

WELDING TECHNOLOGY

Rock Creek Campus
Building 2, Room 131
971-722-7600 or 971-722-7331

www.pcc.edu/programs/welding/

CAREER AND PROGRAM DESCRIPTION

Welding is a skill used by many trades: sheet metal workers, ironworkers, boilermakers, carpenters, steamfitters, glaziers and repair and maintenance personnel in applications ranging from the home hobbyist to heavy fabrication of bridges, ships and many other projects. A variety of welding processes are used to join units of metal.

The Welding Technology Program has been developed specifically as an open entry and open exit (OEOE) program. The program is designed to fit the needs of a student (take as few or as many courses as desired), and have the following characteristics: open entry (enter at any time during the term); self-paced (learn at your own pace); flexible (select your own attendance schedule); individualized (a program can be tailor-made to fit specific needs); and, open exit (leave the program when you have met your training goals/needs).

The program provides training in S.A.W. (Submerged Arc Welding), S.M.A.W. (shielded metal arc welding,) G.T.A.W. (gas tungsten arc welding,) G.M.A.W. (gas metal arc welding,) F.C.A.W. (flux-cored arc welding,) O.A.W. (oxy-acetylene welding,) O.A.C. (oxy-acetylene cutting,) C.A.C. (carbon arc cutting,) P.A.C. (plasma arc cutting,) and basic fabrication. Lecture portions of the program include blueprint reading, welding principles, and codes and standards.

Consult a program advisor through the department to help plan a course of study that will allow you to achieve your educational goals.

DEGREE AND CERTIFICATES OFFERED:

Associate of Applied Science Degree

Welding Technology

Two-Year Certificate

Welding Technology - *Suspended*

Less than One-Year Certificate

Welding Technology

PREREQUISITES AND REQUIREMENTS

Contact department for program advising.

WELDING TECHNOLOGY AAS DEGREE

Minimum 97 credit hours. Students must also meet Associate Degree Comprehensive Requirements and Associate of Applied Science Requirements. Students must complete a total of sixteen credits of General Education. Students should consult with program/academic advisors for course planning.

Welding Technology Degree Credit Summary

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|---------------------------|-----------------|
| WLD | 69 |
| Welding Program Electives | 12 |
| <u>General Education</u> | <u>16</u> |
| | Credit Total 97 |

Welding Degree Courses

| | | | |
|-----|-----|--|----|
| WLD | 101 | Welding Processes and Applications | 4 |
| WLD | 102 | Blue Print Reading | 4 |
| WLD | 111 | Shielded Metal Arc Welding (E7024) and Oxy-acetylene Cutting | 4 |
| WLD | 112 | Shielded Metal Arc Welding: Mild Steel I (E7018) | 4 |
| WLD | 113 | Shielded Metal Arc Welding: Mild Steel II (E7018) | 4 |
| WLD | 114 | Shielded Metal Arc Welding: Mild Steel III (E6011) | 3 |
| WLD | 131 | Gas Metal Arc Welding | 3 |
| WLD | 132 | Gas Metal Arc Welding-Pulse | 3 |
| WLD | 141 | Flux-Cored Arc Welding I (Gas Shielded) | 3 |
| WLD | 142 | Flux-Cored Arc Welding II (Self Shielding) | 3 |
| WLD | 151 | SMAW Certification Practice: Unlimited Thickness Mild Steel | 3 |
| WLD | 152 | Wire Welding Certification Practice | 6 |
| WLD | 203 | Structural Steel Welding Codes and Standards | 4 |
| WLD | 221 | Gas Tungsten Arc Welding: Mild Steel | 3 |
| WLD | 222 | Gas Tungsten Arc Welding: Aluminum | 3 |
| WLD | 223 | Gas Tungsten Arc Welding: Stainless Steel | 3 |
| WLD | 261 | Basic Fabrication I | 6 |
| WLD | 263 | Welding Technology-Capstone | 6 |
| | | Welding Program Electives | 12 |
| | | General Education | 16 |

WELDING TECHNOLOGY TWO-YEAR CERTIFICATE

The Welding Technology Two-Year Certificate has been suspended for the 2011-2012 academic year. For more information or availability of courses please contact the department at 971-722-7600 or visit the department web site at www.pcc.edu/programs/welding/.

