Prepared: Mathematics Department Approved: Sherri Smith

Course Code: Title	MTH143: MATHEMATICS
Program Number: Name	4026: ELECTRICAL TN-PROC
Department:	MATHEMATICS
Semester/Term:	18W
Course Description:	This course is a continuation of MTH142 for engineering technology students. Topics of study include exponents and radicals, plane analytic geometry, solid mensuration, and functions including trigonometric, exponential and logarithmic functions. This course concludes with an introduction to statistics. 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.
Total Credits:	5
Hours/Week:	4
Total Hours:	60
Prerequisites:	MTH142
Substitutes:	MTH220, MTH612, MTH613, OEL840
This course is a pre-requisite for:	MCH125, MCH130, MTH551
Essential Employability Skills (EES):	#1. Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience. #2. Respond to written, spoken, or visual messages in a manner that ensures effective communication. #3. Execute mathematical operations accurately. #4. Apply a systematic approach to solve problems. #5. Use a variety of thinking skills to anticipate and solve problems. #6. Locate, select, organize, and document information using appropriate technology and information systems. #7. Analyze, evaluate, and apply relevant information from a variety of sources.

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	#8. Show respect for the diverse opinions, values, belief systems, and contributions of others. #9. Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals. #10. Manage the use of time and other resources to complete projects. #11. Take responsibility for ones own actions, decisions, and consequences.
Course Evaluation:	Passing Grade: 50%, D
Other Course Evaluation & Assessment Requirements:	Tests and/or quizzes overall worth of 80% toward the final grade. Homework assignments, in-class assignments overall worth of 20% toward the final grade. Students must pass both the assigned work and the test portion of the course to pass the entire course. There will likely be 4 to 5 tests during the semester and the dates will be identified in class. Students may also be asked to do preparatory quizzes for each test. Each test will have the same worth and weight towards the final test portion of the score. Each quiz will have an equal quiz weight and that specific weight will be discussed in class. The professor reserves the right to adjust the number of tests/quizzes, assignments and quizzes as warranted. Any modifications will be discussed in class. Students with special needs and/ or circumstances are required to identify their special needs with the professor. Attendance is mandatory and the quizzes, in-class and assigned work will only be marked when completed in class. 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. Work is to be completed by the assigned dates and times. Failure to do so may result in zero grades for the assigned work. Some of the assigned work may be provided and/or completed through the Internet via MyMathLab or D2L.
Evaluation Process and Grading System:	**Evaluation Type** / **Evaluation Weight** Assigned Work / 20% Tests / 80%

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Books and Required Resources:	Basic Technical Mathematics with Calculus and MyMathLab Software (10th Edition) Washington, SI Version by Washington and Boue Publisher: Pearson Edition: 10 ISBN: 9780133523669
Course Outcomes and Learning Objectives:	**Course Outcome 1.** Complex numbers **Learning Objectives 1.** 1. Write complex numbers in rectangular, polar, trigonometric and exponential forms 2. Graph complex numbers in both rectangular and polar form 3. Find the sum, differences, products, quotients, powers and roots of complex numbers **Course Outcome 2.** Exponents and radicals **Learning Objectives 2.** 1. Use the laws of exponents to simplify and combine expressions having integral exponents 2. Simplify radicals by removing perfect powers and by rationalizing the denominator 3. Add, subtract, multiply, and divide radicals **Course Outcome 3.** Graphs of trigonometric functions **Learning Objectives 3.** 1. Find the amplitude, period, frequency and phase angle for a sine wave or cosine wave 2. Write the sine function or cosine function, given the amplitude, period and phase 3. Graph the sine function, cosine function or tangent function

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Course Outcome 4.

Exponential and logarithmic functions

Learning Objectives 4.

1. Define the logarithmic and exponential function
2. Graph logarithmic and exponential functions
3. Convert expressions between exponential and logarithmic form
4. Evaluate, manipulate and simplify logarithmic expressions
5. Solve exponential and logarithmic equations

Course Outcome 5.

Variation

Learning Objectives 5.

1. Review ratio and proportion
2. Study direct, inverse and joint variation

Course Outcome 6.

Additional topics in trigonometry

Learning Objectives 6.

1. Simplify a trigonometric expression using the fundamental identities
2. Prove trigonometric identities using the fundamental identities
3. Simplify expressions or prove identities using the sum or difference formulae or double-angle formulae
4. Solve trigonometric equations
5. Evaluate inverse trigonometric functions

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Course Outcome 7.

Plane analytic geometry

Learning Objectives 7.

1. Write the equation of a line using the slope-intercept form, the point-slope form or the two-point form
2. Write the equation of a circle, ellipse, parabola or hyperbola from given information
3. Make a graph of any of the above conic sections

Course Outcome 8.

Basic statistics

Learning Objectives 8.

1. Organize data into frequency distributions, frequency histograms or frequency polygons
2. Calculate the mean, median and mode
3. Calculate the range and standard of deviation
4. Calculate the best fit curve (linear and non-linear regression)
5. Coefficient of correlation (r) – from class notes

Date:	Thursday, August 31, 2017
	Please refer to the course outline addendum on the Learning Management System for further information.