

# WELD - WELDING

## WELD 101 - Basic Metals

Units: 3

Basic techniques of metal forming and fabrication using drill press, lathe, milling machine; soldering; brazing; oxyacetylene and electric arc welding.

*Transferability: May not transfer towards an NSHE bachelor's degree*

## WELD 198 - Special Topics in Welding

Units: 0.5-6

Various short courses and experimental classes covering a variety of subjects. The course will be a variable credit of one-half to six credits depending on the course content and number of hours required. The course may be repeated for up to six credits.

*Transferability: May not transfer towards an NSHE bachelor's degree*

## WELD 205 - CNC PAC I

Units: 3

This course will introduce student to CNC setup, operation and basic applications. Student should be able to explain operator safety, cutting table layout, data input, program preparation and plasma operation.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Corequisite: WELD 206. 20/20 vision (corrected), good hand-eye coordination, general good health.*

## WELD 206 - CNC PAC I Practice

Units: 2

This course is designed to give students the opportunity to hone their skills in basic CNC operation in a lab setting. Practice time is allowed to perfect skills and complete lab assignments.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: WELD 205 co-requisite, 20/20 vision(corrected), good eye-hand coordination, general good health.*

## WELD 211 - Welding I

Units: 3

This course introduces the learner to the world of welding. The course includes general shop safety and environmental issues; introduction to oxygen/fuel gas supply systems, the oxyfuel cutting process, and the SMAW (Shielded Metal Arc-Welding) process; and an introduction to interpreting basic welding symbols. This course satisfies 4 hours of instruction toward completing the embedded human relations curriculum requirements, in accordance with Embedded Curriculum Guidelines Option A. This course satisfies 8 hours of instruction toward completing the embedded mathematics curriculum requirements, in accordance with Embedded Curriculum Guidelines Option A.

*Enrollment Requirements: Corequisite: WELD 212. 20/20 vision (corrected), good hand-eye coordination, general good health.*

## WELD 212 - Welding I Practice

Units: 2

The oxyfuel section will develop the student's manual skills necessary to produce high quality flame cuts using manual operated flame cutting equipment and accessories. The student learns and practices the set up processes for the equipment for all phases of oxyfuel cutting. The shielded metal-arc welding (SMAW) section develops entry-level skills for welders. This course specifically develops basic SMAW skills as striking the arc, maintaining proper arc length, adjusting equipment and manipulating the electrode. This course satisfies 3.5 hours of instruction toward completing the embedded human relations curriculum requirements, in accordance with Embedded Curriculum Guidelines Option A. This course satisfies 4 hours of instruction toward completing the embedded mathematics curriculum requirements, in accordance with Embedded Curriculum Guidelines Option A.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite: WELD 211. May also be taken concurrently with WELD 211.*

## WELD 215 - Introduction to Welding Fabrication Techniques

Units: 3

This course introduces the learner to Fabrication techniques used in the welding industry including: planning/organizing, math, cutting/processing material, fit-up techniques and finish techniques.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite: Completion of 15 credits in welding and 1 drafting class excluding DFT 110.*

## WELD 221 - Welding II

Units: 3

This course is a continuation of Welding I and emphasizes SMAW vertical and overhead positions and machine oxyfuel gas cutting. In addition, the course introduces GMAW (gas metal arc welding) and air carbon arc cutting. This course satisfies 4 hours of instruction toward completing the embedded human relations curriculum requirements, in accordance with Embedded Curriculum Guidelines Option A. This course satisfies 8 hours of instruction toward completing the embedded mathematics curriculum requirements, in accordance with Embedded Curriculum Guidelines Option A.

*Enrollment Requirements: Prerequisite: WELD 101 or WELD 212 or instructor approval. Corequisite: WELD 222.*

## WELD 222 - Welding II Practice

Units: 2

This course is designed to give learners the opportunity to hone their skills in oxyfuel machine cutting, SMAW vertical and overhead positions, GMAW basic skills and air carbon arc cutting processes. Ample practice time is allocated to perfect skills and complete lab assignments.

