

## **SEWARD COUNTY COMMUNITY COLLEGE COURSE SYLLABUS**

### **I. TITLE OF COURSE: MA1203- Technical Mathematics**

### **II. COURSE DESCRIPTION: 3 credit hours 3 credit hours of lecture and 0 credit hours of lab per week.**

This course is for students in industrial technology programs. Students will develop the mathematical skills necessary to be successful in these programs. Topics include basic algebraic operations, complex equations, graphs of linear equations, systems of equations, quadratic equations, plane geometry, angular measurements, angular geometric principles, triangles, congruent and similar figures, polygons, circles, areas of common polygons, circles, sectors, segments and ellipse, prisms and cylinders: volumes, surface area, and weights, pyramids and cones: volumes, surface areas, and weights, spheres and composite figures: volumes, surface areas, and weights, introduction to trigonometric functions, trigonometric functions with right triangles, practical applications with right triangles, practical applications with right triangles, and vectors.

For each unit of credit, a minimum of three hours per week with one of the hours for class and two hours for studying/preparation outside of class is expected.

Pre-requisite: Refer to placement matrix.

### **III. PROGRAM AND/OR DEPARTMENT MISSION STATEMENT:**

The Mathematics Department at Seward County Community College will enhance a student's ability to think critically using mathematical principals, ideas, and concepts in order to function in a society with ever-changing technology.

### **IV. TEXTBOOK AND MATERIALS:**

1. Introductory Technical Mathematics.  
Seventh edition.
2. CENCAGE on-line.
3. Scientific Calculator.

### **V. SCCC OUTCOMES**

Students who successfully complete this course will demonstrate the ability to do the following SCCC Outcomes.

- 4: Demonstrate mathematical skills using a variety of techniques and technologies.
- 5: Demonstrate the ability to think critically by gathering facts, generating insights, analyzing data, and evaluating information

### **VI. COURSE OUTCOMES:**

1. Use problem solving techniques to apply mathematical principles to problems encountered in technical programs.
2. Utilize procedures for manipulating algebraic expressions, including the properties of real numbers and order of operations.
3. Use calculators to solve problems.
4. Use various tools to measure objects to specific degrees of accuracy.
5. Solve problems utilizing scale drawings.
6. Solve problems involving geometric shapes in two and three dimensions.
7. Solve problems by setting up and solving linear equations.

8. Solve formulas applicable to various technical programs.
9. Use properties of basic nonlinear functions and determine their graphs.
10. Add, subtract, multiply and divide algebraic expressions, polynomials, and rational expressions.
11. Use trigonometry to set up and solve applied problems.
12. Use the fundamental of plane geometry to solve applied problems.
13. Solve applied problems involving areas and volumes.

## **VII. COURSE OUTLINE:**

1. Fundamentals of Algebra including:
  - a. Basic Algebraic operations
  - b. Simple and complex Algebraic equations
  - c. Graphs of linear equations
  - d. Quadratic equations
2. Fundamentals of plane geometry including:
  - a. Angular measurements
  - b. Angular geometric principles
  - c. Triangles
  - d. Congruent and similar figures
  - e. Polygons
  - f. Circles
3. Geometric figures: areas and volumes including:
  - a. Areas of common polygons
  - b. Areas of circles, sectors, segments, and ellipses
  - c. Volumes, surface areas, and weights of prisms, cylinders, pyramids, cones, spheres, and composite figures
4. Fundamentals of Trigonometry including:
  - a. Trigonometric functions with right triangles
  - b. Practical applications with right triangles
  - c. Functions of any angle, oblique triangles
  - d. Vectors

## **VIII. INSTRUCTIONAL METHODS:**

1. Lecture – Short lectures will be used to emphasize different concepts of the daily lessons.
2. Assignments – a study of the text and the working selected problems are required in order to involve the student and assure his understanding sufficiently to use skills as required for future work.
3. Supplementary texts. The texts from various technical programs will be used to ensure appropriate application of math skills as they relate to “real world” situations.
4. Class discussions. Questions may be initiated by either the teacher or students at any time during class discussions.
5. Online computer quizzes and exams may be assigned depending on the instructor.
6. Demonstrations. Models, visual aids, etc., are used to convey and clarify ideas.
7. Examinations. Tests and quizzes are used frequently to help summarize concepts and

emphasize important skills.

8. Individual help. Each student is encouraged to come for the instructor's help, providing he or she has been attending class regularly, as he or she has difficulty. Office hours are posted.

#### **IX. INSTRUCTIONAL AND RESOURCE MATERIALS:**

1. Textbook
2. Supplemental texts and library reference books
3. Supplementary material prepared by the instructor.

#### **X. METHODS OF ASSESSMENT:**

1. Outcome #4 will be assessed and measured by class participation and tests.
2. Outcome #5 will be assessed and measured using assignments, test, and non-traditional problem-solving activities.

#### **XI. ADA STATEMENT:**

Under the Americans with Disabilities Act, Seward County Community College will make reasonable accommodations for students with documented disabilities. If you need support or assistance because of a disability, you may be eligible for academic accommodations. Students should identify themselves to the Dean of Students at 620-417-1106 or going to the Student Success Center in the Hobbie Academic building, room 149 A.

Syllabus Reviewed: 1/26/2021