

# Bemidji State University

## TADT 1210: Introduction to Manufacturing Processes I

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 0

Lab Hours/Week: 0

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

An introduction to manufacturing processes including; welding, metal forming, centrifugal casting, injection/blow molding, silicone molding/resin casting, and vacuum forming. This course will utilize various types of metals, plastic, and resin materials to construct projects.

**B. COURSE EFFECTIVE DATES:** 08/22/2016 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Major forming processes used in the manufacturing environment
2. Several of the processes through actual use of equipment
3. The importance of safety in relation to forming processes

#### **D. LEARNING OUTCOMES (General)**

1. be able to identify safety procedures in metal forming.
2. be able to identify metal forming related health hazards.
3. be able to state the rules for safety in metal forming including machine safety, personal safety, and procedural safety.
4. be able to define low alloy and high alloy steel and discuss the weldability of each.
5. be able to define major parts of a weld and weld joint.
6. be able to define welding and explain coalescence and filler material.
7. be able to demonstrate the safe set up and leak test for an oxy-acetylene welding outfit.
8. be able to demonstrate weld pool control.
9. be able to demonstrate welding equipment operation.
10. be able to describe the aptitudes and characteristics needed for a career in metal forming.
11. be able to describe the basic types of welding machines available, the controls commonly found on each, and the type of current each can produce.
12. be able to describe the classification systems used for steel and aluminum.
13. be able to describe the three types of oxy-acetylene flames, tell how each is produced, and tell what each is used for.
14. be able to describe what professional associations do for metal forming.
15. be able to differentiate correct welds from defective welds.
16. be able to discuss the importance of welding and use of the three main welding operations.
17. be able to discuss the role metal forming plays in industry.
18. be able to explain differences in shielding gas.
19. be able to explain metal casting processes.
20. be able to explain oxy-acetylene and plasma cutting processes.
21. be able to explain the processes for brazing and braze welding.
22. be able to explain the purpose of flux.
23. be able to identify metal forming symbols in print reading.
24. be able to list and describe the four welding positions.
25. be able to list major fusion welding processes and state the differences between them.
26. be able to perform joint preparation.
27. be able to select proper filler material.

#### **E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

None

#### **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

#### **G. SPECIAL INFORMATION**

None noted