arc Welding (Stick 7018/ 6010 Basic)**

*Hours: 32-36 lecture, 48-54 lab*

Builds arc welding skills with an emphasis on flat and horizontal welding. Course activities prepare students for welding certification and advanced welding classes. Welding applications and parameters are discussed and applied throughout the class developing the student's ability to problem solve and develop welding skills.

**3.0 Units**

## **WELD 131**

### **Intermediate Shielded Metal Arc Welding (Stick Welding)**

*Prerequisite: WELD 130 with a minimum grade of C*

*Hours: 32-36 lecture, 48-54 lab*

Advances arc welding skills with an emphasis on vertical and overhead welding. Course activities prepare students for welding certification and employment. Welding applications and parameters are discussed and applied throughout the class developing the students ability to problem solve, develop and enhance welding skills.

**3.0 Units**

## **WELD 132 Advanced SMAW (Stick Welding) 3.0 Units**

*Prerequisite: WELD 131 with a minimum grade of C*

*Hours: 32-36 lecture, 48-54 lab*

Advances arc welding skills with an emphasis on vertical and overhead welding. Course activities prepare students for welding certification and employment in the metal trades. Welding applications and parameters are discussed and applied throughout the class developing the students ability to problem solve and develop welding skills. This course is designed to enhance welding skills and employability in the field of structural iron working. This course also prepares the student for the American Welding Society plate code D1.1 unlimited thickness in all position certification.

**3.0 Units**

## **WELD 135 MIG (GMAW) Welding**

**3.0 Units**

*Prerequisite: WELD 130 with a minimum grade of C*

*Hours: 32-36 lecture, 48-54 lab*

Advances the skills previously taught in WELD 130 and moves the student forward in a career of manufacturing and facilities maintenance. This course covers 2F, 3F and 4G positions (vertical and overhead positions). This course also covers Aluminum spool guns and 35 pound Stainless steel 304 and 308 wires.

## **WELD 136**

### **Beginning Structural Steel and Flux Core Arc Weld (FCAW)**

*Prerequisite: WELD 130 with a minimum grade of C*

*Hours: 32-36 lecture, 48-54 lab*

An emphasis on developing skills on structural steel and FCAW practices. Related instruction will include ferrous metal identification and welding characteristics, Flux core welding applications and variable, dual shield inert shielding gases and mixtures, troubleshoot FCAW equipment and welds completed in the flat and horizontal positions (1G and 2G).

**3.0 Units**

## **WELD 145**

### **Intermediate Pipe Welding 7018 STK (SMAW)**

*Prerequisite: WELD 130 with a minimum grade of C*

*Hours: 32-36 lecture, 48-54 lab*

Pipe Welding code, pipe classification and identification with an emphasis on API 1104 certification. Completion of the class does not guarantee certification unless welding procedure qualification tests are passed.

**3.0 Units**

## **WELD 175 CNC Plasma (Cutting Automation) 3.0 Units**

*Hours: 32-36 lecture, 48-54 lab*

Educates students on automated plasma cutting skills and processes and related CNC metal working equipment.

## **WELD 500 Independent Study**

**0.0 Units**

*Prerequisite: Permission of the instructor*

*Hours by arrangement as required*

Assists with vocational placement for advanced welding students who have sufficient background in welding fundamentals to pursue more independent study in the area of their choice. Each student works by arrangement with the instructor on an outlined program of study, to achieve independent objectives. This is an Open Entry/ Open Exit course.