

WELDING, FABRICATION (WEL)

WEL 1000 | Safety for Welders

Lecture Credit: 1

Covers the hazards of welding on health and safety, locating essential safety information from a code or other standard, and identifying and applying shop safety procedures.

WEL 1001 | Allied Cutting Processes

Lecture/Lab Credit: 4

Covers setting up equipment and performing cutting and gouging operations utilizing the oxyacetylene, air carbon arc, exothermic, and plasma arc cutting processes. This course will also provide an introduction to blueprint reading.

Prerequisite: WEL 1000 with a grade of C or better

Corequisite: WEL 1000

WEL 1002 | Oxyacetylene Joining Processes

Lecture/Lab Credit: 4

Introduces safety inspections, minor repairs, operating parameters, oxyacetylene welding equipment, and oxyacetylene welding, brazing, and soldering operations. Blueprint reading skills will be practiced in this course.

Prerequisite: WEL 1000 with a grade of C or better

Corequisite: WEL 1000

WEL 1003 | Basic Shielded Metal Arc I

Lecture/Lab Credit: 4

Covers performing safety inspections, making minor repairs, adjusting operating parameters, and operating SMAW equipment utilizing E-6010 electrodes. Layout procedures and practices will also be introduced.

Prerequisite: WEL 1001, WEL 1002, WEL 1006, and MAT 1150 (or any 4 credit math higher than MAT 1150) with a grade of C or better

Corequisite: WEL 1006 and MAT 1150 (or any 4 credit math higher than MAT 1150)

WEL 1006 | Blueprint Reading for Welders and Fitters

Lecture/Lab Credit: 4

Covers interpreting weld symbols on blueprints, identifying proper layout methods and tools, and proper joint design necessary for various welding processes.

WEL 1007 | Railroad Welding I Mechanical Structural Welding and Cutting Basics

Lecture/Lab Credit: 3

Introduces fundamental cutting and welding skills required for welding to D15.1 Railroad welding Specification-Cars and Locomotives code.

Prerequisite: Department chair approval

WEL 1008 | Railroad Welding II - Mechanical Structural Stick Welding

Lecture/Lab Credit: 3

Develops the fundamental Shielded Metal Arc Welding (SMAW) skills, including theory, safety, and equipment set up and operation for welding to D15.1 Railroad welding Specification-Cars and Locomotives code.

Prerequisite: Department chair approval

WEL 1009 | Railroad Welding III - Mechanical Structural Wire Welding

Lecture/Lab Credit: 3

Develops the fundamental Gas Shielded Flux Cored Arc Welding (FCAW-G) skills, including theory, safety, and equipment set up and operation as it applies to the American Welding Society (AWS) D15.1 Railroad welding Specification-Cars and Locomotives code.

Prerequisite: Department chair approval

WEL 1010 | Advanced Shielded Metal Arc I

Lecture/Lab Credit: 4

Covers safety inspections, minor repairs, operating parameters, operation of SMAW equipment, and SMAW operations on groove and fillet welds utilizing E-6010 and E-7018 electrodes. Layout procedures will be practiced during this course.

Prerequisite: WEL 1003 and MAT 1150 with a grade of C or better

WEL 1011 | Advanced Shielded Metal Arc II

Lecture/Lab Credit: 4

Covers safety inspections, minor repairs, operating parameters, operation of SMAW equipment utilizing various electrodes, essential welding information from codes or other standards, and performance of weld inspections.

Prerequisite: WEL 1010 with a grade of C or better

WEL 1024 | Introduction to Gas Tungsten Arc Welding

Lecture/Lab Credit: 4

Covers welding in all positions and on various joint configurations using the GTAW (tig) welding process on carbon steel, stainless steel and aluminum. Student should be familiar with basic metallurgy pertaining to the weldability of metals, structural joints, and safety in the welding industry.

