



COURSE OUTLINE

MTH145

Prepared: Mathematics Department Approved: Sherri Smith

Course Code: Title	MTH145: MATHEMATICS
Program Number: Name	4039: MECH. ENG. TN-MANUFA
Department:	MATHEMATICS
Semester/Term:	18W
Course Description:	<p>This first level mathematics course for engineering technology programs begins with a review of fundamental concepts including arithmetic operations and concepts in measurement. This is followed by several algebra topics including linear equations, factoring, fractions and quadratic equations. A treatment of trigonometry of right triangles, the trigonometric functions of any angle and of oblique triangles is also included.</p> <p>The goals of this course are, first, to show that mathematics does play a most important role in the development and understanding of the various fields of technology and, secondly, to ensure that students acquire the mathematical and critical thinking skills necessary to analyze and solve engineering technology problems.</p>
Total Credits:	4
Hours/Week:	4
Total Hours:	60
Substitutes:	MTH142, OEL806
This course is a pre-requisite for:	MTH146
Essential Employability Skills (EES):	<p>#1. Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.</p> <p>#2. Respond to written, spoken, or visual messages in a manner that ensures effective communication.</p> <p>#3. Execute mathematical operations accurately.</p> <p>#4. Apply a systematic approach to solve problems.</p> <p>#5. Use a variety of thinking skills to anticipate and solve problems.</p> <p>#6. Locate, select, organize, and document information using appropriate technology and information systems.</p> <p>#7. Analyze, evaluate, and apply relevant information from a variety of sources.</p> <p>#8. Show respect for the diverse opinions, values, belief systems, and contributions of others.</p>

	<p>#9. Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.</p> <p>#10. Manage the use of time and other resources to complete projects.</p> <p>#11. Take responsibility for ones own actions, decisions, and consequences.</p>						
Course Evaluation:	Passing Grade: 50%, D						
Other Course Evaluation & Assessment Requirements:	<p>Evaluation will consist of two components:</p> <p>Tests overall worth of 80% toward the final grade.</p> <p>Homework assignments, in-class assignments, quizzes overall worth of 20% toward the final grade.</p> <p>Students must pass both the assigned work and test portion of the course to pass the entire course.</p> <p>There will likely be 4 to 5 tests during the semester and the dates will be identified in class. Each test will have the same worth and weight towards the final test portion of the score.</p> <p>The professor reserves the right to adjust the number of tests, assignments and quizzes as warranted. Any modifications will be discussed in class. Students with special needs and or circumstances are required to identify their specific needs with the professor.</p> <p>Attendance is mandatory and the quizzes, in-class and assigned work will only be marked when completed in class.</p> <p>It is the student's responsibility to notify the professor in advance of any absences and it will be at the professor's discretion to allow rewrites, retakes, modified assignments or quizzes where warranted.</p> <p>Work is to be completed by the assigned dates and times. Failure to do so may result in zero grades for the assigned work.</p> <p>Some of the assigned work may be provided and/or completed through the Internet via MyMathLab or D2L.</p> <p>If a faculty member determines that a student is at risk of not being successful in their academic pursuits and has exhausted all strategies available to faculty, student contact information may be confidentially provided to Student Services in an effort to offer even more assistance with options for success. Any student wishing to restrict the sharing of such information should make their wishes known to the coordinator or faculty member.</p>						
Evaluation Process and Grading System:	<table border="1"> <thead> <tr> <th>Evaluation Type</th><th>Evaluation Weight</th></tr> </thead> <tbody> <tr> <td>Assigned Work</td><td>20%</td></tr> <tr> <td>Tests</td><td>80%</td></tr> </tbody> </table>	Evaluation Type	Evaluation Weight	Assigned Work	20%	Tests	80%
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Tests	80%						
Books and Required Resources:	<p>Basic Technical Mathematics with Calculus, SI Version plus MyMathLab with Pearson eText Access Card Package, 10/e by Washington and Boue</p> <p>Publisher: Pearson Edition: 10</p> <p>ISBN: 9780133523669</p> <p>with MyMathLab and eText - Access Card Package</p>						
Course Outcomes and Learning Objectives:	<p>Course Outcome 1.</p> <p>Basic algebraic operations</p>						

Learning Objectives 1.

1. Perform basic arithmetic operations on signed numbers.
2. Perform arithmetic operations using estimation.
3. Work with exponents and convert numbers between decimal, engineering, and scientific notation.
4. Work with roots and radicals.
5. Create algebraic expressions using addition, subtraction, division, and multiplication.
6. Solve for formulas and literal equations.
7. Apply word problems to solve algebraic operations.

Course Outcome 2.

Units of measurement and approximate numbers

Learning Objectives 2.

1. Perform basic arithmetic operations on approximate numbers.
2. Review and compare the metric (SI), imperial and US systems of measurement.
3. Work with and convert between the various units of measurement.

Course Outcome 3.

Geometry and trigonometry

Learning Objectives 3.

1. Review geometric shapes, area and volume.
2. Convert angles between decimal degrees, radians, degrees, minutes, seconds.
3. Find the trigonometric functions of an angle.
4. Find the missing sides and angles of a right triangle.
5. Solve practical problems involving the right triangle.

Course Outcome 4.


More trigonometry, vectors and oblique triangles

Learning Objectives 4.

1. Identify the algebraic sign of a given trigonometric function for an angle in any quadrant.
2. Find a trigonometric function for any angle using a calculator, and determine angles in any quadrant.
3. Convert angles between radians, degrees and revolutions.
4. Determine the resultant of two or more vectors.
5. Resolve a vector into its components.
6. Solve applied problems requiring vectors.
7. Solve oblique triangles using the sine and cosine laws.
8. Solve applied problems requiring oblique triangles.

Date:

Monday, January 22, 2018



Please refer to the course outline addendum on the Learning Management System for further information.