

Welding (WELD)

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WELD 117 : Introduction to Welding

Credits: 2

Class Hours: 4 lecture/lab

Prerequisites: "C" or higher or concurrent enrollment in WELD 118.

Description: This course is an introduction to Oxy/Acetylene and basic arc welding procedures in the workplace in accordance with American Welding Society (AWS) standards. Students will learn the proper safety techniques involved in handling welding equipment.

Semester Offered: Fall

Course Student Learning Outcomes (CSLOs):

1. Apply personal and environmental safety practices associated with clothing, eye protection, use of hand tools, and power equipment.
2. Identify common hand tools and demonstrate their correct and safe usage on minor welding jobs.
3. Properly set up, light, adjust, and turn off Oxy/Ace welding equipment following the proper order and safety precautions.
4. Demonstrate fusion and braze welding of steel plate.
5. Using Oxy/Ace and Arc welding, perform butt, lap, tee, and vertical position welding techniques.

WELD 118 : Shop Tools and Equipment

Credits: 1

Class Hours: 1 lecture

Prerequisites: "C" or higher or concurrent enrollment in WELD 117.

Description: This course will include instruction on basic hand tools. This course will also introduce proper handling of shop tools and equipment.

Semester Offered: Fall

Course Student Learning Outcomes (CSLOs):

1. Demonstrate safe and appropriate use of hand tools and power equipment in the shop.
2. Identify common hand tools and demonstrate their correct and safe usage on minor welding jobs.
3. Properly set up, align, and operate industrial tools in shop.
4. Identify shop hazards and precautions associated with industrial tools.

WELD 120 : Intermediate Welding I

Credits: 2

Class Hours: 1 lecture and 2 lecture/lab

Prerequisites: "C" or higher in WELD 117 and WELD 118.

Corequisite Courses:

WELD 166

Description: This course covers intermediate arc welding procedures, including the safe and proper use of shop equipment, tools, and materials. Students will learn weld symbols and structure. This course is also an introduction to Gas Metal Arc Welding (GMAW) or MIG welding.

Semester Offered: Spring

Course Student Learning Outcomes (CSLOs):

1. Describe personal and environmental safety practices associated with clothing, eye protection, and use of hand tools and power equipment.
2. Identify common hand tools and demonstrate their correct and safe usage on minor welding jobs.
3. Properly set up, adjust, and tune, and shut down Arc/Mig welding equipment following the proper order and safety precautions.
4. Perform out-of-position welding, including vertical and overhead welding.

5. Perform butt, lap, tee, and vertical position welding using GMAW welding.

WELD 141 : Advanced Welding I

Credits: 3

Class Hours: 1 lecture and 4 lecture/lab

Prerequisites: "C" or higher or concurrent enrollment in WELD 120 and WELD 166.

Comments: May be repeated for a maximum of 6 credits.

Description: This course covers introduction to safe practices, setup, and operation of Gas Tungsten Arc Welding (GTAW) equipment. Our students will use GTAW in steel and aluminum, sheet metal and mild steel plate in flat, butt, and tee positions. We will also cover out of position welding using GTAW or MIG in vertical and overhead positions. Emphasis will be on practice and production of assemblies and coupons to be examined and tested according to Section 8 AWS SENSE QC10.

Semester Offered: Spring

Course Student Learning Outcomes (CSLOs):

1. Complete safety inspections of GTAW equipment and accessories.
2. Perform minor exterior repairs to GTAW equipment and accessories.
3. Achieve the safe set up, adjust, tune, and shut down GTAW equipment for operations on carbon steel, stainless steel, and aluminum.
4. Demonstrate a fillet welding in flat, tee, and butt positions.
5. Perform vertical and overhead welding using GMAW procedures.

WELD 166 : Plasma and Air Carbon Arc Cutting

Credits: 1

Class Hours: 1 lecture

Prerequisites: "C" or higher in WELD 117 and WELD 118. "C" or higher or concurrent enrollment in WELD 120.

Description: This course introduces plasma-arc cutting systems to students. These topics include safety, proper equipment setup, and operation of plasma and carbon air arc gouging equipment with emphasis on straight line, curve, and bevel cutting.

Semester Offered: Spring

Course Student Learning Outcomes (CSLOs):

1. Apply personal and environmental safety practices associated with clothing, eye protection, and use of hand tools and power equipment.
2. Properly set up, adjust, tune, and shut down Plasma and Arc gouging equipment.
3. Identify safety considerations of each cutting process.
4. Perform out-of-position welding, which includes vertical and overhead welding.
5. Perform butt, lap, and tee gouge using carbon-arc gouger.
6. Perform cutting process on various thicknesses of metal using plasma arc cutter.