

Course discipline/number/title: WELD 1001: Blueprint Reading, Process, Theory and Safety

A. CATALOG DESCRIPTION

1. Credits: 4
2. Hours/Week: 4
3. Prerequisites (Course discipline/number): None
4. Other requirements: None
5. MnTC Goals (if any): NA

B. COURSE DESCRIPTION: The students will work on an overview of blueprint reading including the understanding of notes, specifications, and identification of welding symbols. Students will use relevant math strategies to solve practical problems they will encounter in actual shop situations. An introduction of processes used in fabrication shops will be outlined. Students will be introduced to the different processes of welding and the welding trade. The students will cover bonding, fusion, proper heat usage, heat distortion and its effect on base metal. Students will learn electrical current and voltage circuits from welding equipment to base metal, reverse current, and voltage along with AC welding. Students will make minor repair to welding equipment and tools in the trade. Major components stressed are safe practices used in welding profession, safe usage of welding equipment, PPE (personal protection equipment) and how to eliminate unsafe conditions.

B. DATE LAST REVISED (Month, year): February, 2025

C. OUTLINE OF MAJOR CONTENT AREAS:

1. Blue Prints
2. Welding Theory and Processes
3. Practical math for metal trades
4. Safety

D. LEARNING OUTCOMES (GENERAL): The student will be able to:

1. Read and demonstrate usage of weld symbols, different views of blueprints, including lines with their usage and specifications.
2. Define safety protocols for the welding trade.
3. Identify and describe function of personal protective equipment.
4. Explain GTAW, GMAW, SMAW and Oxy-acetylene processes.
5. Demonstrate practical use of mathematics including tape measures, fractions, decimals, and basic algebra.
6. Identify different types of steels and alloys.
7. Identify different effects of excessive heat and heat distortion.
8. Identify different types of electrical usage (AC, DCEP and DCEN) and welding processes and application.
9. Define how electricity completes a circuit thru the work piece.

E. LEARNING OUTCOMES (MNTC): NA

F. METHODS FOR EVALUATION OF STUDENT LEARNING: Methods may include but are not limited to:

1. Midterm Exam
2. Final Exam

G. RCTC CORE OUTCOME(S). This course contributes to meeting the following RCTC Core Outcome(s): Critical Thinking. Students will think systematically and explore information thoroughly before accepting or formulating a position or conclusion.

H. SPECIAL INFORMATION (if any): None