WELDING TECHNOLOGY LESS THAN ONE-YEAR CERTIFICATE

Minimum 44 credits. Students must meet certificate requirements. The Welding Technology Certificate is a related certificate. All courses within the certificate are in the Welding Technology AAS Degree.

Welding Technology Certificate Summary

| | |
|-----|-----------------|
| WLD | 44 |
| | Credit Total 44 |

Welding Technology Certificate Courses

| | | | |
|-----|-----|--|---|
| WLD | 101 | Welding Processes and Applications | 4 |
| WLD | 102 | Blue Print Reading | 4 |
| WLD | 111 | Shielded Metal Arc Welding (E7024) and Oxy-acetylene Cutting | 4 |
| WLD | 112 | Shielded Metal Arc Welding: Mild Steel I (E7018) | 4 |
| WLD | 113 | Shielded Metal Arc Welding: Mild Steel II (E7018) | 4 |
| WLD | 114 | Shielded Metal Arc Welding: Mild Steel III (E6011) | 3 |
| WLD | 131 | Gas Metal Arc Welding | 3 |
| WLD | 132 | Gas Metal Arc Welding-Pulse | 3 |
| WLD | 141 | Flux-Cored Arc Welding I (Gas Shielded) | 3 |
| WLD | 142 | Flux-Cored Arc Welding II (Self Shielding) | 3 |

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|----------------------------------|------|--|---|
| WLD | 151 | SMAW Certification Practice: Unlimited Thickness Mild Steel | 3 |
| WLD | 152 | Wire Welding Certification Practice | 6 |
| Welding Program Electives | | | |
| WLD | 115 | Shielded Metal Arc Welding: Mild Steel IV (E6011) | 3 |
| WLD | 116A | Beginning Shielded Metal Arc Welding | 3 |
| WLD | 116B | Beginning Welding Practice | 3 |
| WLD | 126A | Beginning Gas Tungsten Arc Welding (Heliarc) | 3 |
| WLD | 216 | Miscellaneous Electrodes and Advanced Positions | 3 |
| WLD | 216A | Intermediate Welding Practice | 3 |
| WLD | 216B | Advanced Welding Practice | 3 |
| WLD | 224 | Gas Tungsten Arc Welding: (Mild Steel) Pipe I | 3 |
| WLD | 225 | Gas Tungsten Arc Welding: (Mild Steel) Pipe II | 3 |
| WLD | 226A | Intermediate Gas Tungsten Arc Welding (Heliarc) | 3 |
| WLD | 226B | Advanced Gas Tungsten Arc Welding (Heliarc) | 3 |
| WLD | 253 | SMAW Certification Practice 3/8" Mild Steel (E6011) | 3 |
| WLD | 254 | SMAW Certification Practice 3/8" Mild Steel (E7018) | 3 |
| WLD | 256 | Preparation for Pipe Certification I | 3 |
| WLD | 257 | Preparation for Pipe Certification II | 3 |
| WLD | 262 | Basic Fabrication II | 6 |
| WLD | 266B | Advanced Welding Practice for Metal Sculpting | 3 |
| WLD | 271 | Oxy-acetylene Welding Projects | 3 |
| WLD | 280A | Cooperative Education: Welding | 4 |
| WLD | 280B | CE: Welding - Seminar I | 1 |
| WLD | 290 | Submerged Arc Welding | 2 |
| WLD | 295 | Welding Sculpture | 4 |

WLD 114 Shielded Metal Arc Welding: Mild Steel III (E6011) 3.00
Develops knowledge and manipulative skills in the use of E6011 mild steel electrodes when performing various welds in the flat, horizontal and vertical positions. Department permission required. Audit available.

WLD 115 Shielded Metal Arc Welding: Mild Steel IV (E6011) 3.00
Develops knowledge and manipulative skills in the use of E6011 mild steel electrodes when performing various welds in the vertical and overhead positions. Department permission required. Audit available.

