WELDING TECHNOLOGY (WELD)

WELD 0001A. Introductory Welding for Metalworking
Units: 2
Formerly known as WELD 15
Hours: 72 (18 lecture, 54 laboratory)
Hands-on survey class that focuses on the three common welding processes of Shielded Metal Arc Welding, Gas Metal Arc Welding, and Gas Tungsten Arc Welding, including correct setup and "how to" techniques. Plasma Arc Cutting and Oxyacetylene Cutting processes are also covered. This class is a survey of basic welding, cutting and fabrication used by the welding industry, metalworking artists, and interested hobbyists. Perfect for students who have never welded before. (CSU)

WELD 0001B. Principles of Fabrication
Units: 2
Formerly known as WELD 70
Prerequisite: Completion of WELD 1A and completion of WELD 2A, WELD 3B or WELD 5A with grades of "C" or better
Hours: 72 (18 lecture, 54 laboratory)
Foundation fabrication course includes elements of design and fabrication methods, tool and equipment utilization, materials planning, and print reading. Designed for welding students wanting to learn the foundation skills of steel fabrication and construction process. (not transferable)

WELD 0002A. Wire Feed Welding Processes - Career Path
Units: 2
Formerly known as WELD 40
Hours: 72 (18 lecture, 54 laboratory)
Designed for those interested in beginning stages of welding. Various forms of wire feed welding include Gas Metal Arc and Flux Core Welding processes. Explores the various modes of metal transfer when using the Gas Metal Arc Welding process. In Flux Cored Arc Welding, both Self Shielding and Dual Shielding, are covered. (not transferable)

WELD 0002B. Gas Metal Arc Welding of Stainless Steel
Units: 2
Prerequisite: Completion of WELD 2A with grade of "C" or better
Hours: 72 (18 lecture, 54 laboratory)
Covers equipment, metal preparation, and welding of stainless steels in all positions using Gas Metal Arc Welding. Students will learn to read and correctly complete welding procedures performed in industry. Helps prepare students for employment in high demand jobs. (not transferable)

WELD 0003A. Introduction to Gas Welding - Preparing for GTAW
Units: 2
Formerly known as WELD 10
Hours: 72 (18 lecture, 54 laboratory)
History and development of joining metals, metalworking, and gas welding methods. Students will learn the fundamentals of Oxyacetylene gas welding and gain manipulative skills that will prepare them for Gas Tungsten Arc Welding. Creativity, gas welding and fabrication techniques will be utilized to complete a student project. (CSU)

WELD 0003B. Gas Tungsten Arc Welding (TIG) - Career Path
Units: 2
Formerly known as WELD 50
Prerequisite: Completion of WELD 3A with grade of "C" or better
Advisory: Completion of WELD 1A with grade of "C" or better
Hours: 72 (18 lecture, 72 laboratory)
Tungsten Inert Gas Welding methods and techniques used to weld carbon steel, stainless, aluminum, and alloy steels. Instruction in equipment setup for different metals, filler selection, material identification, and welding techniques using Gas Tungsten Arc Welding. Laboratory exercises include multiple positions of fillet and groove welds with carbon steel, stainless steel and aluminum assignments on sheet materials and techniques as applied in tubing or pipe. (CSU)

WELD 0004. Welding Operator Orientation
Units: 0.5
Prerequisite: Completion of WELD 2A and 5A with grades of "C" or better
Hours: 9 lecture
Orientation course to prepare students for enrollment in WELD 84 (pass/no pass grading) (not transferable)

WELD 0005A. Introduction to Shielded Metal Arc Welding (SMAW) - Career Path
Units: 2
Formerly known as WELD 20
Advisory: Concurrent enrollment in WELD 1A or previous welding experience
Hours: 72 (18 lecture, 54 laboratory)
An introduction to the principles of shielded metal arc welding (SMAW), setup/use of SMAW equipment, and safe use of tools and equipment including oxyacetylene cutting. Provides instruction in welding carbon steel weld joints in various positions. This is a required foundation welding technology course for students who wish to pursue a career in structural or pipe welding outdoors at various construction sites. (C-ID WELD 101X) (not transferable)