Prerequisite: WEL 1001, WEL 1002, WEL 1006, and MAT 1150 (or any 4 credit math higher than MAT 1150) with a grade of C or better

Corequisite: WEL 1006 and MAT 1150 (or any 4 credit math higher than MAT 1150)

WEL 1025 | Introduction to Gas Metal Arc Welding

Lecture/Lab Credit: 4

Covers welding in all positions and on various joint configurations using the GMAW (mig) welding process on carbon steel, stainless steel and aluminum. Student should be familiar with basic metallurgy pertaining to the weldability of metals, structural joints, and safety in the welding industry.

Prerequisite: WEL 1001, WEL 1002, WEL 1006 and MAT 1150 (or any 4 credit math higher than MAT 1150) with a grade of C or better

Corequisite: WEL 1006 and MAT 1150 (or any 4 credit math higher than MAT 1150)

WEL 1050 | AWS Qualification Testing

Lecture/Lab Credit: 1

Provides students with the opportunity to complete a welding qualification test in accordance with an American Welding Society code or specification.

Prerequisite: Department chair permission

WEL 1075 | Special Topics

Provides students with a vehicle to pursue in depth exploration of special topics of interest

Prerequisite: This course may require prerequisites or permission of instructor

Note: Special topics courses range from 0-12 credits and vary in learning type. Please see your program chair for more information about your options.

WEL 1076 | Special Topics

Provides students with a vehicle to pursue in depth exploration of special topics of interest

Prerequisite: This course may require prerequisites or permission of instructor

Note: Special topics courses range from 0-12 credits and vary in learning type. Please see your program chair for more information about your options.

WEL 1077 | Special Topics

Provides students with a vehicle to pursue in depth exploration of special topics of interest

Prerequisite: This course may require prerequisites or permission of instructor

Note: Special topics courses range from 0-12 credits and vary in learning type. Please see your program chair for more information about your options.

WEL 1078 | Seminar/Workshop

Lecture/Lab Credit: 1-6

Provides students with an experiential learning experience.

Prerequisite: WEL 1001, WEL 1002, and WEL 1006 with a grade of C or better

WEL 2002 | Gas Metal Arc Welding II

Lecture/Lab Credit: 4

Covers safety inspections, minor repairs, operating parameters, operation of GMAW equipment utilizing a variety of electrodes and base metals, and fundamental principles of welding metallurgy to welding, fabrication, and inspection.

Prerequisite: WEL 1025 with a grade of C or better

WEL 2024 | Advanced Gas Tungsten Arc Welding

Lecture/Lab Credit: 4

Covers welding in all positions on carbon steel, stainless steel and aluminum plate and carbon steel pipe with the GTAW process. Student should be familiar with basic metallurgy pertaining to the weldability of metals, structural joints, and safety in the welding industry.

Prerequisite: WEL 1024 and MAT 1150 with a grade of C or better

WEL 2030 | Pipe Welding I

Lecture/Lab Credit: 4

Covers safety inspections, minor repairs, operating parameters, and operation of SMAW, GMAW, and FCAW equipment in a variety of positions on plain carbon steel pipe joints. Also covers evaluating and solving complex welding and fabrication problems and administering hands on training and supervision to other students during assigned fabrication and welding operations.

Prerequisite: WEL 1010 and WEL 1024 with a grade of C or better, or department chair permission

WEL 2051 | Design, Layout and Fabrication

Lecture/Lab Credit: 4

Develops advanced welding and associated skills in the use of drawings and blueprints in planning. This course includes designing and layout projects.

Prerequisite: WEL 1024 with a grade of C or better

WEL 2064 | Creative Welding

Lecture/Lab Credit: 4

Introduces design and construction of welded sculptures with the use of different fabrication techniques. This course includes uses of different metalworking machines, hot and cold working practices, and demonstration of coloring and texturing metal.

Prerequisite: WEL 1001, WEL 1002, and WEL 1006 with a grade of C or better

WEL 2080 | Internship

Internship Credit: 3

Offers individualized instruction at job site. The student is encouraged to develop skills needed to enter employment in the welding industry.

Prerequisite: WEL 1011, WEL 1024, and WEL 1025 with a grade of C or better; a grade point average of 2.5 or better; and department chair permission