MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE
COURSE OUTLINE

Faculty are required to have the outline submitted to the Academic Affairs Office. The course outline is the form used for approval of new courses by the Collegewide Curriculum Committee.

DEPT.  MATHEMATICS                      COURSE NO.  MATH1100

NUMBER OF CREDITS:  3

COURSE TITLE:  INTEGRATED MATH

CATALOG DESCRIPTION  This course will focus on using mathematical concepts to solve applied problems in technology. These concepts include topics in algebra, geometry, and trigonometry.

AUDIENCE:  Technical College Students

FULFILLS MN TRANSFER CURRICULUM AREA(S)  (Leave blank if not applicable)  NONE

PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE: Students should be able to use the integer number system and have mastered the fundamental operations of arithmetic of real numbers. Students should also be able to simplify basic algebraic expressions. Placement by exam, MATH 0098, or consent of the instructor.

LENGTH OF COURSE:  1 semester

THIS COURSE IS USUALLY OFFERED:
Every other year ☐  fall ☒  spring ☒  summer ☐  undetermined ☐

Four goals are emphasized in course at Minnesota West Community & Technical College:

1) ACADEMIC CONTENT:
   a) To solve problems using basic concepts of measurement, basic algebra, and basic geometry and trigonometry.
   b) To provide a basic background in mathematics to enable the student to progress to mathematics college course work at a higher level with confidence.
   c) To master a higher level of mathematical skill.
   d) To develop a higher level of mathematical thinking.
   e) To develop an appreciation of the language of the sciences.
2) THINKING SKILLS:
   (a) Develop the ability of using algebraic expressions to analyze and solve “real-world” problems.
   b) Using and developing mathematical models to understand patterns.
   c) Developing and using problem solving strategies.
   d) Focusing on improving critical thinking skills (logical, observational, insightful, and evaluative).

3) COMMUNICATIONS SKILLS:
   a) Writing concise solution papers to mathematical problems, mathematical ideas and definitions.
   b) Oral interpretation of problems.
   c) Solving problems in cooperative groups.
   d) Organize ideas and data using graphing techniques.
   e) Relating mathematical ideas to “real-world” applications.

4) HUMAN DIVERSITY:
   a) Working in small groups to experience different ways people solve problems and interpret and develop strategies in solving mathematical problems.
   b) Changing partners from time to time to enrich each person’s point of view.

TOPICS TO BE COVERED:

1. Review of Basic operations of whole numbers, fractions, areas, volumes, weights and measures, percent, rates, powers, and roots.
2. Signed numbers and powers of ten, scientific notation
3. The Metric System and conversions to English system
4. Measurement accuracy, error types, and applications.
5. Simplifying algebraic expressions
6. Solving equations and formulas
7. Ratio and Proportion, direct and inverse variation.
8. Metric geometry
9. Right Triangle Trigonometry
11. Other trig applications, vectors, moments, torques, etc.
12. Special application projects or review of more algebra fundamentals with polynomials, linear equations (slope), factoring, and quadratic equations and their applications.
LIST OF EXPECTED COURSE OUTCOMES:

1) To demonstrate basic mathematical procedures readily needed to solve problems and enhance arithmetic methods
2) further define and develop algebraic, geometric, and trigonometric principles to bridge the gap between basic algebra and more advanced uses of algebra.
3) demonstrate data collection and mathematical modeling techniques that can be used to understand mathematical patterns and trends
4) emphasize the practice of writing concise solutions to real-world problems

LEARNING/TEACHING TECHNIQUES used in the course are:

- Collaborative Learning
- Problem Solving
- Student Presentations
- Interactive Lectures
- Creative Projects
- Individual Coaching
- Lecture
- Films/Videos/Slides
- Demonstrations
- Other (describe below)
- Lecture
- Lab
- Other (describe below)

ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:

- Reading
- Tests
- Individual Projects
- Oral Presentations
- Worksheets
- Collaborative Projects
- Textbook Problems
- Papers
- Portfolio
- Group Problems
- Term Paper
- Other (describe below)

EXPECTED STUDENT LEARNING OUTCOMES:

1. Evaluate algebraic expressions.
2. Calculate geometric areas and volumes.
3. Convert metric/English measurements.
4. Solve algebraic equations and formulas.
5. Use trig ratios and laws to solve triangles.

The information in this course outline is subject to revision

To receive reasonable accommodations for a documented disability, please contact the campus Student Services Advisor or campus Disability Coordinator as arrangements must be made in advance. In addition, students are encouraged to notify their instructor.

Veteran Services: Minnesota West is dedicated to assisting veterans and eligible family members in achieving their educational goals efficiently. Active duty and reserve/guard military members should advise their instructor of all regularly scheduled military appointments and duties that conflict with scheduled course requirements. Instructors will make every effort to work with the student to identify adjusted timelines. If you are a veteran, please contact the Minnesota West Veterans Service Office.

This document is available in alternative formats to individuals with disabilities by contacting the Student Services Advisor or by calling 800-658-2330 or Minnesota Relay Service at 800-627-3529 or by using your preferred relay service.

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