

COURSE CONTENT

Differential Calculus: Introduction, Differential Calculus for Engineering, Function and Limit, Continuity and Differentiability, Successive Differentiation, Leibnitz's Theorem, Rolle's Theorem, Mean Value Theorem, Taylor's theorem, Expansion of Finite and Infinite forms, Lagrange's form of remainder, Cauchy's form of remainder, Expansion of functions differentiation and integration, Indeterminate form, Cartesian differentiation, Euler's theorem, Tangent, sub tangent and Normal, sub normal, Maxima and Minima, Curvature, Asymptotes, Partial differentiation.

Integral Calculus: Definition of Integration, Importance of Integration in Eng., Integration by substitution, Integration by parts, Standard integrals, Integration by successive reduction, Definite integrals and its use, Integration as a limit of sum, summing series, Walli's formula, Improper Integrals, beta and gamma function, multiple integral and its application, Area, volume of solid revolution, Area under a plain curve, Area of the region enclosed by two curves, Arc lengths of curves.

SKILL MAPPING

No.	Course Learning Outcome	PROGRAM OUTCOMES (PO)											
		1	2	3	4	5	6	7	8	9	10	11	12
CO1	Define the limit, continuity and differentiability of functions, identify the rate of change of a function with respect to independent variables and describe the different techniques of evaluating indefinite and definite integrals.	II											
CO2	Apply the concepts or techniques of differentiation and integration to solve the problems related to engineering study.	II											
CO3	Calculate the length, area, volume, center of gravity and average value related to engineering study	II											

(H- High, M- Medium, L-low)

JUSTIFICATION FOR CO-PO MAPPING

Mapping	Level	Justifications
CO1-PO1	High	The knowledge of mathematics, science and engineering has to be applied to describe the complete concept of differential and integral calculus.
CO2-PO1	High	To apply proper and improper integral in the field of engineering study, the knowledge of mathematics, science and engineering is required.
CO3-PO1	High	In order to calculate volume, average, center of gravity and area of any solid revolution object, the knowledge of mathematics and engineering is needed.

TEACHING LEARNING STRATEGY

Teaching and Learning Activities	Engagement (hours)
Face-to-Face Learning	
Lecture	42
Practical / Tutorial / Studio	-
Student-Centred Learning	-
Self-Directed Learning	
Non-face-to-face learning	42
Revision	21
Assessment Preparations	21
Formal Assessment	
Continuous Assessment	2
Final Examination	3
Total	131

TEACHING METHODOLOGY

Lecture and Discussion, Co-operative and Collaborative Method, Problem Based Method