This course satisfies 3.5 hours of instruction toward completing the embedded human relations curriculum requirements, in accordance with Embedded Curriculum Guidelines Option A. This course satisfies 4 hours of instruction toward completing the embedded mathematics curriculum requirements, in accordance with Embedded Curriculum Guidelines Option A.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite: WELD 221. May be taken concurrently with WELD 221.*

## WELD 225 - Independent Study

Units: 1-6

This course is designed for the student who has a particular interest in welding and wants to concentrate in that area. This is a contractual course.

*Transferability: May not transfer towards an NSHE bachelor's degree*

## WELD 231 - Welding III

Units: 3

This course is a continuation of Welding II and focuses on the GMAW and the FCAW processes. The Air Carbon Arc Cutting section will further develop skills in the process. The student will develop skills required to make fillet and groove welds in all positions using GMAW and FCAW processes. The student will be introduced to the Plasma Arc Cutting Process.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite: WELD 222 or instructor approval.*

*Corequisite: WELD 232.*

## WELD 232 - Welding III Practice

Units: 2

This course is designed to give learners the opportunity to hone their skills in the GMAW and FCAW processes in all positions by providing them with hands-on time and individual instruction. The learner will also practice Air Carbon Arc Cutting and Plasma Arc Cutting on ferrous and nonferrous materials. Ample practice time is allocated to perfect skills and complete lab assignments. WELD 232 is required concurrently with WELD 231, but may be taken as a separate course.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite: WELD 231. May be taken concurrently with WELD 231.*

**WELD 241 - Welding IV****Units: 3**

This course is a continuation of WELD 231 and places an emphasis on the GTAW process in all positions on ferrous and nonferrous materials. This course also covers the advanced FCAW process and concentrates on the skills needed to pass the AWS certification test in all positions using the FCAW process. The Student at this level of training may opt to develop skills in the welding of pipe using the SMAW or FCAW processes.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite: WELD 222 or WELD 232 or instructor approval. Corequisite: WELD 242*

**WELD 242 - Welding IV Practice****Units: 2**

This course is designed to give learners the opportunity to work on their skills in the GTAW process, perfect their skills in the FCAW process by providing them with individualized instruction and full hands-on practice in preparation and welding of ferrous and nonferrous materials. At this point in training students may also start developing skills necessary to weld pipe using the SMAW or FCAW processes. Ample practice time is allocated to perfect skills and complete lab assignments. WELD 242 is required concurrently with WELD 241, but may be taken as a separate course. This course may be repeated for up to six credits.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite: WELD 241. May be taken concurrently with WELD 241.*

**WELD 250 - Welding Certification Preparation****Units: 1-12**

This course is a contractual course designed for the advanced student who is pursuing AWS (American Welding Society), ASME (American Society of Mechanical Engineers), or API (American Petroleum Institute) certification(s). This course is also beneficial to the student requiring additional hands-on practice in order to better their individual skill in a selected process or processes. Instruction will be given on an individual basis.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite: WELD 241 or instructor approval.*

**WELD 255 - CNC PAC II****Units: 3**

This course will build upon the WELD 205/WELD 206 courses. It is designed to increase the student's knowledge and training of the CNC equipment. The student will develop skills in beginning CNC operations. They will increase their skills in blueprint reading to convert various materials into precise usable parts using CNC equipment. These usable skills will directly transfer to the workplace.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Completion of WELD 205, WELD 206, WELD 211 and WELD 212.*

**WELD 256 - CNC PAC II Practice****Units: 2**

This course is designed to give students the opportunity to hone their skills in CNC operation in a lab setting. Practice time is allowed to perfect skills and complete lab assignments.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite: WELD 205 and WELD 206. Co-requisite: WELD 255. Must have 20/20 vision (corrected), good eye-hand coordination, general good health.*

**WELD 290 - Internship in Welding****Units: 1-8**

This course is designed for the student who wants to get practical on-the-job training in welding with a local company. Credit is awarded at a rate of 45 hours of work per credit for the successful accomplishment of specific, individualized occupational learning outcomes, work-time requirement and an employer evaluation.

*Transferability: May not transfer towards an NSHE bachelor's degree*