WELDING (WLD)

WLD 100 (2 credit hours)
Oxy-Fuel Systems
A working knowledge of oxy-fuel identification, set-up, inspection, and maintenance; consumable identification, selection and care; principles of operation; and effects of variables for manual and mechanized oxy-fuel cutting, welding, brazing principles and practices, and metallurgy. Shop safety and equipment use are also covered. Lecture: 2 credits (30 contact hours)
Co-requisite: WLD 101 or Consent of Instructor.
Attributes: Technical
Components: LEC: Lecture

WLD 101 (2 credit hours)
Oxy-Fuel Systems Lab
Manipulative skills necessary to weld and cut plate and pipe in all positions, as well as brazing, braze welding, and gouging. Lab: 2 credits (60 contact hours).
Co-requisite: WLD 100 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 110 (2 credit hours)
Cutting Processes
A working knowledge of various cutting processes used by the welding industry. Will include, but is not limited to, safety, theory of operation, setup and operating techniques, troubleshooting and making minor equipment repairs, terms and definitions, identification, evaluation, repair and prevention of discontinuities of cut surfaces. Includes oxy-fuel cutting, plasma arc cutting, exothermic cutting, air carbon arc cutting, shielded metal arc cutting, and mechanical cutting process. Lecture: 2 credits (30 contact hours)
Co-requisite: WLD 111 or Consent of Instructor.
Attributes: Technical
Components: LEC: Lecture

WLD 111 (3 credit hours)
Cutting Processes Lab
Designed to provide the student with practical experience to become proficient in the use of various metal cutting processes. Safety, setup, and operating techniques are employed. Students will troubleshoot and make minor repairs to equipment. Students will also learn to identify, repair, and prevent reoccurrence of cut surface discontinuities. Processes shall include, but not limited to: OFC, PAC, AAC, and mechanical methods. Various materials will be used where appropriate. Lab: 3 credits (90 contact hours)
Co-requisite: WLD 110 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 120 (2 credit hours)
Shielded Metal Arc Welding
Teaches students the identification, inspection, and maintenance of SMAW electrodes; principles of SMAW; the effects of variables on the SMAW process to weld plate and pipe; and metallurgy. Lecture: 2 credits (30 contact hours).
Co-requisite: WLD 121 or Consent of Instructor.
Attributes: Technical
Components: LEC: Lecture

WLD 121 (3 credit hours)
Shielded Metal Arc Welding Fillet Lab
Provides laboratory experiences in which the student acquires the manipulative skills to perform fillet welds in all positions. Laboratory: 3 credits (90 contact hours).
Co-requisite: WLD 120 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 123 (3 credit hours)
Shielded Metal Arc Welding Groove with Backing Lab
Provides experiences in which students acquire the manipulative skills to do groove welds in all positions with backing. Laboratory: 3 credits (90 contact hours).
Pre-requisite: WLD 120 and 121 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 130 (2 credit hours)
Gas Tungsten Arc Welding
Identification, inspection, and maintenance of GTAW machines; identification, selection and storage of GTAW electrodes; principles of GTAW; the effects of variables on the GTAW process; and metallurgy. This course also teaches the theory and application of Plasma Arc Cutting. Lecture: 2 credits (30 contact hours).
Co-requisite: WLD 131 or Consent of Instructor.
Attributes: Technical
Components: LEC: Lecture

WLD 131 (3 credit hours)
Gas Tungsten Arc Welding Fillet Lab
Teaches the necessary manipulative skills needed to apply the Gas Tungsten Arc on various joint designs on plate with both ferrous and non-ferrous metals. Plasma Arc cutting included. Laboratory: 3 credits (90 contact hours).
Co-requisite: WLD 130 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 133 (3 credit hours)
Gas Tungsten Arc Welding Groove Lab
Teaches the method of operation and application of the gas tungsten arc welding process for welding groove welds in both ferrous and non-ferrous plate in all positions. Laboratory: 3 credits (90 contact hours).
Pre-requisite: WLD 130 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 140 (2 credit hours)
Gas Metal Arc Welding
Identification, inspection, and maintenance of GMAW machines; identification, selection, and storage of GMAW electrodes; principles of GMAW; and the effects of variables on the GMAW process. Theory and applications of related processes such as FCAW and SAW and metallurgy are also included. Lecture: 2 credits (30 contact hours).
Attributes: Technical
Components: LEC: Lecture

