

WELD - 1104 Intro Shielded Metal Arc Weldg, 4.00 Credits

Level: Lower

Applied Learning-Practicum

This course provides the student with an introduction to shielded metal arc welding, welding safety and power sources. Through hands-on technical training, the student will develop the skills necessary to make quality fillet welds on mild steel using the shielded metal arc welding process in all positions and on varying plate thickness.

WELD - 1105 Int Shlded Metl Arc Weld (SMAW), 5.00 Credits

Level: Lower

Applied Learning-Practicum

This course provides the student with a thorough technical understanding of shielded metal arc welding (SMAW), carbon arc cutting, welding and cutting safety power sources and electrodes. Through hands-on technical training, the student will develop skills necessary to make quality groove welds on mild steel in all positions, and on varying plate thickness.

WELD - 1204 SMAW I, Carbon Arc Cutting & Goug, 4.00 Credits

Level: Lower

Applied Learning-Practicum

This course provides the student with a thorough technical understanding of shielded metal arc welding (SMAW), carbon arc cutting, welding and cutting safety, power sources, and electrodes. Through hands-on technical training, the student will develop skills necessary to make quality groove welds on mild steel, in all positions and on varying plate thickness. Carbon arc skills will include cutting and gouging of mild steel.

WELD - 1205 Shielded Metal Arc Weld I, 5.00 Credits

Level: Lower

Applied Learning-Practicum

This course provides the student with a thorough technical understanding of shielded metal arc welding (SMAW), carbon arc cutting, welding and cutting safety, power sources and electrodes. Through hands-on technical training, the student will develop skills necessary to make quality groove welds on mild steel in all positions and on varying plate thickness.

WELD - 1715 Gas Weld, Cutting & Plasma Cut, 5.00 Credits

Level: Lower

Applied Learning-Practicum, Course Fee \$118.00

This course teaches the student the fundamental skills of brazing, gas welding, gas cutting, and plasma processes used in industry. Major topics include principles of operation; component identification; equipment set up; minor repairs; process variables; and manual and semi-automatic performance exercises.

WELD - 1723 Welders Calculations I, 3.00 Credits

Level: Lower

Basic mathematical functions used by the welder in the performance of their duties will be the subject of this course. Mathematical operations such as manipulation of fractions, decimals and unilaterally converting between the two and into the metric measurement system along with calculating perimeter, volumes, weight and bend calculations will be taught in this course.

WELD - 1724 Gas Wldng/Cutng & Plasma Cutng, 4.00 Credits

Level: Lower

Applied Learning-Practicum, Course Fee \$118.00

This course is designed to teach the student the fundamental skills of oxy-fuel and plasma processes used in industry. Major topics include principles of operation, component identification, equipment set up, minor repairs, process variables, and manual and automatic performance exercises. Laboratory exercises emphasize technique and skill development.

WELD - 1728 ArcWldng, Crbn Arc Ctnng Gaugng, 8.00 Credits

Level: Lower

Applied Learning-Practicum

This course provides the student with a thorough technical understanding of shielded metal arc welding, carbon arc cutting, welding and cutting safety, power sources, and electrodes. Hands-on technical training will develop skills necessary to make quality arc welds on mild steel, in all positions and on varying plate thickness. Carbon arc skills will include cutting, gouging, and weld washing of mild steel.

WELD - 1733 Blueprnt Readng, Insp & Test, 3.00 Credits

Level: Lower

Course Fee \$22.00

This course provides the student with a thorough technical understanding of blueprint reading for welders; and welding symbol interpretation and application. The study of joint design and weldment inspection will be performed by testing, and evaluation of completed weld specimens using various metal and weld testing techniques; both destructive and non-destructive.

WELD - 2715 Shld Mtl Arc & Flx Crd Arc Wld, 5.00 Credits

Level: Lower

Applied Learning-Practicum, Course Fee \$118.00

This course provides instruction on the welding processes used in industry that are in high demand, including flux cored arc welding and shielded metal arc welding. All processes, positions, and joint types studied will be in accordance with the American Welding Society specifications.

WELD - 2725 Gas Metal Arc Welding I, 5.00 Credits

Level: Lower

Applied Learning-Practicum

This course presents one of the most popular welding processes in industry today. Gas metal arc principles are emphasized with students learning applications and operating techniques pertaining to semi-automatic wire feed welding. Special attention will be placed on penetration, metal transfer, gas shielding and equipment set up for gas metal arc welding.

WELD - 2733 Tolerancing & Working Drawings, 3.00 Credits

Level: Lower

This course is designed for the welding student to understand the typical working drawing and any tolerances that may apply. These tolerances include unilateral, bilateral and geometric tolerances. The importance of accuracy and proper orientation of weldments will be stressed. This application will address all possible tolerancing and drawing applications the student will need to be effective as an industrial welder.