WLD 116A Beginning Shielded Metal Arc Welding 3.00 Introduces intermediate shielded metal arc welding process on mild steel plate in accordance with AWS D1.1 Structural Steel welding codes and to industry standards. Introduces welding in the 1F and 2F positions. First class in a four course sequence. Audit available.

WLD 116B Basic Welding Practice 3.00 Introduces intermediate shielded metal arc welding practice on mild steel plate in accordance to AWS D1.1 Structural Steel welding codes and to industry standards. Introduces welding in the 3F and 4F positions. Second class in a four course sequence. Audit available.

WLD 126A Beginning Gas Tungsten Arc Welding (Heliarc) 3.00
Introduces gas tungsten arc welding and industry standards. Weld common joint configurations in the 1F and 2F positions. Develops foundational skills required for advancement in future course work. First class in a four course sequence. Audit available.

WLD 126B Basic Gas Tungsten Arc Welding (Heliarc) 3.00 Introduces gas tungsten arc welding and industry standards. Weld common joint configurations in the 3F and 4F positions. Develops foundational skills required for advancement in future course work. Second class in a four course sequence. Audit available.

WLD 131 Gas Metal Arc Welding 3.00 Develops knowledge and manipulative skills welding with solid wire on ferrous and non-ferrous materials using short arc in the flat, horizontal, vertical and overhead positions. Department permission required. Audit available.

WLD 132 Gas Metal Arc Welding-Pulse 3.00 Develops knowledge and manipulative skills using the Gas Metal Arc Welding - Pulse transfer process on common mild steel and aluminum joints in all positions. Covers safety, users, nomenclature, equipment operation and set up and shut down procedures. Audit available.

WLD 136A Beginning Wire Welding 3.00 Introduces common weld joint in the 1F and 2F positions. Develops foundational skills required for advancement in future coursework. First class in a four course sequence. Audit available.

WLD 136B Basic Wire Welding 3.00 Develops basic welding skills and industry standards as they apply to the wire welding process. Introduces common weld joints in the 2F and 3F positions. Develops foundational skills required for advancement in future coursework. Second class in a four course sequence. Audit available.

WLD 141 Flux-Cored Arc Welding I (Gas Shielded) 3.00 Develops knowledge and manipulative skills in the shielded flux-cored arc welding process in the flat, vertical, horizontal and overhead positions. Department permission required. Audit available.

WLD 142 Flux-Cored Arc Welding II (Self Shielding) 3.00 Develops knowledge and manipulative skills in the self-shielding arc welding process in the flat, vertical, horizontal and overhead positions. Department permission required. Audit available.

WLD 146A Beginning Pipe Welding Practice 3.00 Introduces joining pipe per ASME Section IX and industry standards. First class in a four course sequence. Audit available.

COURSE DESCRIPTIONS

WLD 101 Welding Process and Application 4.00 Covers welding processes, safety, equipment, and essential variables of operation. Audit available.

WLD 102 Blueprint Reading 4.00 Covers the language of blueprints including lines, views, dimensioning, print organization, welding symbols and structural shapes. Audit available.

WLD 111 Shielded Metal Arc Welding (E7024) and Oxy-acetylene Cutting 4.00 Covers uses, safety, nomenclature, equipment operation, set-up and shutdown procedures and welding related math and science for S.M.A.W. and O.A.C. Department permission required. Audit available.

WLD 112 Shielded Metal Arc Welding: Mild Steel I (E7018) 4.00
Develops knowledge and manipulative skills in the use of E7018 mild steel electrodes when performing various welds in the flat and horizontal positions. Welding applied math and science included. Department permission required. Audit available.

WLD 113 Shielded Metal Arc Welding: Mild Steel II (E7018) 4.00
Develops knowledge and manipulative skills in the use of E7018 mild steel electrodes when performing various welds in the vertical and overhead positions. Welding applied math and science included. Department permission required. Audit available.

WLD 146B Basic Pipe Welding Practice 3.00 Introduces joining pipe in the 2G position per ASME Section IX Welding Code. Second class in a four course sequence. Audit available.

WLD 151 SMAW Certification Practice: Unlimited Thickness Mild Steel 3.00 Covers safety, welding technique, and qualification procedures in compliance with AWS D1.1 structural test. Department permission required. Audit available.