WELD 0005B. Intermediate Shielded Metal Arc Welding (SMAW) - Career Path
Units: 2
Formerly known as WELD 25
Prerequisite: Completion with grade of "C" or better or concurrent enrollment in WELD 5A
Hours: 72 (18 lecture, 54 laboratory)
Students expand on knowledge and skills gained to perform structural plate welding using Shielded Metal Arc Welding (SMAW or Stick). Oxyacetylene Cutting (OAC) and Air Carbon Arc Cutting (CAC-A) are also performed. Intended as an intermediate level welding course for students following a career path in structural or pipe welding fields. Students are advised that WELD 5A and WELD 5B can be taken at the same time. (not transferable)

WELD 0005C. Structural Steel Welding Certification
Unit: 1
Formerly known as WELD 80
Prerequisite: Completion of WELD 5B and WELD 2A with grades of "C" or better
Advisory: Students must be competent in vertical and overhead position welding using certification welding processes of SMAW, FCAW-G and FCAW-S
Hours: 42 (6 lecture, 36 laboratory)
Designed to certify the welder within the guidelines of American Welding Society (AWS) Structural Steel Code D1.1. Focus on manipulative skill development with SMAW E-7018 in 4G and 3G, FCAW-G in 3G and FCAW-S in 3G and 4G in preparation for the actual certification test. (not transferable)

WELD 0011. Welding Metallurgy
Units: 3
Formerly known as WELD 60
Prerequisite: Completion of WELD 2A, WELD 3A or WELD 5A with grade of "C" or better
Hours: 90 (36 lecture, 54 laboratory)
Exploration of the production and properties of ferrous metals used in the welding industry. The chemical and physical properties of metals, crystallization, and theoretical concepts of alloying. Laboratory experiments in metal identification, hardness and destructive testing, heat treating, sample preparation, and microphotography. (CSU)

WELD 0015A. Shielded Metal Arc Welding on Pipe
Units: 2
Formerly known as WELD 30
Prerequisite: Completion of WELD 5B with grade of "C" or better
Hours: 72 (18 lecture, 54 laboratory)
Welding of pipe using accepted practices of industry with Shielded Metal Arc Welding Process. Emphasis on the welding techniques used for out-of-position welding (2G, 5G, 6G, and 6GR pipe full penetration welds). (CSU)

WELD 0015B. Pipe Welding Certification - Uphill
Unit: 1.5
Formerly known as WELD 82
Prerequisite: Completion of WELD 15A with grade of "C" or better and completion with grade of "C" or better or concurrent enrollment in WELD 5C
Advisory: Students must be competent in horizontal, vertical and overhead position welding with open root groove joints using the welding processes of SMAW; if GTAW root pass certification is the goal, WELD 3B skill set competency for GTAW is also needed
Hours: 54 (14 lecture, 40 laboratory)
Designed to certify the welder within the guidelines of Section IX of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or the American Petroleum Institute (API) Standard 1104 Welding of Pipelines and Related Facilities. Focus on manipulative skill development using SMAW, GTAW and GMAW processes in preparation for the actual certification test. (CSU)

WELD 0015C. Pipe Welding Certification - Downhill
Units: 0.5
Formerly known as WELD 83
Prerequisite: Completion with grade of "C" or better or concurrent enrollment in WELD 15B
Advisory: Student must be competent in SMAW pipe welding with E-6010 electrode in positions of 2G, 5G and 6G
Hours: 36 (5 lecture, 31 laboratory)
Downhill pipe welding to prepare to qualify within the guidelines of American Petroleum Institute - welding of cross-country pipelines. Focus on manipulative skill development in preparation for certification test using downhill techniques. (not transferable)

WELD 0028. Independent Study
Units: 1-3
Designed for students interested in furthering their knowledge at an independent study level in an area where no specific curriculum offering is currently available. Independent study might include, but is not limited to, research papers, special subject area projects, and research projects. See Independent Study page in catalog. (CSU)

WELD 0095. Internship in Welding Technology
Units: 0.5-4
Designed for advanced students to work in an area related to their educational or occupational goal. Provides new on-the-job technical training under the direction of a worksite supervisor, allowing students to expand knowledge and skills in the chosen field. Mandatory orientation session and faculty approval to determine eligibility. One unit of credit is equal to each 60 hours of non-paid work, or each 75 hours of paid work. Students may earn up to a total of 16 units in internship courses (any course numbered 95 and PDEV 94). (CSU-with unit limitation)