



TECH 92 - Technical Mathematics 1 Course Outline

Approval Date: 05/20/2005

Effective Date: 08/15/2005

SECTION A

Unique ID Number CCC000297390

Discipline(s)

Division Career Education and Workforce Development

Subject Area Technical

Subject Code TECH

Course Number 92

Course Title Technical Mathematics 1

TOP Code/SAM Code 1701.00 - Mathematics, General / D - Possible Occupational

Rationale for adding this course to the curriculum This proposal does not add a course to the curriculum, but moves a course between divisions. Technical Mathematics I has traditionally been taught by Technical Division faculty. As this course supports only Technical Division programs, it has been agreed by Science, Mathematics and Engineering and the Technical Division Chairs that it is appropriate and in the best interests of students, to move this course from Science, Mathematics and Engineering into the Technical Division for programmatic purposes.

Units 3

Cross List N/A

Typical Course Weeks

Total Instructional Hours

Contact Hours

Lecture 54.00

Lab 0.00

Activity 0.00

Work Experience 0.00

Outside of Class Hours 108.00

Total Contact Hours 54

Total Student Hours 162

Open Entry/Open Exit No

Maximum Enrollment

Grading Option Letter Grade Only

**Distance
Education Mode of
Instruction**

SECTION B

General Education Information:

SECTION C

Course Description

Repeatability May be repeated 0 times

Catalog Description The first of a two-semester course involving the study of practical mathematics as applied to technical and trade work. It is particularly useful for those anticipating a career in an industrial environment. Content includes: mathematical symbols, fractions, percentages, geometry, algebra, metric system, and applications to technical/trade work. Calculator is required. Prerequisite to Tech 107

**Schedule
Description**

SECTION D

Condition on Enrollment

1a. Prerequisite(s): *None*

1b. Corequisite(s): *None*

1c. Recommended: *None*

1d. Limitation on Enrollment: *None*

SECTION E

Course Outline Information

1. Student Learning Outcomes:

2. Course Objectives: Upon completion of this course, the student will be able to:

- A. identify and differentiate mathematical symbols
- B. solve problems using fractions
- C. solve problems using percentages
- D. solve problems using geometric formula
- E. solve problems using algebraic formula
- F. understand and use the metric system
- G. transpose/convert English to metric and metric to English system
- H. perform and/or use arithmetic processes, algebra and/or geometry to find solutions for technical and trade problems
- I.

3. Course Content

- A. ARITHMETIC PROCESSES
 - a. Common fractions
 - b. Decimal fractions
 - c. Ratio and proportion
 - d. Elementary unit factoring
- B. PRACTICAL ALGEBRA
 - a. Use of symbols
 - b. Signed numbers
 - c. Definitions

- d. Substitution
 - e. Grouping
 - f. Addition
 - g. Subtraction
 - h. Multiplication
 - i. Division
 - j. Equations
- C. PERCENTAGE
- a. Finding the percentage
 - b. Finding the rate
 - c. Finding the base
 - d. Practical applications
- D. SOLUTION OF RECTANGLES AND TRIANGLES
- a. Definitions
 - b. Formulas
 - c. Application of squares and square root
 - d. Applications of the Pythagorean Theorem
 - e. Solution of sides and areas
- E. METRIC MEASURE
- a. Introduction to the metric system
 - b. Units of length
 - c. Units of area
 - d. Units of volume
 - e. Units of weight
 - f. The Celsius scale
 - g. Transposing English to metric and metric to English
 - h.

4. Methods of Instruction:

5. Methods of Evaluation: Describe the general types of evaluations for this course and provide at least two, specific examples.

Additional assessment information:

Students will complete assignments, quizzes, a mid-term and a final.

Examples of questions:

1. Find the side of a square whose area is 144 square inches.
2. The usual allowance for shrinkage is one eighth inch per foot, what percent shrinkage is this?
3. Simplify the expression: $[2x-(3x-y)]-(x-3y)$

Letter Grade Only

6. Assignments: State the general types of assignments for this course under the following categories and provide at least two specific examples for each section.

A. Reading Assignments

Students will complete reading assignments from the textbook, instructor generated material, and miscellaneous handouts. Students will read and write answers to practice problems, review exercises, and assessment tests.

Examples include:

1. Read Chapter 2 Algebraic Operations: Powers and Roots and then do Chapter Exercises #1-20.

2. Read Chapter 3 Ratio and Proportion and then do Chapter Exercises #1-25.

B. Writing Assignments

Students will have graded assignments including homework, quizzes, and exams. Students will solve assigned problems from the text.

Examples:

1. Find the area of a scalene triangle whose sides are 5 inches, 4 inches, and 3 inches.

2. What is the percent of efficiency of an electric motor that receives 420 watts of electricity and produces 360 watts of electricity?

3. A 15 inch shaft has a taper of .204 inches in 4 inches. Find the taper in the entire length of the shaft.

C. Other Assignments

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7. Required Materials

A. EXAMPLES of typical college-level textbooks (for degree-applicable courses) or other print materials.

Book #1:

Author: Boyce, Margolis, Slade

Title: Mathematics for Technical & Vocational Students

Publisher: Prentice-Hall

Date of Publication: 1997

Edition: 9th

B. Other required materials/supplies.

- Calculator