

# WELDING (WLD)

## **WLD100 Welding Process I** 3 credits (1 lec, 4 lec lab hrs/wk)

Emphasizes oxy-acetylene welding and cutting, introduction to gas tungsten arc welding (GTAW) and plasma arc cutting, oxy-fuel cutting and scarfing plus air arc gouging and plasma arc gouging. Topics include brazing, and oxy-acetylene welding in flat, horizontal and vertical positions using several joint designs, efficient use of hand and machine oxy-acetylene torch cutting, and industrial safety.

This course may be taken 1 time for credit.

Course classification: CTE

## **WLD101 Shielded Metal Arc Welding** 6 credits (2 lec, 8 lec lab hrs/wk)

This course covers shielded metal arc welding (SMAW) including safety, arc welding fundamentals, polarity, amperage ranges, weld techniques, weld defects, causes, and cures. Students learn through lecture, demonstration, and practical application of skills and concepts. Lab activities will cover flat, horizontal, vertical welds and overhead using E6010 and E7018 electrodes. Students will be exposed to properties of steel, manipulative techniques for welding, proper joint design and preparation. American Welding Society (AWS) certification standards and testing methods will be used. Lab will apply AWS certification test standards

This course may be taken 1 time for credit.

Course classification: CTE

## **WLD102 Welding Lab A** 3 credits (1 lec, 4 lec lab hrs/wk)

Development of the student's ability to weld on a variety of metals using a variety of welding processes. The skill development of the course will include print reading and interpretation, material layout and cutting, joint preparation, process determination, machine setup, welding and inspection of final project. Emphasis will be on welding techniques that meet or exceed industrial standards.

This course may be taken 1 time for credit.

Course classification: CTE

## **WLD103 Gas Metal Arc Welding** 3 credits (1 lec, 4 lec lab hrs/wk)

Covers gas metal arc welding (GMAW) process. The semi-automatic gas metal arc welding (GMAW) process and manual welding techniques will be presented. Equipment needs, setup, joint design, filler metals, shielding gases, welding techniques, along with safety will be stressed. Proper joint design, preparation, and welding techniques. Lab activities will cover all position butt and fillet welds on mild steel, and basic techniques on aluminum and stainless steel.

This course may be taken 1 time for credit.

Course classification: CTE

## **WLD104 Flux Forded Arc Welding** 3 credits (1 lec, 4 lec lab hrs/wk)

Covers flux cored arc welding (FCAW) process. The semi-automatic flux cored arc welding (FCAW) process, both with and without shielding gas, and manual welding techniques will be presented. Equipment needs, setup, joint design, filler metals, shielding gases, welding techniques, along with safety, will be stressed. Proper joint design, preparation, and welding to American Welding Society (AWS) certification standards and testing methods will be emphasized. Lab activities will cover all position welds.

This course may be taken 1 time for credit.

Course classification: CTE

## **WLD105 Pipe Fitting and Welding I** 3 credits (1 lec, 4 lec lab hrs/wk)

Prerequisite(s): ( WLD100 ) or ( WLD101 )

Introduces pipe layout, fitting, and arc welding covering basic pipe and piping information, basic pipe layout practices, and basic pipe welding techniques. Safety, quality, and proper weld technique will be stressed according to industry standards for appearance and weld soundness. This course may be taken 1 time for credit.

Course classification: CTE

## **WLD106 Welding Lab B** 3 credits (1 lec, 4 lec lab hrs/wk)

Prerequisite(s): ( WLD102 )

Continuation of WLD\*4165 in developing the student's ability to weld on a variety of metals using a variety of welding processes. The skill development of the course will include print reading and interpretation, material layout and cutting, joint preparation, process determination, machine setup, welding and inspection of final project. Emphasis will be on welding techniques that meet or exceed industrial standards.

This course may be taken 1 time for credit.

Course classification: CTE

## **WLD107 Gas Tungsten Arc Welding** 3 credits (1 lec, 4 lec lab hrs/wk)

Covers all aspects of manual gas tungsten arc welding (GTAW) from safety and process operation through welding techniques and applications. Emphasis will be on safety, equipment setup, manual welding techniques, and procedures for both ferrous and non-ferrous materials, quality control and inspection, and industrial codes and procedures.

This course may be taken 1 time for credit.

Course classification: CTE

## **WLD110 Welding Cert for 1st Year** 3 credits (1 lec, 4 lec lab hrs/wk)

Prerequisite(s): ( WLD101 )

Corequisite(s): ( WLD4125 and WLD4126 )

Provides experienced welders with lab time for practice in basic welding techniques for skills upgrading and/or certification. The instructor is available for technical assistance.

This course may be taken 1 time for credit.

Course classification: CTE

## **WLD150 Welding & Joining Processes** 3 credits (1 lec, 4 lec lab hrs/wk)

Prerequisite(s): ( WLD101 and WLD103 )

Introduces the application of modern welding, joining, and forming processes on manufacturing materials. The focus is on new welding and joining processes for ferrous and non-ferrous metals and various materials used in manufacturing. Metallurgy of ferrous and non-ferrous materials will be studied and procedures practiced.

