Bemidji State University

MATH 3260: Mathematical Problem Solving

A. COURSE DESCRIPTION
   Credits: 3
   Lecture Hours/Week: 0
   Lab Hours/Week: 0
   OJT Hours/Week: None
   Prerequisites: None
   Corequisites: None
   MnTC Goals: None

   Investigation of problems and the process of problem solving across a variety of mathematical areas. Development and application of strategies used to solve problems with emphasis on multistep and nonroutine problems. Application of the process of mathematical modeling to real situations. Prerequisite: MATH 2210. (Might not be offered every year.)

B. COURSE EFFECTIVE DATES: 08/22/1997 - Present

C. OUTLINE OF MAJOR CONTENT AREAS
   1. Strategies and tactics for problem solving
   2. Symmetry and invariants
   3. The Extreme Principle; The Pigeonhole Principle
   4. Generating functions
   5. Partitions and bijections

D. LEARNING OUTCOMES (General)
   1. Understand general and specific strategies for problem solving.
   2. Analyze problems, discern structure and pattern and make conjectures a variety of contexts.
   3. Apply creative and analytic thinking to develop clear and valid arguments.
   4. Communicate mathematical ideas and understanding effectively.
   5. Appreciate the beauty and diversity of problem-solving techniques.
   6. Exhibit advanced communication skills in both classroom discussions and their written work.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies
   None

F. LEARNER OUTCOMES ASSESSMENT
   As noted on course syllabus

G. SPECIAL INFORMATION
   None noted