WLD 141 (3 credit hours)
Gas Metal Arc Welding Fillet Lab
Teaches the practical application and manipulative skills of Gas Metal Arc Welding and the proper safety situations needed in this process. Both ferrous and non-ferrous metals will be covered, as well as various joint designs on plate in all positions. Laboratory: 3 credits (90 contact hours).
Co-requisite: WLD 140 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 143 (3 credit hours)
Gas Metal Arc Welding Groove Lab
Teaches the method of operation and application of the gas metal arc welding process for welding groove welds in both ferrous and non-ferrous plate in all positions using both short circuiting and spray transfer where appropriate. Laboratory: 3 credits (90 contact hours).
Pre-requisite: WLD 140 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 145 (1 credit hours)
Gas Metal Arc Welding Aluminum Lab
Teaches welding aluminum using the GMAW process. Fillets and groove welds are made in all positions in both plate and pipe. Short Circuiting and Spray transfers are used where appropriate. Laboratory: 1 credit (30 contact hours).
Pre-requisite: WLD 140 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 147 (1 credit hours)
Flux Cored Arc Welding Lab
Acquaints the student with the method of operation and application of the flux cored welding system. Laboratory: 1 credit (30 contact hours).
Pre-requisite: WLD 140 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 151 (2 credit hours)
Basic Welding A
Introduction to welding, cutting processes, and related equipment. Basic setup, operation, and related safety are applied. Lecture: 1 credit (15 contact hours). Laboratory: 1 credit (30 contact hours).
Attributes: Technical
Components: LAB: Laboratory, LEC: Lecture

WLD 152 (5 credit hours)
Basic Welding B
An introduction to common cutting and welding processes used in industry. Theory, setup, operation, and related safety are applied. Lecture: 2 credits (30 contact hours); Laboratory: 3 credits (90 contact hours).
Attributes: Technical
Components: LAB: Laboratory, LEC: Lecture

WLD 161 (1 credit hours)
Submerged Arc Welding Lab
Designed to provide the student with a working knowledge of SAW set-up, maintenance, and consumable identification. Includes practice in basic SAW principles and techniques related to the field of study. Laboratory: 1 credit (30 contact hours).
Pre-requisite: WLD 140 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 170 (2 credit hours)
Blueprint Reading for Welding
Provides a study of occupationally specific prints for welders. Advanced study of multi-view drawings, assembly drawings, datum dimensions, numerical control drawings, sheet metal prints, castings and forgings, instrumentation and control charts and diagrams, working drawings, geometric dimensioning and tolerancing and use of reference materials and books are included. Occupational specifics including welding drawings, symbols, joint types, grooves, pipe welding symbols, testing symbols and specification interpretations are stressed. Lecture: 2 credits (30 contact hours).
Co-requisite: WLD 171 or Consent of Instructor.
Attributes: Technical
Components: LEC: Lecture

WLD 171 (3 credit hours)
Blueprint Reading for Welding Lab
Provides students with an understanding of the fabrication process through computer modeling systems and creation of prints or through practice fabricating from a blueprint. Allows students to read and fabricate from detail prints, control distortion during fabrication, and follow proper welding sequence. Provides the option to generate detailed prints, create digital files, and generate work detailing the proper welding sequences. Utilizes welding symbols and study weld sizes and strengths. Laboratory: 3 credits (90 contact hours).
Co-requisite: WLD 170 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 198 (1-6 credit hours)
Special Topics in Welding
Various Welding Technology topics, issues and trends will be addressed. Topics may vary from semester to semester at the discretion of the instructor; course may be repeated with different topics to a maximum of six credit hours. Integrated Lecture: 1-6 credits (15-90 contact hours). Integrated Laboratory: 1-6 credits (30-180 contact hours)
Pre-requisite: Consent of instructor.
Attributes: Technical
Components: LAI: Integrated Laboratory, LEI: Integrated Lecture

WLD 220 (2 credit hours)
Welding Certification
Provides the student with a working knowledge of certification encountered in welding. The student will start with developing a WPS, qualify the WPS, and qualify personnel. Documents used in welding certification are developed and used. Lecture: 2 credits (30 contact hours).
Co-requisite: WLD 221 or Consent of Instructor.
Attributes: Technical
Components: LEC: Lecture