This course may be taken 1 time for credit.

Course classification: CTE

## **WLD180 Internship - Welding** 1-12 credits (3 lab hrs/wk/cr)

Practical on-site experience that will allow students to explore workplace environments and career options.

This course may be taken 12 times for credit.

Course classification: LDC

## **WLD200 Welding Process II** 3 credits (1 lec, 4 lec lab hrs/wk)

Introduction to Electric Arc Welding Processes emphasizing the basics of Shielded Metal Arc Welding, Gas Metal Arc Welding and Flux Cored Arc Welding. Students will develop basic knowledge and skill in setup and safe use of Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW) and Flux Cored Arc Welding (FCAW) to industry standards

This course may be taken 1 time for credit.

Course classification: CTE

**WLD201 Pipe Fitting and Welding II** 3 credits (1 lec, 4 lec lab hrs/wk)

Prerequisite(s): ( WLD105 )

Theory and practical application of pipe joint preparation and design; API (American Petroleum Institute) and AWS (American Welding Society) welding codes specifications for pipe and pipe fittings; geometric curve design for branched joints for piping system; wire and electrodes selections; advanced welding blue print and pipe welding symbols, SMAW, GMAW, and GTAW of pipe joints; metallurgical transformation of weld Heat Affected Area (HAA); welding discontinuities and defects; destructive and non-destructive testing; and methods of inspection and testing.

This course may be taken 1 time for credit.

Course classification: CTE

**WLD202 Forklift Operator Training and Cert** 1 credit (2 lec lab hrs/wk)

Prerequisite(s): Instructor consent

This course provides all the necessary instruction and training required by the forklift operator regulations.

This course may be taken 1 time for credit.

Course classification: CTE

**WLD203 Advanced Individual Welding** 3 credits (1 lec, 4 lec lab hrs/wk)

Prerequisite(s): ( WLD4155 )

Allows the students to either specialize in welding techniques and processes they find appropriate for their needs and/or design, draw, estimate, order material, lay out, and fabricate an individualized project. Student will utilize practical application of industry methods in accomplishing these goals.

This course may be taken 1 time for credit.

Course classification: CTE

**WLD205 The Welding Business** 3 credits (3 lec hrs/wk)

This course introduces students to business aspects of the welding industry. Topics will include relevant business issues such as entrepreneurship, business planning, leadership, management, quality control, risk management, productivity, safety, and estimating.

This course may be taken 1 time for credit.

Course classification: CTE

**WLD210 Welding Cert for 2nd Year** 3 credits (1 lec, 4 lec lab hrs/wk)

Prerequisite(s): ( WLD101 and WLD103 and WLD104 )

Provides experienced welders with lab time for practice in basic welding techniques for skills upgrading and/or certification. The instructor is available for technical assistance.

This course may be taken 1 time for credit.

Course classification: CTE

**WLD280 CWE: Welding Tech** 1-12 credits (3 lab hrs/wk/cr)

Prerequisite(s): Instructor consent

Practical on-site experience that will allow students to test knowledge learned in the classroom and explore the variety of workplaces in which to apply that knowledge.

This course may be taken 12 times for credit.

Course classification: LDC

**WLD4050 Welding and Joining Processes** 3 credits (1 lec, 4 lec lab hrs/wk)

Prerequisite(s): ( WLD101 and WLD103 )

Introduces the application of modern welding, joining and forming processes on new emerging manufacturing materials. The focus is on new welding and joining processes for ferrous and non-ferrous metals and various materials used in manufacturing. Metallurgy of ferrous and non-ferrous materials and properties of other materials will be researched.

This course may be taken 1 time for credit.

Course classification: CTE

**WLD4152 Advanced Pipe Fitting and Fab** 3 credits (1 lec, 4 lec lab hrs/wk)

Prerequisite(s): ( WLD105 )

With continuance of WLD4151, this class introduces students to the inservice welding on pressurized piping and hands-on tapping and plugging, utilizing pipe line pressure control fittings (PCFs).

This course may be taken 1 time for credit.

Course classification: CTE

**WLD4153 Pipe Fitting Workshop: Certification** 3 credits (1 lec, 4 lec lab hrs/wk)

Prerequisite(s): ( WLD4152 )

This course prepares students for pipe fitting and fabrication certification tests. The course emphasis will be applied to 5G and 6G pipe certifications.

This course may be taken 1 time for credit.

Course classification: CTE

**WLD4155 Fitting & Fabrication** 3-4 credits (1 lec, 4 lec lab hrs/wk/cr)

Prerequisite(s): ( WLD101 )

Emphasizes layout and fitting skills applicable to an industrial welding and fabrication shop including reading prints, estimating and ordering material, performing layout and cutting work, fitting pieces into assemblies, and weld-out procedures applicable to fabricating a finished product. Emphasizes problem-solving and cooperation within an industrial-like environment. Safety, accuracy, quality, and a commitment to excellence emphasized.

This course may be taken 1 time for credit.

Course classification: CTE