MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE
COURSE OUTLINE

Faculty is required to have the outline submitted to the Academic Affairs Office. The course outline is the form used for approval of new courses by the Academic Affairs and Standards Council.

DEPT. WELD COURSE NUMBER: WELD 1290

NUMBER OF CREDITS: 4 Cr. (0/4)

COURSE TITLE: Advanced Shielded Metal Arc

CATALOG DESCRIPTION: Evaluate Shielded Metal Arc welds made in the horizontal, vertical and overhead positions on various thicknesses of metals using various electrodes to AWS and ASME standards.

AUDIENCE: Open to all PSEO and post-secondary students interested in welding.

FULFILLS MN TRANSFER CURRICULUM AREA(S) (Leave blank if not applicable)
Area: N/A by meeting the following competencies:
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PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE:

LENGTH OF COURSE: 4 Credits (0 Lecture/4 Lab)

THIS COURSE IS USUALLY OFFERED:
Every other year ☐ fall ☒ spring ☐ summer ☐ undetermined ☒

Four goals are emphasized in course at Minnesota West Community & Technical College:

1) ACADEMIC CONTENT: The academic objectives of this course are:
   a. Reading for understanding, standards and codes for welding
   b. Evaluating welds for compliance with standards and codes

2) THINKING SKILLS: This course will help students improve the effectiveness of their thinking skills through:
   a. Completing Homework
   b. Participating in Classroom discussions
   c. Taking open and closed book tests and quizzes
   d. Critical thinking

3) COMMUNICATIONS SKILLS: This course will help students improve their oral and written communication skills through:
   a. Participating in class discussions and reports
   b. Participating in assignments. Worksheets, and reports
4) HUMAN DIVERSITY: This course will help students recognize, understand, and appreciate human diversity through:
   a. Working with students of other cultures
   b. Working with students of another gender

TOPICS TO BE COVERED:
   Occupational Orientation (preparing job cards, reports or records)
   Safety and Health of welders (use and inspection of personal protective equipment)
   Use and inspection of ventilation equipment
   Safety inspection of SMAW equipment and accessories
   Set up of SMAW equipment on carbon steel
   Operate SMAW on carbon steel
   Make filet welds in all positions
   Make groove welds in all positions
   Inspection of tacks, root passes, intermediate layers, and completed welds

LIST OF EXPECTED COURSE OUTCOMES:
   Students will:
   Prepare metal for welding
   Make root pass, filler weld, and cover pass in all positions
   Explain the purpose of a hot pass
   Make visual inspections for acceptable welds
   Make a root pass on plate in all positions
   Make a root pass on plate with an open root in all positions
   Make an open root weld on plate using the step technique in all positions
   Make a multiple filler weld on a V joint in all positions using E7018 fill passes in all positions
   Make groove welds on a limited thickness plate with a backing strip using E6010 root and hot passes and E7018 fill passes in all positions
   Make an SMAW workmanship sample and welder qualification test plate for limited thickness
   Horizontal 2G and 3G positions with E7018 electrodes
   Make a cover bead in all positions
   Make a limited thickness welder performance qualification test plate without backing in all positions
   Make a single V-groove open root butt joint with an increasing root opening
   Make a single V-groove open root butt joint with a decreasing root opening
   Make SMAW welds of plate to plate

LEARNING/TEACHING TECHNIQUES used in the course are:

- Collaborative Learning
- Student Presentations
- Creative Projects
- Lecture
- Demonstrations
- Lab
- Problem Solving
- Interactive Lectures
- Individual Coaching
- Films/Videos/Slides
- Other (describe below)

ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:
EXPECTED STUDENT LEARNING OUTCOMES:

Students will:
- Have a technical understanding of the SMAW process
- Be able to demonstrate safe and proper use of SMAW equipment and components
- Perform quality welds in all positions

Veteran Services: Minnesota West is dedicated to assisting veterans and eligible family members in achieving their educational goals efficiently. Active duty and reserve/guard military members should advise their instructor of all regularly scheduled military appointments and duties that conflict with scheduled course requirements. Instructors will make every effort to work with the student to identify adjusted timelines. If you are a veteran, please contact the Minnesota West Veterans Service Office.

The information in this course outline is subject to revision

To receive reasonable accommodations for a documented disability, please contact the campus Student Services Advisor or campus Disability Coordinator as arrangements must be made in advance. In addition, students are encouraged to notify their instructor.

This document is available in alternative formats to individuals with disabilities by contacting the Student Services Advisor or by calling 800-658-2330 or via your preferred Telecommunications Relay Service.

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