



## COURSE OUTLINE: MTH142 - MATHEMATICS

Prepared: Mathematics Department

Approved: Sherri Smith, Chair, Natural Environment, Business, Design and Culinary

<b>Course Code: Title</b>	MTH142: MATHEMATICS				
<b>Program Number: Name</b>	4127: ELECTRICAL TN-TRADES				
<b>Department:</b>	MATHEMATICS				
<b>Semesters/Terms:</b>	18F				
<b>Course Description:</b>	<p>This first level mathematics course for engineering technology programs begins with a review of fundamental concepts including arithmetic operations, ratios, proportions and variation, and concepts in measurement. This is followed by several algebra topics including linear equations, factoring, fractions, quadratic equations and exponential and logarithmic functions. A treatment of trigonometry of right 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>				
<b>Total Credits:</b>	5				
<b>Hours/Week:</b>	4				
<b>Total Hours:</b>	60				
<b>Prerequisites:</b>	There are no pre-requisites for this course.				
<b>Corequisites:</b>	There are no co-requisites for this course.				
<b>Substitutes:</b>	MTH612, OEL806				
<b>This course is a pre-requisite for:</b>	MTH143, OEL840				
<b>Essential Employability Skills (EES) addressed in this course:</b>	<p>EES 3    Execute mathematical operations accurately.</p> <p>EES 4    Apply a systematic approach to solve problems.</p> <p>EES 5    Use a variety of thinking skills to anticipate and solve problems.</p> <p>EES 10   Manage the use of time and other resources to complete projects.</p>				
<b>Course Evaluation:</b>	Passing Grade: 50%, D				
<b>Books and Required Resources:</b>	<p>Basic Technical Mathematics with Calculus and MyMathLab Software (10th Edition)  Washington, SI Version by Washington and Boue  Publisher: Pearson Edition: 10  ISBN: 9780133523669</p>				
<b>Course Outcomes and Learning Objectives:</b>	<table border="1"> <thead> <tr> <th>Course Outcome 1</th> <th>Learning Objectives for Course Outcome 1</th> </tr> </thead> <tbody> <tr> <td>1. Algebraic Operations</td> <td> 1.1 Perform basic arithmetic operations on signed numbers.  1.2 Take powers, roots, and reciprocals of signed numbers and algebraic quantities. </td> </tr> </tbody> </table>	Course Outcome 1	Learning Objectives for Course Outcome 1	1. Algebraic Operations	1.1 Perform basic arithmetic operations on signed numbers. 1.2 Take powers, roots, and reciprocals of signed numbers and algebraic quantities.
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	<p>1.3 Convert numbers between ordinary notation, scientific notation, and engineering notation.</p> <p>1.4 Simplify expressions by removing grouping symbols and combining like terms.</p> <p>1.5 Add, subtract, multiply, and divide algebraic expressions.</p> <p>1.6 Solve simple linear equations, and solve literal equations for the indicated letter.</p>
<b>Course Outcome 2</b>	<b>Learning Objectives for Course Outcome 2</b>
2. Units of Measurement and Approximate Numbers	<p>2.1 Convert units of measurement within the metric system.</p> <p>2.2 Perform basic arithmetic operations on approximate numbers and determine the appropriate number of significant digits in answers.</p>
<b>Course Outcome 3</b>	<b>Learning Objectives for Course Outcome 3</b>
3. Linear Equations	<p>3.1 Determine the slope and x-y intercepts of a line algebraically.</p> <p>3.2 Determine the equation of a line given two points or a point and a slope.</p> <p>3.3 Solve systems of two variable linear equations by graphing, substitution, and addition/subtraction methods.</p> <p>3.4 Solve systems of three variable linear equations algebraically.</p> <p>3.5 Solve a systems of two or three variable linear equations using determinants.</p>
<b>Course Outcome 4</b>	<b>Learning Objectives for Course Outcome 4</b>
4. Factoring and Fractions	<p>4.1 Factor expressions by removing common factors.</p> <p>4.2 Factor binomials that are the difference of the two squares.</p> <p>4.3 Factor trinomials.</p> <p>4.4 Reduce algebraic fractions.</p> <p>4.5 Add, subtract, multiply and divide algebraic fractions.</p> <p>4.6 Solve fractional equations.</p>
<b>Course Outcome 5</b>	<b>Learning Objectives for Course Outcome 5</b>
5. Quadratic Equations	<p>5.1 Solve quadratic equations by factoring.</p> <p>5.2 Solve quadratic equations using the Quadratic Formula.</p>
<b>Course Outcome 6</b>	<b>Learning Objectives for Course Outcome 6</b>
6. Exponential and Logarithmic Functions	<p>6.1 Define the logarithmic and exponential function.</p> <p>6.2 Graph logarithmic and exponential functions.</p> <p>6.3 Convert expressions between exponential and logarithmic form.</p> <p>6.4 Evaluate, manipulate and simplify logarithmic expressions.</p> <p>6.5 Solve exponential and logarithmic equations.</p>
<b>Course Outcome 7</b>	<b>Learning Objectives for Course Outcome 7</b>
7. Trigonometric Functions	<p>7.1 Convert angles between decimal degrees, radians, and degrees, minutes and seconds.</p> <p>7.2 Find the trigonometric functions of an angle.</p> <p>7.3 Find the missing sides and angles of a right triangle.</p> <p>7.4 Solve practical problems involving the right triangle.</p>

**Evaluation Process and**

<b>Evaluation Type</b>	<b>Evaluation Weight</b>	<b>Course Outcome Assessed</b>
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**Grading System:**

Tests

100%

**Date:**

June 25, 2018

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

