MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE
COURSE OUTLINE

DEPT. WELD **COURSE NUMBER: 1260**

NUMBER OF CREDITS: 2 **Lecture: 2 Lab: 0 OJT: 0**

Course Title:
Metallurgy and Materials

Catalog Description:
Metallurgy and Materials evaluates the basic elements of metallurgy and weld-ability as it pertains to commonly welded materials. Instruction will be provided on the weld ability of metals, the effects of welding on metals, mechanical properties of metals, alloys and their properties, applications of various types of metals, metal classification systems, and procedures for welding hard-to-weld metals

Prerequisites or Necessary Entry Skills/Knowledge:
None

FULFILLS MN TRANSFER CURRICULUM AREA(S) ***(Leave blank if not applicable)***

☐Goal 1: Communication: By meeting the following competencies:
☐Goal 2: Critical Thinking: By meeting the following competencies:
☐Goal 3: Natural Sciences: By meeting the following competencies:
☐Goal 4: Mathematics/Logical Reasoning: By meeting the following competencies:
☐Goal 5: History and the Social and Behavioral Sciences: By meeting the following competencies:
☐Goal 6: The Humanities and Fine Arts: By meeting the following competencies:
☐Goal 7: Human Diversity: By meeting the following competencies:
☐Goal 8: Global Perspective: By meeting the following competencies:
☐Goal 9: Ethical and Civic Responsibility: By meeting the following competencies:
☐Goal 10: People and the Environment: By meeting the following competencies:

Topics to be Covered
Overview of the joining process
Overview of the welding process
Metals as materials
Solidification of metals and alloys
Solidification of welds
Welding of aluminum and stainless steel
Effects of heat on metals

Student Learning Outcomes
Describe the basic metallurgy of the melted metal or alloy.
Identify the cause and avoid weld defects.
Demonstrate ability to choose and adjust the welding parameters and techniques to optimize the welding process.
Demonstrate ability to select the appropriate welding process for a particular application.
Recognize and demonstrate safe and proper use of materials.
Demonstrate the technical understanding of metallurgy and materials.

Is this course part of a transfer pathway: Yes ☐ No ☒
***If yes, please list the competencies below**

Revised Date: 3/29/2022