MATH 116 – Technical Mathematics (3 Credits)

DESCRIPTION:
Concepts that will allow the student to become proficient in the mathematics used in technical fields are the focal points of this course. Topics include fundamental operations with signed numbers; measurement systems; exponents; order of operations; scientific notation; algebraic expressions; linear equations and inequalities; an introduction to graphing; simple geometric figures; logarithms; and fundamentals of trigonometry. **Prerequisite**: None.

OUTCOMES:
a. Perform basic operations with signed numbers.
b. Simplify expressions using the order of operations.
c. Manipulate numbers in scientific notation.
d. Become familiar with the U.S. Customary & Metric Systems of measurement.
e. Simplify algebraic expressions.
f. Solve linear equations and inequalities.
g. Manipulate literal equations and formulas.
h. Solve application problems.
i. Graph linear equations in two variables on a coordinate axis.
j. Calculate the slope of a line given two points.
k. Compute perimeters (circumference of a circle), areas & volumes of simple geometric figures.
l. Evaluate exponential functions.
m. Evaluate logarithms using a calculator.
n. Explore triangles and the fundamentals of trigonometry.
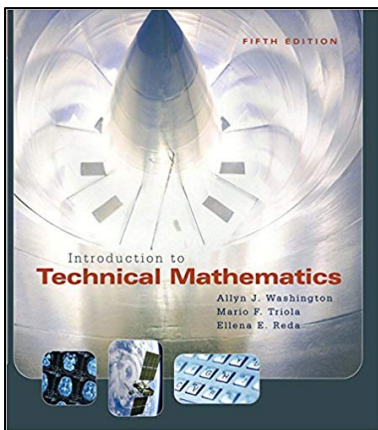o. Apply and extend all concepts.

TEXT:
Title: *Introduction to Technical Mathematics; 5th Edition;
Authors: Washington, Triola, Reda;
Publisher: Pearson;
ISBN-13: 978-0321374172

*Note: Full-time instructors have the right to use no text or a different text.

OUTLINE:

- **Signed Numbers**: Signed Numbers, Arithmetic with Signed Numbers, Powers, Roots, Order of Operations, Scientific Notation (Washington/Triola/Reda, Sections 1.1-1.6)
- **Measurement**: Units of Measure, The Metric System, Conversions, Approximations, Significant Digits (Washington/Triola/Reda, Sections 2.1-2.4)
- **Introduction to Algebra**: Formulas, Basic Expressions, Arithmetic with Expressions (Washington/Triola/Reda, Sections 3.1-3.5)
- **Equations and Inequalities**: Solving Equations, Formulas, Literal Equations, Inequalities, Problem Solving (Washington/Triola/Reda, Sections 4.1-4.4)
- **Graphs**: Functions, Function Notation, Rectangular Coordinate System, Graphs of Functions, Linear Functions (Washington/Triola/Reda, Sections 5.1-5.4)
- **Geometry**: Basic Geometric Figures, Perimeter, Area, Volume (Washington/Triola/Reda, Sections 6.1-6.4)
- **Exponential and Logarithmic Functions**: (Washington/Triola/Reda, Sections 12.1-12.2)
- **Right Triangle Trigonometry**: Angles, Geometric Figures, Right Triangles, The Pythagorean Theorem, Similar Triangles, Trigonometric Ratios and Values, Applications (Washington/Triola/Reda, Sections 13.1-13.7)

EVALUATION:

Grades may be determined by student performance in one or more of the following areas: in-class tests, take-home tests, homework assignments, quizzes, special projects, papers, attendance, and class participation. Degree of importance and types of assessment used will depend on the instructor.

This course can only be applied as the Math component for selected AAS and AGS degrees at CSN. It DOES NOT satisfy the requirements for the General Education Math Component for AA/AB/AS degrees, and is not transferable for credit.