WELDING TECHNOLOGY (WELD)

WELD 1100
Welding I
3 Credit Hours
Basic oxy-fuel, gas metal arc, shielded metal arc and gas tungsten arc welding processes. Safety procedures required to set up and shut down welding equipment for the various processes. Hands-on experience includes practice with the four welding systems using various thickness of steel. Industrial standards and American Welding Society (AWS) standards for quality are discussed. (1 lecture hour, 4 lab hours)

WELD 1112
Oxy-Fuel, Welding, Plasma Cutting and Brazing
3 Credit Hours
Operation of oxyacetylene welding and cutting equipment and plasma cutting. Students learn to produce quality welds and braze joints in the flat, horizontal, overhead and vertical positions. Also introduces cutting methods of profile, pipe, square and bevel. (1 lecture hour, 4 lab hours)
Prerequisite: WELD 1100 or equivalent.

WELD 1122
Shielded Arc Welding (SMAW)
3 Credit Hours
Theory and practice in the preparation and welding of steel joints in various positions. Safety, electrode selection, inspection and testing. Skill is developed in producing different position butt and fillet welds. American Welding Society testing is stressed. (1 lecture hour, 4 lab hours)
Prerequisite: WELD 1100 or equivalent.

WELD 1132
Metal Inert Gas (MIG) Carbon Steel Welding
3 Credit Hours
This course uses the Gas Metal Arc Welding (GMAW) process and solid steel and cored wire welding on common industrial carbon steel joints. Travel direction, weave motion, bead sequence, and gun angles for out-of-position welding on steel are emphasized. Setup and operation of MIG welder for flux-core and solid-core welding under varying conditions. (1 lecture hour, 4 lab hours)
Prerequisite: WELD 1100 or equivalent or consent of instructor.

WELD 1134
Gas Metal Arc Welding (GMAW) Aluminum Welding
3 Credit Hours
This course uses the Gas Metal Arc Welding (GMAW) with aluminum wire welding on common industrial joints. Travel direction, weave motion, bead sequence, and gun angles for out-of-position welding on stainless is emphasized. Setup and operation of the GMAW welder under varying conditions is given emphasis. Course may be repeated two times for skill development. (1 lecture hour, 4 lab hours)
Prerequisite: WELD 1132 with a grade of C or better, or equivalent, or consent of instructor.

WELD 1136
Gas Metal Arc Welding (GMAW) Stainless Steel
3 Credit Hours
This course specializes in Gas Metal Arc Welding (GMAW) with stainless steel wire welding on common industrial joints. Travel direction, weave motion, bead sequence, and gun angles for out-of-position welding on stainless are emphasized. Setup and operation of the GMAW welder under varying conditions are given emphasis. (1 lecture hour, 4 lab hours)
Prerequisite: WELD 1132 with a grade of C or better, or equivalent or consent of instructor.

WELD 1138
Gas Metal Arc Weld (GMAW) Bronze
3 Credit Hours
This course specializes in Gas Metal Arc Welding (GMAW) with bronze wire welding on common industrial joints. Travel direction, weave motion, bead sequence, and gun angles for out-of-position welding on steel and aluminum are emphasized. Setup and operation of the GMAW welder under varying conditions are emphasized. (1 lecture hour, 4 lab hours)
Prerequisite: WELD 1132 with a grade of C or better, or equivalent or consent of instructor.

WELD 1142
Gas Tungsten Arc (TIG)
3 Credit Hours
Theory and practice of welding in all positions and on various joint configurations using the Gas Tungsten Arc Welding (GTAW or TIG) welding process on carbon steel, stainless steel and aluminum. This course may be taken four times for credit. (1 lecture hour, 4 lab hours)
Prerequisite: WELD 1100 or equivalent.

WELD 1144
Gas Tungsten Arc Welding (GTAW) Aluminum
3 Credit Hours
Theory and practice of Gas Tungsten Arc Welding(GTAW)in all positions on various joint configurations using aluminum filler. (1 lecture hour, 4 lab hours)
Prerequisite: WELD 1142 with a grade of B or better or equivalent or consent of instructor.

WELD 1146
Gas Tungsten Arc Welding (GTAW) Stainless Steel
3 Credit Hours
Theory and practice of Gas Tungsten Arc Welding (GTAW) in all positions on various joint configurations using stainless steel filler. (1 lecture hour, 4 lab hours)
Prerequisite: WELD 1142 with a grade of B or better or equivalent or consent of instructor.

WELD 1148
Gas Tungsten Arc Welding (GTAW) Exotic Alloy
3 Credit Hours
Theory and practice of Gas Tungsten Arc Welding (GTAW) in all positions on various joint configurations using exotic alloy metals. (1 lecture hour, 4 lab hours)
Prerequisite: WELD 1146 with a grade of B or better, or equivalent, or consent of instructor.

WELD 1151
Pipe Welding and Fabrication
3 Credit Hours
Covers safety inspections, minor repairs, operating parameters, and operation of shielded metal arc welding (SMAW), gas metal arc welding (GMAW), and flux core arc welding (FCAW) equipment in a variety of positions on various materials used in pipe joints. Evaluating and solving complex welding and fabrication problems. This course may be taken four times for credit. (1 lecture hour, 4 lab hours)
Prerequisite: WELD 1100, WELD 1112, WELD 1122, WELD 1132, and WELD 1142 or equivalent or consent of instructor.

WELD 1160
Skill Assessment
3 Credit Hours
Theory and practice of test qualification procedures for certification in accordance with AWS, API or other welding codes. Simple non-qualifying bend tests and/or non-destructive tests are performed at no extra cost. Additional testing may be performed by a private laboratory at the student's expense. (1 lecture hour, 4 lab hours)
Prerequisite: WELD 1100, WELD 1112, WELD 1122, WELD 1132, and WELD 1142 or equivalent or consent of instructor.

