MTT 2716

Division: Career and Technical Education
Department: Machine Tool Technology
Course: MTT 2716
Title: Machine Tool Mathematics/Measurement
Catalog Description:

This course consists of the practical application of the concepts learned in MTT 1715. Students will apply mathematic, geometric, and trigonometric concepts to projects in the laboratory environment. Hands-on, practical exercises are the foundation of this course.

General Education Requirements: N/A
Semesters Offered: TBA
Credit/Time Requirement: Credit: 3; Lecture: 1; Lab: 4
Clock/Hour Requirements: 75
Offered for Non-Credit: No
Prerequisites: MTT 1715 or MTT 1007 and MTT 1008

Corequisites: None

Justification:

This course is approved by our program advisory committee.

Student Learning Outcomes:

Upon successful completion of this course, students should be able to:

- use basic mathematics to solve problems of the machine tool field
- perform labs which demonstrate the basic use of measuring tools
- use most of the basic mechanical measuring tools for the inspection of machined parts
- understand applications in solving for special right triangles
- know the terms for trigonometric functions
- understand and apply sine, cosine, and tangent functions
- apply the law of sines, cosines, and tangents in solving any triangle
- solve for the area of any triangle.

Content:

Course objectives will be accomplished by providing students with learning experiences in the following subject areas:

- right angle trigonometry
- sine-bar
- trigonometry for Computer Numerical Control (CNC)

- law of sines
- law of cosines.

General Education Outcomes:

4) Retrieve, evaluate, interpret, and deliver information through a variety of traditional and electronic media.
Students will research projects through the Machinery Handbook, Internet, and company-specific websites. Specifications on material structure, machineability, and other details for a given job will need to be identified, evaluated, and interpreted before being applied to production.

6) Apply computational skills to a variety of contexts.
Previously acquired mathematical skills will be applied in a lab setting. Students will be required to compute details of layout, reverse engineering, and programming as they prepare and complete a given project.

7) Apply scientific reasoning to a variety of contexts.
Through the machining process, students are required to assess problems for possible solutions. Students will be involved in planning, design, and application of concepts they have learned in order to arrive at a quality-controlled product. Students will need to apply these skills to specific projects in order to arrive at the most efficient solution.

Key Performance Indicators:

In class:

- The students' knowledge and skills are tested by the ability to complete assignments.
- Written tests and quizzes are given on major subject areas with a required 70% minimum accumulated score.

Following class:

- Upon completion of the course, competency will be demonstrated by using math skills in subsequent courses and on projects.

Representative Text and/or Supplies:

- Hoffman, Davis, *Practical Problems in Mathematics for Machinists,* current edition, Delmar Publishers.

Optimum Class Size: 10
Maximum Class Size: 20

Signatures:

I hereby submit this course syllabus:

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I hereby find this course consistent with the goals and resources of the Machine Tool Technology Department:

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Alan Hart, AAS, Instructor, Chair

I hereby find this course consistent with the goals and resources of the Career and Technical Education Division:

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Michael P. Medley, MBA, Assistant Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

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Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

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Michelle Olsen, MLS, Campus Librarian (Richfield Campus)