IED 90B Course Outline as of Fall 2015

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:

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree: CSU GE:	Area MC Transfer Area	Math Competency	Effective: Fall 1981 Effective:	Inactive: Fall 2009 Inactive:
IGETC:	Transfer Area		Effective:	Inactive:
CSU Transfer	:	Effective:	Inactive:	
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.

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

Homework problems and class worksheets

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

Writing	
0 - 0%	

Problem solving 20 - 50%

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.,