WELD 1165
Blueprint Reading and Fabrication
4 Credit Hours
Prepares the welding student to interpret complex drawings as applied in the welding trade and to become familiar with welding symbols and their significance. Emphasis will be on developing the ability to transfer the two-dimensional print to the actual three-dimensional object. The student will gain experience in related fabrication mathematical calculations. (3 lecture hours, 2 lab hours)
Prerequisite: WELD 1100 with a grade of C or better, or equivalent, or consent of instructor.

WELD 1172
Robot Welding I
3 Credit Hours
Operate a welding robot. This includes writing programs that control robot path, weld start and stop, and welding Parameters. The student will learn basic operation and maintenance required by the American Welding Society operator level one certification. Individual student learning and skill development determines whether or not the student successfully achieves certification. (1 lecture hour, 4 lab hours)
Prerequisite: WELD 1132 and ELMEC 1171, both with a grade of B or better, or consent of instructor.

WELD 1820
Selected Topics
1-6 Credit Hours
Introductory exploration and analysis of selected topics with a specific theme indicated by course title listed in college class schedule. (1 to 6 lecture hours, 2 to 12 lab hours)

WELD 1840
Independent Study - Individualized
1-4 Credit Hours
Exploration and analysis of topics within the discipline to meet individual student-defined course description, goals, objectives, topical outline and methods of evaluation in coordination with and approved by the instructor. (2 to 8 lab hours)
Prerequisite: Consent of instructor is required.

WELD 2000
Introduction to AWS Level 1
2 Credit Hours
Covers occupational orientation, safety and health of welders, drawing and welding symbol interpretation, thermal cutting processes and welding inspection and training utilizing American Welding Society (AWS) Sense 1 standards. This course make be taken three times for credit for skills development. (2 lecture hours)
Prerequisite: WELD 1100 with a grade of C or better, or equivalent or consent of instructor.

WELD 2001
Aws Level 1-SHIELDED Metal Arc Welding (SMAW)
3 Credit Hours
Theory and practice in the preparation and welding of steel joints in various positions. Safety, electrode selection, inspection, and testing. Skill is developed in producing different position butt and fillet welds. American Welding Society (AWS) testing is emphasized. This course make be taken three times for credit for skills development. (2 lecture hours, 2 lab hours)
Prerequisite: WELD 1100 and WELD 2000, both with a grade of C or better, or equivalent or consent of instructor.

WELD 2002
AWS Level 1 Gas Tungsten Arc Welding (GTAW)
3 Credit Hours
Theory and practice in the preparation and welding of steel joints in various positions. Safety, equipment selection, inspection, and testing. Skill is developed in producing different position butt and fillet welds. American Welding Society testing is emphasized. This course make be taken three times for credit for skills development. (2 lecture hours, 2 lab hours)
Prerequisite: WELD 1100 and WELD 2000, both with a grade of C or better, or equivalent or consent of instructor.

WELD 2003
AWS Level 1 Flux Core Arc Welding (FCAW)
3 Credit Hours
Theory and practice in the preparation and welding of steel joints in various positions. Safety, electrode selection, inspection, and testing. Skill is developed in producing different position butt and fillet welds. American Welding Society (AWS) testing is emphasized. This course may be taken three times for credit for skills development. (2 lecture hours, 2 lab hours)
Prerequisite: WELD 1100 and WELD 2000, both with a grade of C or better, or equivalent or consent of instructor.

WELD 2004
AWS Level 1 Gas Metal Arc Welding (GMAW)
3 Credit Hours
Theory and practice in the preparation and welding of steel joints in various positions. Safety, electrode selection, inspection, and testing. Skill is developed in producing different position butt and fillet welds. American Welding Society (AWS) testing is emphasized. This course make be taken three times for credit for skills development. (2 lecture hours, 2 lab hours)
Prerequisite: WELD 1100 and WELD 2000, both with a grade of C or better, or equivalent or consent of instructor.

WELD 2272
Robot Welding II
3 Credit Hours
Operate a welding robot. This include writing programs that control robot path, weld start and stop, and welding parameters. The student will learn complex welding operations, work cell maintenance, and record keeping as required by the American Welding Society operator level two certification. Individual student learning and skill development determines whether or not the student successfully achieves certification. (1 lecture hour, 4 lab hours)
Prerequisite: WELD 1172 with a grade of B or better or consent of instructor.

WELD 2273
Robot Welding III
3 Credit Hours
Operate a welding robot environment. This course includes writing programs, fixturing, process maintenance, and record keeping. The student will learn operations and welding maintenance required by the American Welding Society welding technician certification. Individual student learning and skill development determines whether or not a student successfully achieves certification. (1 lecture hour, 4 lab hours)
Prerequisite: WELD 2272 with a grade of B or better or consent of instructor.

WELD 2860
Internship (Career & Technical Ed)
1-4 Credit Hours
Course requires participation in Career and Technical Education work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. (5 to 20 lab hours)
Prerequisite: Consent of instructor and 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the dean from the academic discipline where the student is planning to earn credit.
Course types: Contemporary Life Skills (A.A., A.S., A.A.S., A.G.S.)

WELD 2865
Internship Advanced (Career & Tech Ed)
1-4 Credit Hours
Continuation of Internship (Career and Technical Education). Course requires participation in Career & Technical Education work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. (5 to 20 lab hours)
Prerequisite: Consent of instructor and 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the dean from the academic discipline where the student is planning to earn credit.
Course types: Contemporary Life Skills (A.A., A.S., A.A.S., A.G.S.)