WELD - 2735 Gas Tungsten Arc Welding I, 5.00 Credits

Level: Lower

Applied Learning-Practicum

This course provides the student with a thorough technical understanding of gas tungsten arc welding, welding safety and arc characteristics. Hands on technical training will develop the skills necessary to make quality gas tungsten arc welds on mild steel, stainless steel and aluminum using both direct and alternating current. Certification documentation for the student will be performed for all welding processes with special attention placed on code conformance and welding procedure development.

WELD - 3005 Shielded Metal Arc Welding II, 5.00 Credits

Prerequisite(s): WELD 2715 with D or better

Level: Lower

Applied Learning-Practicum, Course Fee \$118.00

This course covers safety standards and performance of shielded metal arc welding (SMAW II). Students will learn and apply OSHA standards. SMAW II theory will also be covered. Students will be performing groove welds in preparation for the required 6G qualification test.

WELD - 3015 GMAW II, FCAW II, 5.00 Credits

Prerequisite(s): WELD 2715 with D or better and WELD 2725 with D or better

Level: Lower

Applied Learning-Practicum

This course will cover the practice and proper use of protective clothing, equipment, and hand tools for the safe use of constant voltage welding equipment. Students will learn to make adjustments and repairs to equipment according to manufacturer's recommendations. Proper set up, operation and theory will qualify the student for certification in gas metal arc welding of steel, in the short arc, spray, and globular modes of metal transfer. Qualification testing (AWS EG3.0-96) will also be performed in dual shielded flux cored arc welding.

WELD - 3025 Gas Tungsten Arc Welding II, 5.00 Credits

Prerequisite(s): WELD 2735 with D or better

Level: Lower

Applied Learning-Practicum

Students will learn setup and operating procedures, gas cylinder handling, flow meter and torch operations for welding carbon steel pipe and tubing. The course will also cover the various methods of testing and inspection of welds. All position qualification testing will prepare students for welder certification testing (AWS EG3.0-96).

WELD - 3813 Metlgy, Codes, Certs & Inspect, 3.00 Credits

Level: Lower

This course will cover the principles related to welding metallurgy, the properties of carbon steel metals, and the residual stress and distortion caused by the welding process. Students will learn to locate the essential information for codes and standards pertaining to the industry and work assignments for the materials used. Students will be able to perform inspections of cut surfaces of prepared metals (pre-welding), as well as test welds during and post welding.

WELD - 4013 Senior Project, 3.00 Credits

Level: Lower

Applied Learning-Creative Work

This course is designed as a capstone project to verify a student's ability in all aspects of welding. The student will be required to identify a need for a new product or improvement on an existing product. After identification, the completion of the project will occur with minimal instructor guidance. This will allow the student to demonstrate their ability to perform independently. Upon completion, the student will demonstrate the functionality of their project in the form of a formal presentation. This will be a functional model of the student's own design.

WELD - 4425 GMAW III & GTAW IV, 5.00 Credits

Prerequisite(s): WELD 3015 with D or better and WELD 3025 with D or better

Level: Lower

Applied Learning-Practicum, Course Fee \$118.00

This course will cover the safety inspections of the GMA and GTA welding equipment and accessories. Student will be able to make minor repairs to the equipment and accessories, which will include the changing of wire electrodes and cable liners. Students will learn to troubleshoot welding equipment problems, how to recognize them, and the correct procedures in the use of the equipment. Set up and safe operations will be taught for the pulsed transfer method of welding. Students will perform welds on aluminum pipe.

WELD - 4435 Gas Tungsten Arc Welding III, 5.00 Credits

Prerequisite(s): WELD 3025 with D or better

Level: Lower

Applied Learning-Practicum

This course covers the safety inspections of welding equipment and accessories. Student will be able to make external repairs to the equipment and accessories. Students will also learn set up and operation of the GTAW equipment for stainless steel pipe/tubing. Students will execute corrective actions to repair surface flaws on welds and base metals and perform 2G and 5G performance qualification tests on 300 series stainless steel pipe/tubing using stainless steel fillers. Pipe welding using GTAW process will be stressed. Students will be required to take the exams for Level II AWS certification.

WELD - 4445 Welding Fabrication, 5.00 Credits

Level: Lower

Applied Learning-Practicum

This course will be conducted as though the student were employed in an actual work environment. The student will perform all necessary work in the fabrication of various parts. Safe and proper set up and use of appropriate equipment for various applications will be expected. Along with the setup and use of equipment, the student will be required to generate and apply weld process sheets, and inspect each weld using industrially accepted inspection processes. The student will perform various duties common in industry today, as well as apply any certifications, codes, and standards that must be met for qualifications. They will perform visual examinations and complete inspection records and reports.

WELD - 4900 Directed Study, 1.00 TO 5.00 Credits

Level: Lower

A student may contract for one to five credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.