COMMON COURSE OUTLINE: Course discipline/number/title: Welding 1001: Blueprint Reading, Process Theory and Safety

A. CATALOG DESCRIPTION
   1. Credits: 4 (2 lecture/2 lab)
   2. Hours/Week: 2 hour lecture, 4 hours lab
   3. Prerequisites (Course discipline/number): MATH 1015 or MATH 1016
   4. Co-requisites (Course discipline/number): WELD 1002, WELD 1003, WELD 1004, WELD 1005, WELD 1006
   5. MnTC Goals (if any): NA

   The students will work on an overview of blueprint reading including the understanding of notes, specifications, and identification of welding symbols. 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): January, 2015

C. OUTLINE OF MAJOR CONTENT AREAS:
   1. Blue Prints
   2. Welding Theory and Processes
   3. 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. Explain GTAW, GMAW and Oxy-acetylene processes.
   3. Identify shop field notes.
   4. Identify different types of steels and alloys.
   5. Identify different effects of excessive heat and heat distortion.
   6. Identify different types of electrical usage (AC, DCEP and DCEN) and welding processes and application.
   7. Define how electricity completes a circuit thru the work piece.
   8. Demonstrate safety procedures, practices, PPE (personal protection equipment) and apparel.
   9. Demonstrate safe set-up, start up, usage and shutdown of equipment.
  10. Demonstrate proper handling of compressed gases.
  11. Identify shop hazards and dangers and how to avoid them.
  12. Demonstrate shop cleanliness.

E. LEARNING OUTCOMES (MNTC): NA

F. METHODS FOR EVALUATION OF STUDENT LEARNING:
   1. Daily Lab Assignments
   2. Midterm Exam
   3. Final Exam

G. RCTC CORE OUTCOME(S) ADDRESSED:
   - Communication
   - Critical Thinking
   - Global Awareness/Diversity
   - Civic Responsibility
   - Personal/Professional Accountability
   - Aesthetic Response

H. SPECIAL INFORMATION (if any): None