



Course Information

Course Title	Advanced Pipe Welding
Course Prefix, Num. and Title	WLDG 2453
Division	Vocational Science: Welding Technology
Department	Welding Technology
Course Type	WECM Course
Course Catalog Description	Advanced topics involving welding of pipe using the Shielded Metal Arc Welding (SMAW) process. Topics include electrode selection, equipment setup, and safe shop practices. Emphasis on weld positions 5G and 6G using various electrodes. (Capstone)
Pre-Requisites	WLDG 1417
Co-Requisites	none

Semester Credit Hours

Total Semester Credit Hours (SCH): Lecture Hours:	4:3:4
Lab/Other Hours	
Equated Pay Hours	5
Lab/Other Hours Breakdown: Lab Hours	4
Lab/Other Hours Breakdown: Clinical Hours	Enter Clinical Hours Here.
Lab/Other Hours Breakdown: Practicum Hours	Enter Practicum Hours Here.
Other Hours Breakdown	List Total Lab/Other Hours Here.

Approval Signatures

Title	Signature	Date
Prepared by:		
Department Head:		
Division Chair:		
Dean/VPI:		
Approved by CIR:		

Additional Course Information

Topical Outline: Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, and clinical or other non-lecture instruction).

Discuss three general categories of pipe welds including how they are used and what type of weld root penetration strength they require. Compare pipe totaling, discuss advantages of welded pipe, discuss preparation needed before welding pipe and demonstrate how SMAW welds of pipe weld in the 1G, 2G, 5G and 6G positions. Describe how a pipe joint is prepared for welding. Learn the four most common root defects and the causes of each defect. Discuss when and why a backing gas is used and explain the uses of a hot pass. Sketch a single V-groove and indicate the location and sequence of welds for each and make a single V-groove butt weld joint on a pipe in any position.

Course Learning Outcomes:

Learning Outcomes – Upon successful completion of this course, students will:

- Explain shop safety rules, safety rules for tools and equipment, and personal safety rules.
- Describe and setup equipment used in the SMAW process
- Properly prepare pipe for welding
- Perform 5G and 6G pipe welds using various electrodes
- Identify common ferrous and non-ferrous metals
- Explain pre-heating, post-heating, and maintaining interpass temperatures

Methods of Assessment:

- Attend demonstrations of how to safely plan laboratory activities before starting work.
- Attend discussion and demonstration sessions that familiarize students with process background and safety procedures.
- Prepare pipe coupons according to industry standards for SMAW.
- Make pipe welds in 5G and 6G positions.

Required text(s), optional text(s) and/or materials to be supplied by the student:

Welding Fundamentals

Suggested Course Maximum:

20

List any specific or physical requirements beyond a typical classroom required to teach the course.

none

Course Requirements/Grading System: Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course.

AWS Assignments 40%

Laboratory Assignments 40%

Final Exam 20%

Total 100%

Curriculum Checklist:

- Administrative General Education Course** (from ACGM, but not in WCJC Core) – No additional documents needed.
- Administrative WCJC Core Course.** Attach the Core Curriculum Review Forms

- Critical Thinking
- Communication
- Empirical & Quantitative Skills
- Teamwork
- Social Responsibility
- Personal Responsibility

WECM Course -If needed, revise the Program SCANS Matrix and Competencies Checklist