

TECH-92: TECHNICAL MATHEMATICS I

Effective Term

Fall 2026

CC Approval

11/07/2025

AS Approval

11/13/2025

BOT Approval

11/20/2025

SECTION A - Course Data Elements
Send Workflow to Initiator

No

CB04 Credit Status

Credit - Degree Applicable

Discipline

Minimum Qualifications	And/Or
Mathematics (Master's Degree)	Or
Welding (Any Degree and Professional Experience)	Or
Machine Tool Technology (Tool and die making) (Any Degree and Professional Experience)	Or
Drafting/CADD (Computer Aided Drafting/Design) (Any Degree and Professional Experience)	

Subject Code

TECH - Technical Mathematics

Course Number

92

Department

Technical Mathematics

Division

Career Education and Workforce Development (CEWD)

Full Course Title

Technical Mathematics I

Short Title

Technical Mathematics I

CB03 TOP Code

1701.00 - Mathematics, General

CB08 Basic Skills Status

NBS - Not Basic Skills

CB09 SAM Code

E - Non-Occupational

Rationale

The SLOs were revised to streamline outcomes, eliminate redundancy, and ensure alignment with current industry standards and measurable skills for student success.

SECTION B - Course Description

Catalog Course Description

The first of a two-semester course sequence 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.

SECTION C - Conditions on Enrollment

Open Entry/Open Exit

No

Repeatability

Not Repeatable

Grading Options

Letter Grade Only

Allow Audit

Yes

Requisites

SECTION D - Course Standards

Is this course variable unit?

No

Units

3.00

Lecture Hours

54.00

Outside of Class Hours

108

Total Contact Hours

54

Total Student Hours

162

Distance Education Approval

Is this course offered through Distance Education?

Yes

Online Delivery Methods

DE Modalities	Permanent or Emergency Only?
Entirely Online	Permanent
Hybrid	Permanent

SECTION E - Course Content

Student Learning Outcomes

Upon satisfactory completion of the course, students will be able to:

1. Apply arithmetic, algebraic, geometric, and percentage-based methods to solve technical and trade-related problems.
2. Convert and interpret measurements within and between English and metric systems to address practical industrial applications.

Course Objectives

Upon satisfactory completion of the course, students will be able to:	
1.	Identify and differentiate mathematical symbols.
2.	Solve problems using fractions.
3.	Solve problems using percentages.
4.	Solve problems using geometric formula.
5.	Solve problems using algebraic formula.
6.	Understand and use the metric system.
7.	Transpose/convert English to metric and metric to English system.
8.	Perform and/or use arithmetic processes, algebra and/or geometry to find solutions for technical and trade problems.

Course Content

1. ARITHMETIC PROCESSES
 - a. Common fractions
 - b. Decimal fractions
 - c. Ratio and proportion
 - d. Elementary unit factoring
2. 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
3. PERCENTAGE
 - a. Finding the percentage
 - b. Finding the rate
 - c. Finding the base
 - d. Practical applications
4. 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
5. 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

Methods of Instruction

Methods of Instruction

Types	Examples of learning activities
Lecture	Instructor-led explanations of arithmetic, algebraic, and geometric concepts with interactive problem-solving sessions.

Activity	Students complete technical math problems relevant to trade and industrial applications.
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Online Adaptation

Types	Examples of learning activities
Discussion	Use of discussion boards, quizzes, and instructor feedback to reinforce core concepts.
Activity	Application-based problems aligned with real-world technical scenarios.

Instructor-Initiated Online Contact Types

Announcements/Bulletin Boards
E-mail Communication
Video or Teleconferencing

Student-Initiated Online Contact Types

Discussions

Course design is accessible

Yes

Methods of Evaluation

Methods of Evaluation

Types	Examples of classroom assessments
Exams/Tests	Demonstrates comprehensive problem-solving skills across all topics.
Quizzes	Assess understanding of arithmetic, percentages, algebra, and metric conversions.

Assignments

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.

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.

SECTION F - Textbooks and Instructional Materials

Material Type

Open Educational Resource (OER)

Author

Gardner, Ota St. Clair

Title

Applied Algebra

Edition/Version

#rd

Publisher

ATE Grant from National Science Foundation

Year

2014

Material Type

Other required materials/supplies

DescriptionCalculator

SECTION G - Diversity, Equity and Inclusivity**How does your course and/or course outline of record reflect strategies for accommodating and engaging diverse student populations, advancing equitable outcomes, and fostering inclusion for all students?**

This course promotes equitable outcomes by providing multiple entry points to learning technical mathematics, recognizing that students come from diverse educational and professional backgrounds. Instructional methods include real-world trade applications that value students' lived experiences and cultural perspectives. Supportive tools, such as visual models, step-by-step problem-solving strategies, and online resources, ensure accessibility for all learners. Collaborative activities encourage peer-to-peer learning and inclusive discussions, fostering a welcoming environment for students of varying math proficiency levels.

Course Codes (Admin Only)**CB00 State ID**

CCC000297390

CB10 Cooperative Work Experience Status

N - Is Not Part of a Cooperative Work Experience Education Program

CB11 Course Classification Status

Y - Credit Course

CB13 Special Class Status

N - The Course is Not an Approved Special Class

CB23 Funding Agency Category

Y - Not Applicable (Funding Not Used)

CB24 Program Course Status

Program Applicable

Allow Pass/No Pass

No

Only Pass/No Pass

No