

WELDING TECHNOLOGY

WELD 100. Structural Welding I

6 Credits (3+6P)

Development of basic skills in SMAW, OFC, and OFW in accordance with the AWS entry-level welder program.

WELD 102. Welding Fundamentals

3 Credits (2+2P)

Survey of welding and cutting processes for nonmajors. Classroom instruction and laboratory work with OFC/OFW, SMAW, GMAW, FCAW, and plasma arc cutting.

WELD 110. Blueprint Reading (Welding)

3 Credits

Interpretation of prints related to welding. Emphasis on AWS standard symbols for welding, brazing, and nondestructive examination.

WELD 112. Professional Development and Leadership

1 Credit

As members and/or officers of various student professional organizations, students gain experience in leadership, team building, and community service. Students competing or participating in Skills USA are required to register for the course. May be repeated up to 6 credits. Consent of Instructor required. Restricted to: WELD majors. S/U Grading (S/U, Audit). Restricted to: Community Colleges only.

WELD 120. Basic Metallurgy

3 Credits

Properties of ferrous and nonferrous materials. Service conditions and heat treatment of metals related to welding trade.

Prerequisites: WELD 100 or consent of instructor.

WELD 125. Introduction to Pipe Welding

3 Credits (2+2P)

Pipe fit-up and welding techniques for pipe fitting and pipe weld joint using SMAW, GMAW, GTAW, and FCAW, 2G welding of pipe. Restricted to: Community Colleges only.

Prerequisite(s): WELD 100, WELD 130, and WELD 140, or consent of instructor.

WELD 130. Introduction to GMAW MIG

3 Credits (2+2P)

Development of basic skills with gas metal arc welding (MIG) in accordance with AWS entry-level welder objectives. Wire electrodes, shielding/purge gases, and modes of metal transfer.

WELD 140. Introduction to GTAW TIG

3 Credits (2+2P)

Development for basic skills with gas tungsten arc welding (TIG) in accordance with AWS entry/advanced welder objectives. Welding mild steel, tungsten electrode preparation, filler wire selection, and equipment set-up.

WELD 150. Pipe Welding II

3 Credits (2+2P)

Continuation of WELD 125; with fillet and groove welded joints in a horizontal fixed and 45-degree fixed positions (5-F, 5-G, 6-F, 6-G).

Prerequisite: WELD 125.

WELD 160. Introduction to SAW and FCAW

3 Credits (2+2P)

Submerged arc and flux-cored arc welding. Demonstrations and practice with machine travel submerged arc welding (SAW), flux-cored arc welding (FCAW-G, FCAW-S) on mild steel plate and pipe. Restricted to: Community Colleges only.

WELD 170. Welded Fabrication

3 Credits (1+4P)

Development of fabrication skills including basic layout, measuring, and utilization of various welding processes including out-of-position welding. Use of common shop tools.

Prerequisites: WELD 100, WELD 110, WELD 130, and OETS 104 or OETS 118.

WELD 180. GTAW II

3 Credits (2+2P)

Continuation of WELD 140. Development of more advanced GTAW skills. Emphasis on pipe welding with mild steel, stainless steel, and aluminum.

Prerequisite: WELD 140 or consent of instructor.

WELD 190. Welded Art

3 Credits (1+4P)

Students explore the possibilities of welded art in the form of sculpture, jewelry, furniture and as a framework to support other art media. Offered as an elective for students who wish to create art using welding.

Prerequisite: WELD 102 or consent of instructor.

WELD 205. Welding Equipment Maintenance

3 Credits (2+2P)

Hands-on experience in the maintenance and repair of welding equipment, including welding machines and associate shop equipment, as well as the development of preventative maintenance programs. Basic safety, including MSDS and Right-to-Know will be introduced. Restricted to: Community Colleges only.

Prerequisite(s): WELD 100, WELD 130, WELD 140, WELD 160.

WELD 211. Welder Qualification

6 Credits (3+6P)

Laboratory and classroom instruction on AWS and ASME Welder Performance Qualification Tests. All position plate and pipe techniques and tests for SMAW, GMAW, GTAW, FCAW, and SAW. Nondestructive and destructive examination methods. Basics of welding codes. Restricted to majors.

Prerequisites: OETS 104 or OETS 118; and WELD 100, WELD 110, WELD 120, WELD 130, WELD 140, WELD 160 and WELD 180 or consent of instructor.

WELD 221. Cooperative Experience I

1-6 Credits

Supervised cooperative work program. Student is employed in an approved occupation and supervised and rated by the employer and instructor. Student will meet in a weekly class. Graded S/U. Restricted to majors.

Prerequisites: WELD 100 or WELD 101 and consent of instructor.

WELD 230. Weld Testing

3 Credits (2+2P)

Covers destructive and nondestructive examination methods used to test welds. Tensile, compression, bend, hardness, impact, visual, dye-penetrant, magnetic particle, ultrasound, and radiographic methods of testing/examination. Restricted to: Community Colleges only.

Prerequisite(s): WELD 100, WELD 130, WELD 140, WELD 211, and OETS 104, or consent of instructor.

WELD 255. Special Problems in Welding Technology

1-6 Credits

Individual studies in areas of welding technology. May be repeated for a maximum of 12 credits.

Prerequisite: consent of instructor.

WELD 295. Special Topics

1-4 Credits

2 Welding Technology

Topics to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.