WLD 221 (3 credit hours)
Welding Certification Lab
Provides students an opportunity to test on all types of welding for certification standards. Laboratory: 3 credits (90 contact hours).
Co-requisite: WLD 220 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 225 (3 credit hours)
Shielded Metal Arc Welding Open Groove Lab
Designed to build upon SMAW Plate Lab I & II. Offers the student the opportunity to advance skills in the practical aspects of vee-butt plate welding using SMAW. Lab: 3 credits (90 contact hours).
Pre-requisite: WLD 120 and 121 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 227 (3 credit hours)
Shielded Metal Arc Welding Pipe Lab A
Teaches the required manipulative skills to arc weld pipe using mild steel electrodes in the 2G and 5G positions including proper pipe preparations, electrodes, safety precautions, and welding sequences. Fillet welds on pipe joints are also included in 2F, 2FR, 4F, and 5F positions. Lab: 3 credits (90 contact hours).
Pre-requisite: WLD 225 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 229 (3 credit hours)
Shielded Metal Arc Welding Pipe Lab B
Teaches the required manipulative skills to arc weld pipe using mild steel electrodes in the 6G position including proper pipe preparations, electrodes, safety precautions, and welding sequences. Lab: 3 credits (90 contact hours).
Pre-requisite: WLD 225 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 235 (3 credit hours)
Gas Tungsten Arc Welding Pipe Lab A
Teaches the method of operation and application of the gas tungsten arc welding system for welding of both ferrous and non-ferrous pipe in 2G and 5G positions. Lab: 3 credits (90 contact hours).
Pre-requisite: WLD 133 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 237 (3 credit hours)
Gas Tungsten Arc Welding Pipe Lab B
Teaches the method of operation and application of the gas tungsten arc welding process for welding of both ferrous and non-ferrous pipe in 6G position. Lab: 3 credits (90 contact hours).
Pre-requisite: WLD 133 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 239 (1 credit hours)
Orbital Tube Welding
Familiarizes students with the orbital weld system, basic setup, operation, and safety. Laboratory: 1 credit (30 contact hours).
Pre-requisite: WLD 130 & WLD 131 or Permission of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 240 (2 credit hours)
Materials Technology
Provides the student with a working knowledge of materials used in welding. This class includes materials identification and classification. Metallurgy is included with a detailed analysis of physical, mechanical, and chemical properties. Introduces the student to the application of metallurgy to welding including preheat, interpass temperature, and post-weld heat treatment and their effects on welding and welding's effect on them. Lecture: 2 credits (30 contact hours)
Attributes: Technical
Components: LEC: Lecture

WLD 245 (3 credit hours)
Gas Metal Arc Welding Pipe Lab A
Acquaints the student with the operation and application of the Gas Metal Arc System for welding pipe in 2G and 5G positions. Laboratory: 3 credits (90 contact hours).
Co-requisite: WLD 143 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 247 (3 credit hours)
Gas Metal Arc Welding Pipe Lab B
Acquaints the student with the operation and application of the Gas Metal Arc System for welding groove welds in pipe in 6G position. Lab: 3 credits (90 contact hours).
Pre-requisite: WLD 143 or Consent of Instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 251 (1-6 credit hours)
Welding Automation Lab
Provides the student a working knowledge and hands-on experience using automatic welding equipment such as robotic welding systems, bug-o systems, and automated GTA welding systems. Pre-requisite Or Lab: 1-6 credit hours (30-180 contact hours).
Co-requisite: WLD 140/141, or consent of instructor.
Attributes: Technical
Components: LAB: Laboratory

WLD 253 (1 credit hours)
Pipe Fitting and Template Development Lab
Provides experiences in pipe template development and job knowledge and experience with the techniques and tools used to field layout, cut, and fit the various pipe joints that are used in pipe trades. Lab: 1 credit (30 contact hours).
Attributes: Technical
Components: LAB: Laboratory

WLD 298 (1-6 credit hours)
Welding Practicum
Provides on-the-job work experience related to the student's educational objectives. Students participating in the Practicum do not receive compensation. Laboratory: 1-6 credits (30-180 contact hours).
Pre-requisite: Consent of Instructor.
Attributes: Technical
Components: PCM: Practicum

WLD 299 (1-6 credit hours)
Cooperative Education Program
Provides supervised on-the-job work experience related to the student's educational objectives. Co-Op: Varies.
Pre-requisite: Consent of Instructor.
Attributes: Technical
Components: COP: Co-op