MTT 2715

Division: Career and Technical Education
Department: Machine Tool Technology
Course: MTT 2715
Title: Machine Tool Mathematics/Measurement
Catalog Description:

This course is for first semester students. Students review fractions, decimals, percentages, ratio and proportion, transposing formulas, and areas, and volumes. The course covers right angle trigonometry, plane geometry, and oblique trigonometry. Also the use of ratios and proportions, and formulas for area and volume.

General Education Requirements: N/A
Semesters Offered: TBA
Credit/Time Requirement: Credit: 3; Lecture: 3; Lab: 0
Clock/Hour Requirements: 45
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 and is comparable to UVSC course MTT 1150.

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 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 student's knowledge and skills are tested by the ability to complete assignments.
- Written tests and quizzes are given on major subject areas.

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)