

# WELDING (WEL)

## WEL 116 Welding I: Oxyacetylene (2 CR.)

Teaches oxygen/acetylene welding and cutting including safety of equipment, welding, brazing and soldering procedures, and cutting procedures. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

## WEL 120 Introduction to Welding (2 CR.)

Introduces history of welding processes. Covers types of equipment, and assembly of units. Stresses welding procedures such as fusion, non-fusion, and cutting oxyacetylene. Introduces arc welding. Introduces MIG welding. Emphasizes procedures in the use of tools and equipment. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week.

Credit for Prior Learning available for this course. More information at <https://www.nvcc.edu/admissions/cpl.html>.

## WEL 121 Arc Welding (2 CR.)

Studies the operation of AC and DC power sources, weld heat, polarities, and electrodes for use in joining various alloys by the SMAW process. Covers welds in different types of joints and different welding positions. Emphasizes safety procedures. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

**Prerequisite(s)** WEL 120

## WEL 122 Welding II: Electric Arc (3 CR.)

Teaches electric arc welding, including types of equipment, selection of electrodes, safety equipment and procedures, and principles and practices of welding. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

**Prerequisite(s)** WEL 121 or instructor's approval

## WEL 126 Pipe Welding I (3 CR.)

Teaches metal arc welding processes including the welding of pressure piping in the horizontal, vertical, and horizontal-fixed positions in accordance with section IX of the ASME Code. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

**Prerequisite(s)** WEL 122 or instructor's approval

Credit for Prior Learning available for this course. More information at <https://www.nvcc.edu/admissions/cpl.html>.

## WEL 127 Pipe Welding II (3 CR.)

Prerequisite is WEL 126 or instructor's approval. Provides practice in the welding of pressure piping in the horizontal, vertical, and fixed positions. Laboratory 9 hours per week.

Credit for Prior Learning available for this course. More information at <https://www.nvcc.edu/admissions/cpl.html>.

## WEL 130 Inert Gas Welding (3 CR.)

Introduces practical operations in the uses of inert-gas-shield arc welding. Discusses equipment, safety operations, welding practices in the various positions; shielded gases, filler rods, process variations and applications; and manual and semi-automatic welding. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

## WEL 141 Welder Qualification Tests I (3 CR.)

Studies techniques and practices of testing welded joints through destructive and nondestructive tests, guiding, discoloration heat test, porous examinations, and tensile, hammer, and free bend tests. Also studies visual, magnetic, and fluorescent tests. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

## WEL 142 Welder Qualification Tests II (3 CR.)

Studies techniques and practices of testing welded joints through destructive and nondestructive tests, guiding, discoloration heat test, porous examinations, and tensile, hammer, and free bend tests. Also studies visual, magnetic, and fluorescent tests. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

## WEL 145 Welding Metallurgy (3 CR.)

Studies steel classifications, heat treatment procedures, and properties of ferrous and nonferrous metals. Discusses techniques and practices of testing welded joints and destructive/nondestructive, visual magnetic, and fluorescent testing. Lecture 3 hours per week.

**Prerequisite(s)** WEL 122, WEL 141, WEL 150, and MTH 111 or instructor's approval

## WEL 146 Welding Quality Control (3 CR.)

Teaches techniques and practices of inspection and interpretation of tests and measurements. Includes radiographic tests of joints of unlimited thickness welded in 3G and 4G positions. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

**Prerequisite(s)** WEL 142, WEL 150, and MTH 111 or instructor's approval

## WEL 150 Welding Drawing And Interpretation (2 CR.)

Teaches fundamentals required for successful drafting as applied to the welding industry, including blueprint reading, geometric principles of drafting and freehand sketching, basic principles of orthographic projection, preparation of drawings, and interpretation of symbols. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week.

## WEL 160 Semi-Automatic Welding Processes (3 CR.)

Introduces semi-automatic welding processes with emphasis on practical application. Includes the study of filler wires, fluxes, and gases. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.