



Course Outline or Delivery Plan

Department of EEE, CE, TE

Semester: Fall, 2020

Course Code : MAT111

Credit Hours: 03

Course Title : Mathematics-I: Differential and Integral Calculus

Course Teacher: Protima Dash

Week No	Topics	Expected Learning Outcome	Assessments (ASSN/CT/Mid
WK 1	<ul style="list-style-type: none"> • Limit, Continuity and Differentiable 	<ul style="list-style-type: none"> • appreciate the needs of mathematical functions • visualize the applications of functions • apply the concept of limit, continuity in C language such as Print (), Scan (), 	Give lecture related problem to solve and check it.
WK 2	<ul style="list-style-type: none"> • Differentiability 	<ul style="list-style-type: none"> • Existence of differentiable of various functions • Draw graphs of functions in Cartesian and Polar coordinates using Mat-lab • Mathematica, Maple. 	2/3 problems related to discussion in the class
WK 3	<ul style="list-style-type: none"> • The Derivative (Rate of change) of functions 	<ul style="list-style-type: none"> • Find derivative of various types of functions. • Determine the derivative by the 	CLASS TEST 1

	<ul style="list-style-type: none"> Finding differential coefficient 's of the various functions 	<p>software MATLAB, Mathematica etc.</p> <ul style="list-style-type: none"> interpret the derivative as a rate of change 	(Previous class lectures)
WK 4	<ul style="list-style-type: none"> Successive Differentiation 	<ul style="list-style-type: none"> derive a general formula for a particular function by which one can find derivatives of any order of that function 	Individual work
WK 5	<ul style="list-style-type: none"> Leibnitz's theorem 	<ul style="list-style-type: none"> find n-th derivative of a product of two functions 	Group work
WK 6	<ul style="list-style-type: none"> Maxima and Minima 	<ul style="list-style-type: none"> Solve optimization problem 	CLASS TEST 2 (Previous class lectures)
WK 7	Mid Term Exam	Mid Term Exam	Mid Term Exam
WK 8	<ul style="list-style-type: none"> Partial differentiation: Euler's rule Indefinite Integral: Basic Rules 	<ul style="list-style-type: none"> Differentiate a function partially, use Euler's Theorem to partially differentiate Implicit functions. explain integration and integrating rules 	Think pair and share <ul style="list-style-type: none"> ❖ Questioning-answering ❖ Group or individual class work ❖ Assigning home tasks ❖ related to class content
WK 9	<ul style="list-style-type: none"> Techniques of evaluating indefinite integrals 	<ul style="list-style-type: none"> apply various techniques to evaluate indefinite integrals 	PRESENTATION (Given topics)
WK 10	<ul style="list-style-type: none"> Techniques of evaluating Definite integrals 	<ul style="list-style-type: none"> apply various techniques to evaluate definite integrals know how it is used in design of portable and wearable sensor 	CLASS TEST 3 (Previous class lectures)

WK 11	<ul style="list-style-type: none"> Summation of series by definite integral 	<ul style="list-style-type: none"> find the summation of series by definite integral 	H.W
WK 12	<ul style="list-style-type: none"> Reduction Formula and Improper Integrals Gamma and Beta Functions 	<ul style="list-style-type: none"> find general formula to evaluate indefinite integrals deals with gamma and beta functions and their properties 	2/3 problems related to discussion in the class
WK 13	<ul style="list-style-type: none"> Area between curves and axes Multiple integral 	<ul style="list-style-type: none"> apply various techniques to find areas under curves apply various techniques to find volume and evaluate triple integrals and double integral 	<p>Team work</p> <ul style="list-style-type: none"> ❖ Questioning-answering ❖ Group or individual class work ❖ Assigning home tasks ❖ related to class content
WK 14	Final Exam	Final Exam	Final Exam