WLD 152 Wire Welding Certification Practice 6.00 Methods and skills to improve and upgrade welding techniques to a qualification level to become certified in the gas metal arc and flux-cored arc welding processes. Department permission required. Audit available.

WLD 156A Beginning Oxy-Acetylene Welding Practice 3.00 Introduces the joining of plate using oxy-fuel welding. First class in a four course sequence. Audit available.

WLD 156B Basic Oxy-Acetylene Welding Practice 3.00 Introduces the joining of plate using oxy-fuel welding. Second class in a four course sequence. Audit available.

WLD 166A Beginning Weld Practice Metal Sculpting 3.00 Introduce welding processes and weld shop safety. Safety and operation of the oxy-acetylene cutting process as well as an overview of multiple weld processes and their essential variables as related to the fabrication of metal sculpture. First class in a four course sequence. Audit available.

WLD 166B Basic Weld Practice Metal Sculpting 3.00 Reviews, incorporates and builds upon material presented in WLD 166A. Introduces common weld joints as they apply to the fabrication of metal sculpture. Second class in a four course sequence. Audit available.

WLD 176A Beginning Fabrication Welding Practice 3.00 Introduces beginning fabrication of welded structures. First class in a four course sequence. Audit available.

WLD 176B Basic Fabrication Welding Practice 3.00 Introduction to basic fabrication of welded structures. Develops foundational skills required for advancement. Second class in a three course sequence. Audit available.

WLD 186A Beginning Certification Welding Practice 3.00 Introduces preparing and joining plates for certification as per AWS D1.1 Structural Steel Welding codes. First class in a four course sequence. Audit available.

WLD 186B Basic Certification Welding Practice 3.00 Introduces preparing and joining plates in the 2G position for certification as per AWS D1.1 Structural Steel Welding codes. Second class in a four course sequence. Audit available.

WLD 190A Beginning Welding Practice 1.00 Introduces welding and industry standards. Develops foundational skills required for advancement in future coursework. First class in a three course sequence. Audit available.

WLD 190B Basic Welding Practice 2.00 Develops basic knowledge and practice with a welding process and perform welding in accordance with industry standards. Develops foundational skills required for advancement in future coursework. Second class in a three course sequence. Audit available.

WLD 190C Intermediate Welding Practice 3.00 Introduction to the fillet weld in the 3F and 4F position to build the skills required to successfully certify in accordance with AWS D1.1 Welding Code. This class in a three course sequence. Audit available.

WLD 203 Structural Steel Welding Code & Standards 4.00 Develops technical knowledge necessary for the reading and understanding of the AWS Structural Steel Welding Code, D1.1. Purpose of course is to enable student to use a systematic method in the application and understanding of the Structural Steel Welding Code. Audit available.

WLD 210 Aviation Welding 2.00 Develop knowledge and manipulative skills with oxy-acetylene welding, torch brazing, and gas tungsten arc welding processes on steel and aluminum when performing various welds. Training will conform to current FAA 14CFR Part 147 requirements. Prerequisites: Placement into RD 90 or higher; placement into WR 90 or higher; MTH 60 or higher; AMT 101 with a "C" or higher. Audit available.

WLD 211 Auto Collision Repair Welding Aluminum 2.00 Develops knowledge and manipulative skills using the Gas Metal Arc Welding- Pulse transfer process on aluminum performing various welds to I-CAR industry standards. Covers safety, uses, nomenclature, equipment operation and set up and shut down procedures. Audit available.

WLD 216 Miscellaneous Electrodes & Advanced Positions 3.00 Develops knowledge and manipulative skills in the use of a variety of electrodes when welding complex joints and welding positions. Department permission required. Audit available.

WLD 216A Intermediate Welding Practice 3.00 Introduces intermediate shielded metal arc welding process in accordance with AWS D1.1 Structural Steel Welding Codes, and to industry standards. Weld mild steel in the 3F and 4F positions. Third class in a four course sequence. Audit available.

WLD 216B Advanced Metal Arc Welding 3.00 Introduces intermediate shielded metal arc welding, in accordance with AWS D1.1 Structural Steel Welding Codes, and to industry standards. Weld mild steel in the 3G and 4G positions. Fourth class in a four course sequence. Audit available.

