TECH 107 - Technical Mathematics II Course Outline

Approval Date: 05/20/2005
Effective Date: 08/15/2005

SECTION A

Unique ID Number	CCC000593558
Discipline(s)	
Division	Career Education and Workforce Development
Subject Area	Technical
Subject Code	TECH
Course Number	107
Course Title	Technical Mathematics II
TOP Code/SAM Code	1701.00 - Mathematics, General / E - Non-Occupational
Rationale for adding this course to the curriculum	This proposal does not add a course to the curriculum but moves an existing course between divisions. Technical Mathematics II 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 second 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, geometry, algebra, trigonometry, graphing, unit factoring, and applications to technical/trade work. Calculator is required.

Schedule Description

SECTION D

Condition on Enrollment

1a. Prerequisite(s)

- TECH 92

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 geometric formula
C. solve problems using trigonometric formula
D. use graphs in the course of their technical/trade work
E. apply advanced unit factoring to drill press/lathe/machining work
F. perform and/or use arithmetic processes, algebra and/or geometry to find solutions for technical and trade problems
G.

3. Course Content

A. REGULAR POLYGONS AND CIRCLES
    a. Definitions
    b. Formulas
    c. Solution of equilateral triangles
    d. Solution of squares
    e. Solution of hexagons
    f. Solution of octagons
    g. Solution of quadrilaterals
    h. Solution of composite figures
    i. Solution of circles
    j. Sectors and arcs

k. Segments
l. The ellipse

B. SOLIDS
a. Definitions
b. Prisms and cylinders
c. Pyramids and cones
d. Frustums of pyramids and cones
e. Spheres
f. Formulas
g. Finding the volume
h. Finding the surface area
i. Finding the altitude
j. Solutions of composite figures
k. Volume expressed as weight
l. Board measure

C. ELEMENTS OF GEOMETRY
a. Plain
b. Solid
c. Useful axioms

D. THE ESSENTIALS OF TRIGONOMETRY
a. The right triangles
b. Trigonometric functions
c. The use of tables
d. The use of the calculator
e. Solution of right triangles
f. Solution of isosceles triangles
g. Practical applications

E. STRENGTH OF MATERIALS
a. Stress and strain
b. Uses of stresses
c. Unit stress
d. Practical applications
e.

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 area of an octogon with 7 in. sides.

2. Find the surface of a 9 in sphere.

3. For a right angle, find the Cosine of 28 degrees.

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 4 Solid Geometric Figures and do Chapter Exercises #1-20.

2. Read Chapter 5 Trigonometric Functions and do Chapter Exercises # 1-15.

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

Examples:
1. Find the center to center distance of 13 holes drilled on the circumference of a 12 inch circle.

2. A cylinder has a volume of 450 cubic inches and a height of 12 inches, find the lateral surface area of the cylinder.

3. Find the volume of a ring section whose outside diameter is 8 inches and inside diameter is 5 inches and cross sectional diameter is 1 inch.

C. Other Assignments
-

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