SAN JUAN COLLEGE
Success Matters

MATH-1170 MATH FOR TECHNICAL CAREERS   4 CREDITS

SYLLABUS

CATALOG DESCRIPTION

Instructs students in the knowledge of addition, subtraction, multiplication and division of whole numbers, fractions and decimals. Topics also include ratios and proportions, percents, standard and metric measurements and conversions. Basics of algebra, operations of rational numbers, algebraic expressions, solving equations, formulas, geometry and trigonometric concepts of sine, cosine, tangent and the Pythagorean Theorem. Vocational applications are emphasized.

Prerequisites:

Semester Offered: Fall, Spring, Summer

COMMON STUDENT LEARNING OUTCOMES
Upon successful completion of San Juan College programs and degrees, the student will demonstrate competency in…

BROAD AND SPECIALIZED LEARNING
Students will actively and independently acquire, apply, and adapt skills and knowledge with an awareness of global contexts.

CRITICAL THINKING
Students will think analytically and creatively to explore ideas, make connections, draw conclusions and solve problems.

CULTURAL AND CIVIC ENGAGEMENT
Students will act purposefully, reflectively, and ethically in diverse and complex environments.

EFFECTIVE COMMUNICATION
Students will exchange ideas and information with clarity in multiple contexts.

INFORMATION LITERACY
Students will be able to recognize when information is needed and have the ability to locate, evaluate, and use it effectively.

INTEGRATING TECHNOLOGIES
Students will demonstrate fluency in the application and use of technologies in multiple contexts.

Student work from this class may be randomly selected and used anonymously for assessment of course, program, and/or institutional learning outcomes. For more information, please refer to the Dean of the appropriate School.

COURSE LEARNING OUTCOMES
Upon successful completion of the course, the student will be able to…

1. Rational Numbers and Operations

A copy of this approved syllabus is on file in the dean's office.
Updated 12/14/18

2. Ratio, Proportion and Percent

3. Measurement, Geometry and Trigonometry

Specific Learning Outcomes

1.1 Add, subtract, multiply, and divide rational numbers, and simplify expressions with rational numbers with and without a calculator

1.2 Apply computational and calculator skills to appropriate applications for vocational areas

1.3 Correctly apply the order of operations

1.4 Simplify algebraic expressions

1.5 Manipulate and evaluate first degree, multiple variable equations including Ohm's Law, Watt's Law, Pascal's Law and the Combined Gas Law

1.6 Recognize when and how to estimate and approximate rational numbers

1.7 Round rational numbers

2.1 Set ratios and understand what they represent

2.2 Calculate percent of a number and percent of change

2.3 Convert between fractions, decimals and percent

2.4 Apply ratios, rates, and proportions to solve problems of direct and inverse variation (pulleys, forces, blueprints, etc.)

2.5 Solve mixture problems

3.1 Accurately convert units of length, weight, capacity, area, and volume within and between American and Standard International (Metric)

3.2 Calculate and apply formulas of perimeter, circumference, area, volume and surface area to regular and composite two- and three-dimensional figures, including cylinders, spheres, cones, prisms and pyramids

3.4 Accurately measure angles

3.3 Accurately read measuring instruments: ruler, micrometer, slide calipers, and dial calipers

3.4 Describe, diagram and apply formulas of geometry to regular and composite figures

3.5 Use the Pythagorean Theorem, ratios of sine, cosine, and tangent to solve right triangle problems for missing dimensions (angles or sides)

3.6 Apply the law of sine and cosine to solve oblique triangles for missing dimensions

3.7 Diagram and solve problems of right triangle trigonometry as it applies to the vocational areas

Other Requirements: A scientific calculator is required for specific outcomes however, calculators will not be allowed on some coursework and exams. Students must demonstrate mastery of all operations on rational numbers without the use of a calculator. We highly recommend the student use a TI-30IIX, Texas Instruments calculator.

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