MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE
COURSE OUTLINE

Faculty is required to have the outline submitted to the Academic Affairs Office. The course outline is the form used for approval of new courses by the Academic Affairs and Standards Council.

DEPT. Industrial Technology COURSE NUMBER: INDT 1115

NUMBER OF CREDITS: 3 Credits (1 lecture, 2 lab)

COURSE TITLE: Machining Fundamentals

CATALOG DESCRIPTION: This course will cover the use of drawings, hand tools, precision measuring tools, drilling machines, grinders, lathes, milling machines, and other machine tools to shape and finish metal and nonmetal parts.

AUDIENCE:

FULFILLS MN TRANSFER CURRICULUM AREA(S) (Leave blank if not applicable)
Area: by meeting the following competencies:
Area: by meeting the following competencies:
Area: by meeting the following competencies:

PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE:

LENGTH OF COURSE: 3 credits (1 lect/pres, 2 lab)

THIS COURSE IS USUALLY OFFERED:
Every other year ☐ fall ☐ spring ☐ summer ☐ undetermined ☑

Four goals are emphasized in course at Minnesota West Community & Technical College:

1) ACADEMIC CONTENT: The academic objectives of this course are:
   a. Address safety issues related to a machine tool work environment
   b. Identify various drawings, hand tools, and precision measuring devices used in machining
   c. Identify characteristics of various metals
   d. Achieve basic knowledge of Sawing and Cutoff Machines, Grinding, Drills, Lathes, and Mills

2) THINKING SKILLS: This course will help students improve the effectiveness of their thinking skills through:
   a. Completing homework (reading, reports, and worksheets)
   b. Participating in classroom discussions
   c. Taking open and closed book quizzes and tests
   d. Complete assigned lab projects
3) COMMUNICATIONS SKILLS: This course will help students improve their oral and written communication skills through:
   a. Participating in class discussions and reports
   b. Participating in assignments, worksheets, and reports

4) HUMAN DIVERSITY: This course will help students recognize, understand, and appreciate human diversity through:
   a. Participating in classroom discussions
   b. Working with other students on labs
   c. Working with students from other cultures

TOPICS TO BE COVERED:
1. Introduction to machining technology
2. Shop safety
3. Understanding drawings
4. Measurement
5. Layout work
6. Hand tools
7. Jigs and fixtures
8. Cutting fluids
9. Sawing and cutoff machines
10. Drills and drilling machines
11. Grinding
12. Lathe and lathe operations
13. Milling machine and operations
14. Metal characteristics
15. Introduction to CNC machining

LIST OF EXPECTED COURSE OUTCOMES:
Prepare individuals to operate a variety of manual and CNC (computer numerical control) machines to produce an end product of metal to an exacting tolerance.

LEARNING/TEACHING TECHNIQUES used in the course are:

- Collaborative Learning
- Problem Solving
- Student Presentations
- Interactive Lectures
- Creative Projects
- Individual Coaching
- Lecture
- Films/Videos/Slides
- Lab
- Other (describe below)

ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:

- Reading
- Tests
- Individual Projects
- Oral Presentations
- Worksheets
- Collaborative Projects
- Textbook Problems
- Papers
- Portfolio
- Group Problems
- Term Paper
- Other (describe below)
EXPECTED STUDENT LEARNING OUTCOMES:
   a. The student will be able to recognize a safe work environment and the need for personal safety.
   b. The student will have an understanding of the machine tool terms and definitions.
   c. The student will be able to identify machining defects and quality.
   d. The student will be able to operate a variety of manual and CNC machines to produce quality products.
   e. The student will be able to visualize and interpret an industrial drawing/blueprint.

The information in this course outline is subject to revision

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, students are encouraged to notify their 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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7/30/13