

Course Outcome Summary

General Education Satisfier Course

MATH 124 Technical Mathematics II

Course Information

Division	Science-Mathematics
Contact Hours	60
Total Credits	4

Prerequisites

MATH 092, MATH 105 or, MATH 119, within the last three years is highly recommended, or qualifying scores on accepted placement tests.

Course Description

This course is designed to provide advanced mathematics preparation for students in technology programs. It emphasizes concepts and applications of algebra, geometry, and trigonometry to technical areas. The course includes geometry, graphs and charts, functions and graphs, trigonometry, vectors and polar coordinates, systems of equations, logarithms, and statistics. Students will be expected to work with mathematics numerically, graphically, analytically, and verbally.

This course is approved as a General Education competency satisfier.

General Education Goal: Critical Thinking

Competency: Use Mathematics to effectively model and evaluate quantitative relationships

Learning Outcome: Students will apply mathematical concepts and methods to understand, analyze, and communicate in quantitative terms.

General Education Learning Objectives

- Use arithmetic and geometric concepts and representations to solve, estimate, calculate, and check answers to problems and to determine reasonableness of results.
- Utilize linear, exponential, and other nonlinear models to evaluate the nature of relationships in real world problems.
- Organize, analyze, and interpret various representations of data, including functions, graphs, and tables.
- Utilize a variety of problem-solving strategies to solve problems and communicate findings using appropriate mathematical language and symbolism.

Course Outcomes

In order to evidence success in this course, each student will be expected to:

- Identify/recognize common statistical tests to draw conclusions about relationships between numerical data.
Applies to General Education Objectives
C. Organize, Analyze, and interpret various representations of data, including functions, graphs, and tables.
- Identify/recognize the binary and hexadecimal number systems.
Applies to General Education Objectives
A. Use arithmetic and geometric concepts and representations to solve, estimate, calculate, and check answers to problems to determine reasonableness of results.
- Demonstrate/practice application of basic geometry relationships to the calculation of perimeters, areas, volumes, and angles of common geometric figures and solids.

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Applies to General Education Outcome

- A. Utilize linear, exponential, and other nonlinear models to evaluate the nature of relationships in real world problems.

- 4) Demonstrate/practice the use of the xy-coordinate system to graph linear functions and determine the slopes and intercepts of the graphs.

Applies to General Education Outcomes

- B. Organize, analyze, and interpret various representations of data, including functions, graphs, and tables.

- 5) Demonstrate/practice application of basic trigonometric relationships to solve for angles or sides of right triangles.

Applies to General Education Outcomes

- A. Use arithmetic and geometric concepts and representations to solve, estimate, calculate, and check answers to problems to determine the reasonableness of results.

- 6) Demonstrate/practice resolving vectors into their right-angle components and finding the magnitude and direction of the resultant two vectors.

Applies to General Education Outcomes

- A. Use arithmetic and geometric concepts and representations to solve, estimate, calculate, and check answers to problems to determine the reasonableness of results.
B. Utilize linear, exponential, and other nonlinear models to evaluate the nature of relationships in real world problems.
C. Organize, analyze, and interpret various representations of data, including functions, graphs, and tables.
D. Utilize a variety of problem-solving strategies to solve problems and communicate findings using appropriate mathematical language and symbolism.

- 7) Demonstrate/practice conversion of coordinates of a point on a graph between rectangular and polar forms.

Applies to General Education Outcomes

- A. Use arithmetic and geometric concepts and representations to solve, estimate, calculate, and check answers to problems to determine the reasonableness of results.
B. Utilize linear, exponential, and other nonlinear models to evaluate the nature of relationships in real world problems.
C. Organize, analyze, and interpret various representations of data, including functions, graphs, and tables.
D. Utilize a variety of problem-solving strategies to solve problems and communicate findings using appropriate mathematical language and symbolism.

- 8) Demonstrate/practice solving two and three variable systems of linear equations by substitution or determinant methods

Applies to General Education Outcomes

- A. Use arithmetic and geometric concepts and representations to solve, estimate, calculate, and check answers to problems to determine the reasonableness of results.
B. Utilize linear, exponential, and other nonlinear models to evaluate the nature of relationships in real world problems.
C. Organize, analyze, and interpret various representations of data, including functions, graphs, and tables.
D. Utilize a variety of problem-solving strategies to solve problems and communicate findings using appropriate mathematical language and symbolism.

- 9) Demonstrate/practice evaluation of formulas containing exponential or logarithmic terms.

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- A. Use arithmetic and geometric concepts and representations to solve, estimate, calculate, and check answers to problems to determine the reasonableness of results.
- B. Utilize linear, exponential, and other nonlinear models to evaluate the nature of relationships in real world problems.

- 10) Demonstrate/practice analyzing and organizing linear and logarithmic data and representing it in an appropriate graphic form.

Applies to General Education Outcomes

- A. Use arithmetic and geometric concepts and representations to solve, estimate, calculate, and check answers to problems to determine the reasonableness of results.
- B. Utilize linear, exponential, and other nonlinear models to evaluate the nature of relationships in real world problems.
- C. Organize, analyze, and interpret various representations of data, including functions, graphs, and tables.
- D. Utilize a variety of problem solving strategies to solve problems and communicate findings using appropriate mathematical language and symbolism.

- 11) Demonstrate/practice extracting data from graphical representations.

Applies to General Education Outcomes

- C. Organize, analyze, and interpret various representations of data, including functions, graphs, and tables.

- 12) Demonstrate/practice use of common statistical measures to summarize numerical data.

Applies to General Education Outcomes

- C. Organize, analyze, and interpret various representations of data, including functions, graphs, and tables.

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