WLD 217 Diesel Welding 3.00 Develops knowledge and skills in welding required of a diesel mechanic. Focuses on maintenance and repair applications using S.M.A.W., O.A.W., and O.A.C. processes. Department permission required. Audit available.

WLD 221 Gas Tungsten Arc Welding Mild Steel 3.00 Develops knowledge and manipulative skills while welding common joints in all positions on mild steel with the G.T.A.W. process. Department permission required. Audit available.

WLD 222 Gas Tungsten Arc Welding: Aluminum 3.00 Develops knowledge and manipulative skills while welding common joints in all positions on aluminum with the G.T.A.W. process. Department permission required. Audit available.

WLD 223 Gas Tungsten Arc Welding: Stainless Steel 3.00 Develops knowledge and manipulative skills while welding common joints in all positions on stainless steel with the G.T.A.W. process. Department permission required. Audit available.

WLD 224 Gas Tungsten Arc Welding: (Mild Steel) Pipe I 3.00 Develops knowledge and manipulative skills required to weld mild steel pipe in all positions using the G.T.A.W. process. Department permission required. Audit available.

WLD 225 Gas Tungsten Arc Welding: (Mild Steel) Pipe II 3.00 Develops knowledge and manipulative skills while welding a variety of diameters mild steel pipe in the 6G, (fixed 45 angle) using the G.T.A.W. process. Department permission required. Audit available.

WLD 226A Intermediate Gas Tungsten Arc Welding (Heliarc) 3.00 Introduces gas tungsten arc welding on Aluminum to industry standards. Weld common joint configurations. Develops foundational skills required for advancement in future coursework. Third class in a four course sequence. Audit available.

WLD 226B Advanced Gas Tungsten Arc Welding (Heliarc) 3.00 Introduces gas tungsten arc welding on Stainless Steel to industry standards. Weld common joint configurations. Develops foundational skills required for advancement in future course work. Fourth class in a four course sequence. Audit available.

WLD 236A Intermediate Wire Welding 3.00 Introduces welding in the 3F and 3G positions and weld quality as it applies to industry standards in the wire welding process. Develops foundational skills required for advancement in future coursework. Third class in a four course sequence. Audit available.

WLD 236B Advanced Wire Welding 3.00 Introduces welding in 4F and 4G positions. Puddle and heat control in the overhead position. Knowledge of weld quality as it applies to the wire welding process. Develops foundational skills required for "out of position welding." Fourth class in a four course sequence. Audit available.

WLD 246A Intermediate Pipe Welding Practice 3.00 Introduces joining pipe in the 6G position per ASME Section IX Welding Code. Third class in a four course sequence. Audit available.

WLD 246B Advanced Pipe Welding Practice 3.00 Introduces joining pipe in the 5G position per ASME Section IX Welding Code. Fourth class in a four course sequence. Audit available.

WLD 253 SMAW Certification Practice 3/8" Mild Steel (E6011) 3.00 Practice for the American Welding Society Mild Steel Welding Certification tests using SMAW mild steel electrodes in the horizontal, vertical and overhead positions. Department permission required. Audit available.

WLD 254 SMAW Certification Practice 3/8" Mild Steel (E7018) 3.00 Practice for the American Welding Society Mild Steel Welding Certification tests using SMAW low hydrogen electrodes in the vertical, horizontal and overhead positions. Department permission required. Audit available.

WLD 256 Preparation for Pipe Certification I 3.00 Develops knowledge and skills in the use of melt-through procedures in preparation for pipe welding with the shielded metal arc process. Department permission required. Audit available.

WLD 256A Intermediate Oxy-Acetylene Welding Practice 3.00 Introduces the joining of plate using oxy-fuel welding. Third class in a four course sequence. Audit available.

WLD 256B Advanced Oxy-Acetylene Welding Practice 3.00 Introduces the advanced joining techniques of plate using oxy-fuel welding. Fourth class in a four course sequence. Audit available.

