IED 90B Course Outline as of Summer 2009

CATALOG INFORMATION

Dept and Nbr: IED 90B Title: TECHNICAL MATH
Full Title: Technical Mathematics
Last Reviewed: 4/27/2009

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	6	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00 Total Student Learning Hours: 157.50

Title 5 Category:	AA Degree Applicable
Grading:	Grade Only
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	

Catalog Description:
Practical applications of mathematics for occupational students, using electronic calculators. Includes right angle trigonometry, equations, graphs, vectors, logarithms, and algebra fundamentals.

Prerequisites/Corequisites:
Course Completion of IED 90A or equivalent.

Recommended Preparation:
Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Schedule of Classes Information:
Description: Practical applications of mathematics for occupational students, using electronic calculators. Includes right angle trigonometry, equations, graphs, vectors, logarithms, and algebra fundamentals. (Grade Only)
Prerequisites/Corequisites: Course Completion of IED 90A or equivalent.
Recommended: Eligibility for ENGL 100 or ESL 100
Limits on Enrollment:

Transfer Credit: CSU;
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**			Effective:	Inactive:
	MC	Math Competency		Fall 1981	Fall 2009
CSU GE:	**Transfer Area**			Effective:	Inactive:
IGETC:	**Transfer Area**			Effective:	Inactive:
CSU Transfer:	Transferable	Effective:	Fall 1981	Inactive:	Fall 2015
UC Transfer:		Effective:		Inactive:	

CID:

Certificate/Major Applicable:
Both Certificate and Major Applicable

COURSE CONTENT

Outcomes and Objectives:
The student will:
1. Demonstrate basic mathematical concepts related to algebra, geometry, and trigonometry.
2. Solve basic mathematical problems associated with the subject matter of the course.
3. Analyze, evaluate, and solve mathematical word problems associated with the subject matter of the course.
4. Evaluate and demonstrate on-the-job uses of the mathematical concepts associated with his/her occupational field.
5. Use an electronic calculator in solving mathematical problems.
6. Use mathematical conversion tables and formulas.

Topics and Scope:

I. Algebra fundamentals
   A. Equations and the algebraic process
   B. Theory of signed numbers
   C. Rules of operation of signed numbers
   D. Addition, subtraction, multiplication and division of signed numbers
II. Addition and subtraction of algebraic expressions
   A. Definitions and classifications of terms and expressions
   B. Operations on monomial and polynomial expressions
   C. Simplifying algebraic expressions
   D. Operations on exponents
III. Multiplication and division of bionomials and polynomials
   A. Rules of operation
   B. Practical applications
IV. Powers of ten
   A. Definitions and technical applications

B. Scientific notation and significant figures
C. Rules of operation

V. Factoring
A. The concept of prime factors
B. Rules of operation
C. Factoring binomial and trinomial expressions

VI. Algebraic equations
A. Definition and types of equations
B. Rules for solving equations
C. Practical applications in occupational areas

VII. Angles
A. Definitions and measurements of angles
B. Cartesian or rectangular coordinates
C. Polar coordinates and the generation of angles
D. Oblique triangles and the laws of sines and cosines

IX. Principles of vector analysis and numerical control of mill machines
A. The concept of vector forces
B. Computation of and graphing vector forces
C. Practical applications in occupational areas

Assignment:

Students will be required to complete:
1. Reading assignments that will average fifteen pages per week during a full semester class.
2. Computational homework assignments averaging one per week or approximately ten assignments during the semester.
3. Practical occupational problem assignments - approximately ten assignments during the semester.
4. Periodic tests and final exam

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments are more appropriate for this course.	Writing 0 - 0%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems and class worksheets	Problem solving 20 - 50%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None	Skill Demonstrations 0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Periodic tests and final exam	Exams 50 - 80%

Other: Includes any assessment tools that do not logically fit into the above categories.

None	Other Category 0 - 0%

Representative Textbooks and Materials:
Introduction to Technical Mathematics. Washington, Allen J., Pearson 2008, fifth edition
Industrial Education 90B Syllabus, Power, T.C.,