MTE 553

spring 2014

Geometric Structure for Teachers

Department of Mathematics Texas A&M University-Commerce

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Course Description:

The course is designed for Teachers k-8.The National council of Teachers of Mathematics (NCTM) explains in its principles and standards (2000) that all mathematical learning should be grounded in problem solving and mathematical reasoning. The course is designed to prepare the teachers to create learning environments conducive to meeting the national and state standards regarding geometry. Topics include characteristics of 2 and 3 dimensional shapes, Mathematical proofs, spatial relationships, transformations and symmetry.

Learning outcomes:

Upon completion of the course students will be able to

1. Understand more about 2 dimensional and 3 dimensional shapes, Mathematical proofs, spatial relationships, transformations and symmetry.

2. Identify different Geometrical structures.

3. Combine theories with practical problems.

Topics Covered:

0. Introduction to Geometry
1. Definitions, Axioms, and Models
2. Graph Theory
3. Geometrical Transformation
4. Symmetry
5. Polygons and Polyhedra
6. Geometry of Surfaces

*Applications of geometry and problems will be discussed throughout the course

Resources/Equipment:

Geogebra soft ware is required for the course.
(Student can download from http://www.geogebra.org/cms/en)

Homework:

Homework will be assigned on a regular basis and will count 10% of your grade and one project will be given and count 20% of your grade.

Exams:

There will be one midterm exam and a cumulative final exam.

Your final grade will be determined by 70% of your average on the exams plus your home work and project.

Class Schedule:

R 5:00 - 8:15 pm

Academic Dishonesty:

Texas A&M University –Commerce has explicit rules and regulations governing academic dishonesty and academic misconduct. These policies are stated in details in the student's Guide

Handbook. Each students is expected to read this document and abide by the contained polices. These university polices will be followed in class. The minimum penalty an act of academic dishonesty will be a grade of 0 on the examination or homework assignments or projects.

Students with Disability:

The American with Disability Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation.

please contact:

Office of Student Disability Resources and Services

Texas A&M University – Commerce

Gee Library

Room 132

Phone 903-886-5150 or 903-886-5835

Fax 903-468-8148

studentDisabilityservices@tamuc.edu

Textbook:

.Tucker, A. (2007), *Applied combinatorics*, Danvers, MA John Wiley& Sons, Inc.

.Taxicab Geometry: *An Adventure in Non-Euclidean Geometry* by Eugene F. krause.

Originally published by Addison – Wesley, 1975, but now available as a Dover publication reprint.

References:

. Gerard, A.Venema, Foundations *of Geometry* .second edition.

. David,T, *Modern Geometry*, Brook/Cole, 2002

. E. Demaine and J. O'Rourke, *Geometric Folding Algorithms*, Cambridge U. Press, New York, 2007.

. Manning, H. P (2004). *Introductory Non- Euclidean Geometry*. Mineola, NY: Dover Publications Inc.