



COURSE OUTLINE

MTH551

1

Prepared: The Math Department Approved: Sherri Smith

Course Code: Title	MTH551: CALCULUS I FOR TECHNOLOGY				
Program Number: Name	4127: ELECTRICAL TN-TRADES				
Department:	MATHEMATICS				
Semester/Term:	18W				
Course Description:	The basic concepts of calculus are introduced through an emphasis on applications and examples. Topics include limits, simple derivatives, derivatives of trigonometric and logarithmic functions, applications of derivatives, curve sketching, integration and applications of integration.				
Total Credits:	4				
Hours/Week:	4				
Total Hours:	60				
Prerequisites:	MTH143				
Substitutes:	OEL780, OEL847				
This course is a pre-requisite for:	ELN305, ELN317, MCH204, MCH205, MCH320, MTH577				
Essential Employability Skills (EES):	#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. #10. Manage the use of time and other resources to complete projects.				
Course Evaluation:	Passing Grade: 50%, D				
Evaluation Process and Grading System:	<table><tr><th>Evaluation Type</th><th>Evaluation Weight</th></tr><tr><td>Tests (4)</td><td>100%</td></tr></table>	Evaluation Type	Evaluation Weight	Tests (4)	100%
Evaluation Type	Evaluation Weight				
Tests (4)	100%				
Books and Required Resources:	Basic Technical Mathematics with Calculus by Washington/Boue Publisher: Pearson Edition: 10 ISBN: 978-0-13-276283-0				



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Course Outcomes and Learning Objectives:

Course Outcome 1.

Learning Objectives 1.

1. Evaluate limits of algebraic functions.
2. Approximate the slope of a tangent to a curve.
3. Find the derivative of an algebraic function using the delta method.
4. Find instantaneous rates of change of a function using derivatives.
5. Find the derivative of a polynomial using a rule.
6. Find derivatives of other algebraic functions (products and quotients) using rules for differentiation.
7. Find the derivative of a power of a function - Chain rule.
8. Find the derivative of an implicit function.
9. Find higher derivatives of algebraic functions.

Course Outcome 2.

Learning Objectives 2.

1. Find slopes and equations of tangent and normal lines.
2. Compute velocities and accelerations for curvilinear motion.
3. Solve related rate problems.
4. Make graphs of non-linear functions using derivatives.
5. Make graphs of discontinuous functions using derivatives, asymptotes, intercepts.
6. Solve applied maximum-minimum problems.

Course Outcome 3.

Learning Objectives 3.

1. Use differentials to compute small change in a function.
2. Find an anti-derivative using derivative rules.



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3. Use the basic rule for integration of algebraic functions.
4. Determine approximate areas under curves from graphs.
5. Determine exact areas under curves by integration - the fundamental theorem of integral calculus.
6. Evaluate other algebraic definite integrals.

Course Outcome 4.

Learning Objectives 4.

1. Solve problems involving distance-velocity-acceleration, current-voltage-charge using integration.
2. Find areas (between two curves) using horizontal and vertical elements and definite integrals.
3. Find the volume of a solid of revolution using the disk or shell method.

Course Outcome 5.

Learning Objectives 5.

1. Find derivatives of expressions containing sine or cosine functions.
2. Find derivatives of other trigonometric functions.
3. Find derivatives of inverse trigonometric functions
4. Solve worded problems which involve trigonometric functions.
5. Find derivatives of logarithmic functions - and constant base.
6. Find derivatives of exponential functions - any constant base.
7. Solve worded problems involving logarithmic of exponential functions.

Date:

Thursday, August 31, 2017

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