Alexandria Technical and Community College

MATH 1460: Quantitative Problem Solving

A. COURSE DESCRIPTION

Credits: 3
Lecture Hours/Week: 3
Lab Hours/Week: 0
OJT Hours/Week: *.*

Prerequisites:
This course requires any of these eight prerequisites
  MATH 0429 - Beginning Algebra (Minimum grade: 2.0 GPA Equivalent and Number of Years Valid: 5)
  MATH 0431 - Intermediate Algebra (Minimum grade: 2.0 GPA Equivalent and Number of Years Valid: 5)
  MATH 0415 - Bridge to Math Reasoning (Minimum grade: 2.0 GPA Equivalent and Number of Years Valid: 5)
  ATCC Mathematical Reasoning
  ATCC Calculus-Level Placement
  A score of 2 on test Algebra
  A score of 2 on test Math Reasoning

Corequisites: None

MnTC Goals: Goal 04 - Mathematical/Logical Reasoning

A quantitative reasoning course combining elements of algebra, geometry, and trigonometry grounded in real-world context. Topics include algebraic expressions, linear equations, quadratic equations, algebraic word problems, dimensional analysis, scientific notation, problem solving strategies, uncertainty, mathematical modeling, and communicating mathematical ideas.

B. COURSE EFFECTIVE DATES: 01/13/2020 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Solve linear, rational, and quadratic equations with real coefficients.
2. Algebraically manipulate equations to solve for any given variable.
3. Effectively work with U.S. and metric units of measurement.
5. Set up and solve equations concerning rates of change.
6. Solve applied problems related to geometry and trigonometry.
7. Use mathematical modeling to solve real-world science, technology, engineering, and math (STEM) problems.
9. Develop critical thinking skills.

D. LEARNING OUTCOMES (General)

1. Solve problems by applying a multi-step systematic process for algebraic word problems.
2. Solve for an indicated variable in literal equations.
3. Solve problems common to a variety of science and technological fields using unit- and dimensional-analysis.
E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

   Goal 04 - Mathematical/Logical Reasoning

1. Illustrate historical and contemporary applications of mathematical/logical systems.
2. Clearly express mathematical/logical ideas in writing.
3. Explain what constitutes a valid mathematical/logical argument (proof).
4. Apply higher-order problem-solving and/or modeling strategies.

F. LEARNER OUTCOMES ASSESSMENT

   As noted on course syllabus

G. SPECIAL INFORMATION

   None noted