Technical Math Applications (TECM 1349)

Credit: 3 semester credit hours (3 hours lecture)

Prerequisite/Co-requisite: None

Course Description
Trigonometry and geometry as used in a variety of technical settings. Includes the use of plane and solid geometry to solve areas and volumes encountered in industry.

Required Textbook and Materials
1. There is no textbook for this class; instructor created materials will be used.

2. A **basic** scientific calculator with the trigonometric functions (sin, cos, tan) and a build in π key (no graphing or programmable calculators). *Please check with your individual instructor as to the specific type of calculator required.*

Course Objectives
Upon completion of this course, the student will be able to:
1. Solve right triangle applications.
2. Calculate areas of plane surfaces.
3. Solve volumes of standard solids.
4. Add and subtract vectors.

Course Outline
A. Unit 1: Introduction to Geometry
   1. Fundamental Definitions of Geometry
   2. Angles
   3. Relations of Lines
   4. Polygons and Their Properties
   5. Triangles and Their Properties
   6. Quadrilaterals and Their Properties
B. Unit 1: Polygons
   1. Perimeter vs. Area
   2. Area of a Square and Rectangle
   3. Area of a Parallelogram
   4. Area of a Triangle
   5. Area of a Trapezoid
C. Unit 2: Triangles
   1. Congruent Triangles
   2. The Right Triangle
   3. The Square and its Diagonals
   4. Isosceles Triangles and Their Properties
   5. Equilateral Triangles and Their Properties

   6. Hexagons and Their Properties
   7. Similar Triangles
D. Unit 3: The Circle
   1. Definitions
   2. Properties
   3. Relations between Diameter, Radius, and Circumference
   4. Historical Note Concerning Pi
   5. Intercepted Arc Length
   6. Area of a Circle
   7. Area of a Ring (Annulus)
   8. Area of a Sector
   9. Segments
   10. Ellipse
   11. Regular Polygons and Circles
E. Unit 4: Geometric Solids
   1. Prisms
   2. Cylinders
   3. Pyramids
   4. Cones
   5. Frustums
   6. Spheres

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	7. Torus	3.	Oblique Triangle Trigonometry
F.	Unit 5: Trigonometry	G.	Unit 6: Vectors
	1. Introduction to Trigonometry	1.	Introduction to Vectors
	2. Right Triangle Trigonometry	2.	Addition and Subtraction of Vectors

Grade Scale

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

Course Evaluation

Final grades will be calculated according to the following criteria:

Tests	60%
Comprehensive Final Exam	12%
Course Assignments and Participation	28%

Course Requirements

1. Attendance is mandatory.
2. The student must purchase all of the required course materials.
3. Additional course requirements as defined by the individual course instructor.

Course Policies

1. Cheating of any kind will <u>not</u> be tolerated.
2. No food, drinks, or use of tobacco products in class.
3. All devices (except the scientific calculator) must be turned off while in class.
4. The students are responsible for initiating and completing the drop process. Students who stop coming to class and fail to drop the course will earn an "F" in the course.
5. Additional class policies as defined by the individual course instructor.

Technical Requirements (for courses using Blackboard)

The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:
https://help.blackboard.com/en-us/Learn/9.1_2014_04/Student/015_Browser_Support/015_Browser_Support_Policy A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of the online technology and resources.

Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or

visit the office in Student Services, Cecil Beeson Building. You may also visit the online resource at http://www.lit.edu/depts/stuserv/special/defaults.aspx

Student Code of Conduct Statement

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu or obtained in print upon request at the Student Services Office. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

Course Schedule

- Varies by instructor

Contact information

- Varies by instructor