

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
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WELD • Welding

WELD1060 Theory of OA/SMAW L 40 - 4
Prerequisite: Current declared Academic Transfer – STS option or currently enrolled at UNL in AG or STS education focus.

Theory, safety, equipment, application and operation of Oxy-Acetylene welding and Shielded Metal Arc Welding. Note; this class will not meet welding program criteria and is not available to students wishing to enter the welding program.

WELD1070 OA/SMAW Lab L 20 90 5
Prerequisite: WELD1060

Laboratory exercises with Oxy-Acetylene and Shielded Metal Arc Welding equipment and processes. Note; this class will not meet welding program criteria and is not available to students wishing to enter the welding program.

WELD1080 GMAW/GTAW Theory & Lab 1 L 50 60 7
Prerequisite: Current declared Academic Transfer – STS option or currently enrolled at UNL in AG or STS education focus.

Theory, safety, equipment, application and operation of GMAW/GTAW welding processes. Laboratory exercises in the use of equipment for GMAW/GTAW. Note; this class will not meet welding program criteria and is not available to students wishing to enter the welding program.

WELD1090 GMAW/GTAW Lab 2 L - 60 2
Prerequisite: WELD1080

Laboratory exercises in the use of equipment for GMAW/GTAW. Note; this class will not meet welding program criteria and is not available to students wishing to enter the welding program.

WELD1100 Welding Orientation L/M 10 - 1
 Orientation to the college philosophy, goals, objectives within the welding program area.

WELD1110 SMAW Theory L/M 20 - 2
Prerequisite: WELD1100.

Study of Shielded Metal Arc Welding theory, safety, applications, procedures, and welding practices. Study and selection of power sources and electrodes.

WELD1112 SMAW Lab I L/M 20 60 4
Prerequisite: WELD1110.

Beginning welding of carbon steel with the Shielded Metal Arc Welding process on various joint configurations and with various electrodes.

WELD1113 SMAW Lab II L/M 20 60 4
Prerequisite: WELD1112.

Intermediate welding of carbon steel with the Shielded Metal Arc Welding process on various joint configurations and with various electrodes.

WELD1115 Equipment & Tools L/M 15 - 1.5
Prerequisite: WELD1100.

Explanation of safe operation and the proper use of equipment, power tools, and hand tools.

WELD1117 Oxyacetylene Theory L/M 20 - 2
Prerequisite: WELD1100.

Study of the theory, safety, equipment and applications of the Oxyacetylene Welding process.

WELD1119 OA Welding & Cutting L/M 10 60 3
Prerequisite: WELD1117.

Laboratory exercises with the Oxyacetylene Welding, Braze Welding, Oxyacetylene Cutting and related processes.

WELD1120 SMAW Lab III L 25 75 5
Prerequisite: WELD1113.

Advanced welding of carbon steel with the Shielded Metal Arc Welding process on various joint configurations and with various electrodes.

WELD1122 GMAW Theory L/M 30 - 3
Prerequisite: WELD1100.

Study of Gas Metal Arc Welding theory, safety, applications, manipulative skills, welding principles, and procedures. Study and use of various filler wires and shielding gases and welding power source set-up.

WELD1124 GMAW Lab I L/M 10 60 3
Prerequisite: WELD1122.

Beginning welding of carbon steel with the Gas Metal Arc Welding process on various joint configurations.

WELD1126 GMAW Lab II L/M 10 60 3
Prerequisite: WELD1124.

Advanced welding of carbon steel with the Gas Metal Arc Welding process on various joint configurations.

WELD1128 Blueprint Reading & Weld Symbols L/M 50 - 5
Prerequisite: WELD1100.

Introduction to blueprint reading and drawing procedures. Interpretation and drawing of isometric, oblique, and orthographic views, welding symbols, and bill of materials.

WELD1129 Computer Aided Drafting L/M 20 15 2.5
Prerequisite: WELD1128.

Fundamentals of computer aided drafting using AutoCAD®. Study of the AutoCAD® menus, settings and drawing setup, draw and edit commands, AutoCAD® coordinate system, symbols, practice drawings and plotting.

WELD1130 Metallurgy I L/M 40 - 4
Prerequisite: WELD1100.

Study of the production of metals, methods of identification, properties of metals, methods of metallurgical examination, mechanical testing and chemistry of welding.

WELD1135 Advanced OA & Plasma Cutting L/M 10 30 2
Prerequisite: WELD1119.

Theory of the Plasma Arc Cutting process and advanced laboratory exercises to include the use of automated equipment.

WELD1139 Welding Measurement & Layout L/M 30 30 4
Prerequisite: WELD1100.

Explanation of layout procedures used in the welding and fabrication industry.

WELD1140 Metallurgy II L/M 30 - 3
Prerequisite: WELD1130.

Study of the structure of metals, heat treatment and welding, and the control of stresses in welding.

WELD1143 Pipe Welding & Cutting L/M 30 30 4
Prerequisites: WELD1113, WELD1119, WELD1139.

Study and practical applications in pipe welding and cutting. Includes pattern making, layout, cutting, fitting, and welding.

WELD1144 GTAW Theory L/M 20 - 2
Prerequisite: WELD1100.

Study of Gas Tungsten Arc Welding theory, safety, principles, applications, procedures, and welding practices. Study and use of tungsten electrodes, filler wires, shielding gases, and power source selection and set-up.

WELD1148 GTAW (Mild Steel) L/M 15 75 4
Prerequisite: WELD1144.

Welding of carbon steel with the Gas Tungsten Arc Welding process in all positions and on various joint configurations.

