DEPT.  ___MACH___  COURSE NUMBER: _____1400___

NUMBER OF CREDITS: _____1____  Lecture:___1___  Lab:_______

Course Title:
Metallurgy & Machining Calculations

Catalog Description:
Introduces students to metallurgy and material classification as it relates to machining. Students will become familiar with heat treatment terms and procedures. (1/2 semester) Math as it applies to the metal working industry will also be covered (1/2 semester)

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:

Prerequisites or Necessary Entry Skills/Knowledge:
None
Topics to be Covered (General)

Machine tool safety
Differences in materials and relationship to machinability
Work hardening
Heat treatment of materials
Machinist’s Handbook
Geometry, Pythagorean theory, right angle trigonometry

Student Learning Outcomes

1. Identify a safe work environment and the need for personal safety.
2. Differentiate between metals, stainless steels and aluminum.
3. Determine which materials can be heat treated and the process of heat treatment for those particular materials.
4. Demonstrate how to use the Machinist’s Handbook.
5. Apply math skills as they apply to metal working and programming of CNC machines.

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

All syllabi must include the following statement:
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, high school students are encouraged to notify their counselor and 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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