A. COURSE DESCRIPTION

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

This course uses typical classroom materials to examine the Van Hiele model, 3-dimensional and 2-dimensional geometric shapes, and measurement concepts. Emphasizes instructional strategies, manipulatives, and tools to enhance student learning. Prerequisite: Teaching experience or consent of the instructor.

B. COURSE EFFECTIVE DATES: 08/21/2017 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. identification, construction, analysis and comparison of two-dimensional shapes
2. identification, construction, and analysis of three-dimensional shapes
3. measurement concepts: length, area, volume, capacity, mass, time, temperature, and angle size
4. standard and metric (SSI) measurement systems
5. reasoning and proof method
6. the Van Hiele model for geometric understanding
7. active learning, and use of manipulatives and concrete materials
8. group work, discussion and class presentations
9. use of multiple solution paths and solution justifications
10. assessment techniques, including performance assessment.

D. LEARNING OUTCOMES (General)

1. identify, describe, and model two-dimensional shapes and their relationships, and represent and reason about them in increasingly abstract ways.
2. identify, describe, and model three-dimensional shapes and their relationships, and represent and reason about them in increasingly abstract ways.
3. use measurement of length, area, volume, capacity, mass, time, temperature, and angle size to make the connection between number and space in order to describe, analyze, model, and represent real world and abstract situations.
4. demonstrate understanding of the relationships between and origins of units in standard and SSI systems and use them to describe, analyze, model, and represent real world and abstract situations.
5. demonstrate ability to conduct and instruct methods of proof ranging from informal justification to formal proof as applicable to differing grade levels.
6. analyze instructional methods for teaching geometry.
7. synthesize and create a unit plan to develop student understanding of geometry in their classrooms.
8. demonstrate higher level mathematics communication skills through discussion, written work, and presentation.
E. Minnesota Transfer Curriculum Goal Area(s) and Competencies
   None

F. LEARNER OUTCOMES ASSESSMENT
   As noted on course syllabus

G. SPECIAL INFORMATION
   None noted