

# WLDG - Welding Technology

## **WLDG 104 Technical Mathematics: 3 Credits (3 Lec)**

This course presents basic mathematical topics as they are applied in a trades program. Topics covered include: use of measuring tools, measurement systems, dimensional arithmetic, percent, proportion, applied geometry, and basic trigonometry. This course is intended for CAS and AAS-degree seeking students and does NOT provide sufficient Pre-Algebra material as a pre-requisite for subsequent mathematics courses.

## **WLDG 106 Welding Fabrication Methods: 3 Credits (3 Lab)**

This course provides an introduction to basic fabrication of structural steel in accordance with industry standards.

## **WLDG 110 Welding Theory I: 1 Credits (1 Lec)**

This course covers welding safety, oxy-fuel and shielded metal arc welding (SMAW), definitions covering joining common metals, joint and weld classifications, welding positions, power source selection, plus manual and semiautomatic cutting principles, and terminology.

## **WLDG 111 Welding Theory I Practical: 3 Credits (1 Lec, 4 Lab)**

Oxy-fuel practical work will involve fusion welding, brazing, and cutting. Shielded metal arc welding (SMAW) practical work will involve flat and horizontal welding skills using a variety of electrodes.

## **WLDG 117 Blueprint Reading and Welding Symbols: 2 Credits (2 Lec)**

This course will introduce blueprints and emphasize reading and interpreting welding symbols. Topics covered include basic blueprint reading for welders; basic lines, basic views, title block information, dimensions, structural shapes, auxiliary views, section views, detail prints, welding symbols and other various blueprint information.

## **WLDG 120 Welding Theory II: 2 Credits (2 Lec)**

This course will concentrate on the processes which use inert and/or inert and active gas mixtures for shielding during welding. Gas metal arc welding (GMAW) or MIG, gas tungsten arc welding (GTAW) or TIG, and plasma welding and cutting (PAW/PAC) operations will be thoroughly covered. Process selection and use for welding ferrous and nonferrous metals will be covered.

## **WLDG 121 Welding Theory II Practical: 3 Credits (3 Lec)**

Practical work involves the application of GMAW and GTAW as it is used in industry today. Use of the various modes of metal transfer, joint styles, welding positions, welding of carbon and stainless steels, and aluminum alloys on various joint styles and in various welding positions, and manipulation techniques will be emphasized.

## **WLDG 122 Welding Theory III Practical: 3 Credits (2 Lec, 1 Lab)**

This course continues skill development from WLDG 121. Practical work involves the application of GMAW and GTAW as it is used in industry today. Use of the various modes of metal transfer, joint styles, welding positions, welding of carbon and stainless steels, and aluminum alloys on various joint styles and in various welding positions, and manipulation techniques will be emphasized.

## **WLDG 130 Intro to Structural Welding: 3 Credits (2 Lec, 1 Lab)**

PREREQUISITE: WLDG 110, WLDG 111, WLDG 121, WLDG 205  
COREQUISITE: WLDG 120, WLDG 122. (Sp) This course covers Gas Metal Arc Welding (GMAW), Shielded Metal Arc Welding (SMAW), and Flux Core Arc Welding (FCAW) of structural steel and stresses certification code welding on plate and structural steel in all positions. Course instruction and related information will include gas metal and flux core arc welding equipment and welding variables, shielding gases, troubleshooting equipment and weld defects, welder certification and welding codes

## **WLDG 145 Fabrication Basics: 3 Credits (2 Lec, 1 Lab)**

PREREQUISITE: WLDG 110, WLDG 111, WLDG 121, WLDG 205  
COREQUISITE: WLDG 120, WLDG 122. (Sp) The introduction to basic fabrication of structural steel in accordance with industry standards

## **WLDG 151 Shop Practices: 3 Credits (2 Lec, 1 Lab)**

This is an on-going course during normally scheduled shop hours. It is intended to match spring semester students with live, practical shop experiences involving subject matter previously covered in other courses. Emphasis will be on productivity.

## **WLDG 185 Qualification Test Prep: 2 Credits (2 Lec, 1 Lab)**

(2 Lab) S Prerequisites: WLDG 110, WLDG 111, WLDG 121, WLDG 205 Corequisites: WLDG 120, WLDG 122 This is an advanced course in Gas Metal Arc Welding (GMAW), Shielded Metal Arc Welding (SMAW), and Flux Core Arc Welding (FCAW) procedures to prepare for industrial certification. This includes welding single vee groove weld-but joints with backing strips in the flat, horizontal, vertical, and overhead position following the American Welding Society (AWS) and the American Society of Mechanical Engineers (ASME) code specifications.

## **WLDG 205 Applied Metallurgy: 2 Credits (2 Lec)**

This course covers basic metallurgical principles and their relationship to the following processes: welding, machining, forming, heat treating, and finishing of ferrous and nonferrous metals. Includes applied metallurgy lab testing exercises.

## **WLDG 281 Weld Testing Certification Lab: 2 Credits (2 Lab)**

PREREQUISITES: Limited to students with at least 3 years welding experience, or previous certification, or consent of instructor. Students will prepare, practice and qualify for plate and pipe, according to AWS D1.1, APT 1104, and ASME Section IX codes and standards. Gallatin College

## **WLDG 292 Independent Study: 1-3 Credits (1-3 Other)**

The WLDG 292 student is required to work with the instructor to develop a project plan tied to specific skill goals. In preparation for developing their course plan, students will be asked to identify deficiencies in skills. Such an individualized and reflective approach allows the student to develop skills according to what is most needed to continue to improve as a welder in the lab, and as a student in the classroom.  
Repeatable up to 4 credits.