MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE
COURSE OUTLINE

DEPT. MATH   **COURSE NUMBER: 1107**

NUMBER OF CREDITS: 3   **Lecture: 3 Lab: 0   OJT: 0**

Course Title:
Concepts in Math

Catalog Description:
Concepts in Math covers topics from various areas of mathematics showing the scope and power of mathematics and emphasizing the mathematical method. This course is for students who are not mathematics majors and who wish to acquire a basic understanding of mathematics and apply it to a specific area of study.

Prerequisites or Necessary Entry Skills/Knowledge:
Co-Req Math 0117 or placement by multiple measures.

FULFILLS MN TRANSFER CURRICULUM AREA(S) *(Leave blank if not applicable)*

☒Goal 4: Mathematics/Logical Reasoning: By meeting the following competencies:
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.

Topics to be Covered
Basic Number Theory and the Real Number System
Algebraic Models: Linear, Quadratic, Exponential and Proportions
Systems of Linear Equations and Inequalities
Geometry: Lines, Angles, Circles, Polygons, Perimeter, Area, Volume, Surface Area, Dimensional Analysis, Symmetry and Tessellations
Right Triangle Trigonometry, Laws of Sines and Cosines
Mathematics of Finance: Percent, Interest, Consumer Loans, Annuities, and Amortization
Descriptive Statistics: Organizing and visualizing data, measures of central tendency, measures of dispersion, introduction to normal and probability distributions
Discipline specific applications of formulas and mathematical models

Student Learning Outcomes

1. Represent mathematical patterns by applying mathematical models
    A. Distinguish correct solutions through substitution.
    B. Solve for unknown quantities by applying algebraic rules.

	C. Interpret and explain results.

2.	Interpret data through organization and analysis of practical mathematical problems.
	   A. Organize data using graphs and tables.
	   B. Summarize data by calculating measures of center, variation and relative standing.
	   C. Relate data to a normal or probability distribution.

3.	Select the correct mathematical methods to solve problems
	   A. Represent problems using analytic, graphical, verbal and numeric techniques.
	   B. Select the correct technique from algebraic and geometric methods to analyze a problem.
	   C. Defend their choice of mathematical models.

4.	Apply inductive and deductive reasoning to solve mathematical problems
	   A. Construct a logical approach to problem solving.
	   B. Expand specific mathematical techniques to generalized problems.
	   C. Justify the approach used for problem solving.

5.	Solve program-specific application problems using a variety of mathematical techniques
	   A. Identify the correct methods to use for program-specific application problems.
	   B. Formulate the correct steps for solving the problems.
	   C. Summarize the process and solution to the problems.

Is this course part of a transfer pathway: Yes ☐   No ☒
*If yes, please list the competencies below

Revised Date: 4/5/2022