WLD 257 Preparation for Pipe Certification II 3.00 Practice for pipe certification using the S.M.A.W. process to weld pipes in all positions. Department permission required. Audit available.

WLD 261 Basic Fabrication I 6.00 Develops fabrication knowledge and skills in selection and use of layout tools and equipment, to assemble a fabrication project from given specifications. Department permission required. Audit available.

WLD 262 Basic Fabrication II 6.00 Develops knowledge and skills in the proper selection and safe use of hand tools and machinery while working on specific fabrication projects. Department permission required. Audit available.

WLD 263 Welding Technology - Capstone 6.00 Students will demonstrate readiness for welding employment through the development and performance of a comprehensive hands-on welding related Service Learning Project, and the successful completion of an industry based written assessment. Prerequisite: Completion of One-Year Certificate of Completion in Welding Technology. Audit available.

WLD 266A Intermediate Weld Practice Metal Sculpting 3.00 Focuses on producing code quality welds as they apply to the fabrication of metal sculpture. Introduces AWS D1.1 welding code and visual inspection techniques. Third class in a four course sequence. Audit available.

WLD 266B Advanced Weld Practice Metal Sculpting 3.00 Review, practice and strengthen previously learned welding techniques in the fabrication of welded metal sculpture. Fourth class in a four course sequence. Audit available.

WLD 271 Oxy-acetylene Welding Projects 3.00 Practice hand coordination and controlling heat while welding steel with oxy-acetylene equipment using all positions. Department permission required. Audit available.

WLD 276A Intermediate Fabrication Welding Practice 3.00 Introduces intermediate fabrication of welded structures. Develops advanced skills as required for industry. Third class in a four course sequence. Audit available.

WLD 276B Advanced Fabrication Welding Practice 3.00 Introduces advanced fabrication of welded structures. Develops advanced skills as required for industry. Fourth class in a four course sequence. Audit available.

WLD 280A Cooperative Education: Welding On-the-job experiences which allow for the application and development of knowledge and skills acquired in the on-campus program. Work experiences are offered for variable credit up to a maximum of four credits. Department permission required. Audit available.

WLD 280B Cooperative Education: Welding - Seminar 1.00 Share experiences with other students and the on-campus instructor in order to develop strategies for successful cooperative work experiences and future employment. Department permission required. Audit available.

WLD 286A Intermediate Certification Welding Practice 3.00 Introduces preparing and joining plates in the 3G position for certification as per AWS D1.1 Structural Steel Welding codes. Third class in a four course sequence. Audit available.

WLD 286B Advanced Certification Welding Practice 3.00 Introduces preparing and joining plates in the 4G position for certification as per AWS D1.1 Structural Steel Welding codes. Fourth class in a four course sequence. Audit available.

WLD 290 Submerged Arc Welding 2.00 Develops knowledge and skills with the submerged arc welding process. Department permission required. Audit available.

WLD 295 Sculpture Welding II 4.00 Develops the artist's knowledge and skills with Oxyacetylene welding and cutting, SMAW (stick) welding, GMAW (wire) welding and TIG (gas tungsten) arc welding processes. Explores metal sculpture design and construction with supporting demonstrations, slides, lectures and films. Completion of ART 293 strongly recommended. No prior welding experience is required. Audit available.

WLD 9903 Welding Practice 1.50 Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required. Audit available.

WLD 9910 Shielded Metal Arc Welding (Stick) 3.00 Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required. Audit available.

WLD 9911 Shielded Metal Arc Welding (Stick) 3.00 Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required. Audit available.

WLD 9912 Shielded Metal Arc Welding (Stick) 3.00 Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required. Audit available.

WLD 9913 Shielded Metal Arc Welding (Stick) 3.00 Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required. Audit available.

WLD 9920 Gas Tungsten Arc Welding (Heliarc) 3.00 Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required. Audit available.

WLD 9921 Gas Tung Arc Welding (Heliarc) 3.00 Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required. Audit available.

WLD 9922 Gas Tung Arc Welding (Heliarc) 3.00 Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required. Audit available.

WLD 9923 Gas Tung Arc Welding (Heliarc) 3.00 Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required. Audit available.

WLD 9963 Welding Practice for Metal Sculpting 3.00 Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required. Audit available.