WELD1149 GTAW (SS & AL) L/M 10 60 3
Prerequisite: WELD1144.

Welding of stainless steel and aluminum with the Gas Tungsten Arc Welding process in all positions and on various joint configurations.

WELD1174 Machine Tool Welding L 10 23 1.5

Basic welding and practice in joining metals together. Preparation for MACH1225 Materials of Industry.

WELD1176 Automotive & Motorcycle Welding L 15 45 2.5

Introduction to basic welding skills used in the automotive and motorcycle professions. This course includes knowledge of safety in the welding shop, Oxy-Acetylene and MIG welding processes.

WELD1181 Automotive, ASEP, ASSET, & CAP Welding M 10 15 1.5
Prerequisite(s): Limited to AUTT, ASEP, ASST, CAPP Programs

Theory and practice of "GMAW" welding, braze welding, and oxyacetylene cutting. Equipment setup, safety, and operation is stressed.

COURSE DESCRIPTIONS

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WELD1182 Welding Process for NDT M 20 30 3

Prerequisite(s): Limited to NDT Program

Introduction to the theory and practice of oxyacetylene hand torch cutting. SMAW practice, to include the study of variables and parameters of the equipment and operation. Safety of the welding and cutting equipment along with lab work will be stressed.

WELD1183 HVAC Welding Practices M 10 20 1.5

Prerequisite(s): Limited to HVAC Program

Study of theory and practice of welding, cutting fundamentals including safety, oxy-fuel braze welding, flame cutting, and ARC welding.

WELD1184 Welding for Electrical & Electromechanical M 20 30 3

Prerequisite(s): Limited to ELEC Program

Fundamentals of oxyacetylene equipment, OA cutting, brazing. Arc welding theory and lab practice with emphasis on maintenance welding. Safe operation of equipment and application emphasized.

WELD1185 Diesel Truck, JDAT, & JDCE Welding M 10 20 1.5

Prerequisite(s): Limited to DESL-Truck, JDAT, JDCE Programs

The theory and practice of oxyacetylene braze welding and cutting including proper operation of equipment. Principles, safety, procedures, and application of gas metal Arc Welding (MIG).

WELD1186 Building Construction Welding M 6 30 1.5

Prerequisite(s): Limited to CNST Program

Theory and practice of shield metal arc welding and oxyacetylene torch cutting. Emphasis on safety, equipment setup, and operation as it applies to the construction industry.

WELD1187 Welding for Ag Equipment M 10 30 2

Prerequisite(s): Limited to Ag Equipment Program

Theory and practice of oxy-acetylene braze welding and cutting, including proper operation of equipment. Principles and applications of SMAW (stick) in the flat, horizontal position.

WELD1188 Deere Welding II M 5 25 1

Prerequisite(s): Limited to JDCE Program

Principles and application of arc welding in the flat, horizontal, and vertical positions. Practice with air carbon arc cutting, along with the study of basic metals and metal properties as applied to Deere Construction & Forestry Equipment.

WELD1189 Shielded Metal Arc Diesel Welding M 5 15 1

Prerequisite(s): Limited to DESL-Truck Program

Instruction and practice in SMAW (stick welding) to include equipment set-up and safety.

WELD1252 GMAW (SS & AL) L 20 60 4

Prerequisite: WELD1122.

Theory and practical exercises using the Gas Metal Arc Welding process in the welding of stainless steel and aluminum.

WELD1271 Special Welding Applications L 5 15 1

Course requirements and objectives arranged with program chair.

WELD1272 Special Welding Applications L 10 30 2

Course requirements and objectives arranged with program chair.

WELD1273 Special Welding Applications L 10 60 3

Course requirements and objectives arranged with program chair.

WELD1274 Special Welding Applications L 10 90 4

Course requirements and objectives arranged with program chair.

WELD1275 Special Welding Applications L 10 120 5

Course requirements and objectives arranged with program chair.

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WELD2250 FCAW L/M 15 75 4

Prerequisite: WELD1122.

Study of the Flux Cored Arc Welding process theory and laboratory exercises using the process in all positions and on various joint configurations.

WELD2254 Welding Codes & Standards L/M 25 - 2.5

Prerequisites: WELD1110, WELD1117, WELD1122, WELD1128, WELD1144.

Study of welding codes and standards required for the qualification and certification of welding personnel.

WELD2256 Welder Pre-Qualification L/M 25 105 6

Prerequisite: WELD2254.

Practice of techniques and procedures within established codes and standards in preparation for taking a qualification test.

WELD2258 Welder Qualification /Certification L/M 20 60 4

Prerequisite: WELD2256.

Student qualification/certification tests in structural and/or pipe welding in compliance with the code and/or standards of American Welding Society, American Society of Mechanical Engineers or recognized codes and standards of industry.

WELD2262 Welding Fabrication & Repair L/M 10 90 4

Prerequisite: WELD1113, WELD1126, WELD1128, WELD1135, WELD1139, WELD1140, WELD1148, WELD1149.

Design and fabrication of various projects to include the basic design and use of jigs and fixtures. Repair and maintenance of projects employing the major welding processes.

WELD2264 Quality Control & NDT Methods L/M 60 - 6

Prerequisite: WELD1100.

Theory of nondestructive testing methods, welding discontinuities, weld inspection and quality assurance.

WELD2901 Cooperative Experience M - 420 12

Prerequisite: 5th Quarter Standing.

On-the-job experience within an industrial welding/metallurgy related company. Practice of skills and knowledge acquired though previous quarters. Preparation for full-time employment.