Program	BACHELOR OF TECHNOLOGY (B.Tech)	**Semester - 2**
Type of Course	-	
Prerequisite		
Rationale	-	
Effective From A.Y.	2024-25	

Teaching Scheme (Contact Hours)				Examination Scheme				
Lecture	Tutorial	Lab	Credit	Theory Marks		Practical Marks		Total Marks
				SEE TH	IAT	SEE P	CCE	
3	1	-	4	70	30	-	20	120

***SEE** - Semester End Examination, **IAT** - Internal Assessment Test, **CCE** - Continues & Comprehensive Evaluation*

Course Content

T - Teaching Hours | **W** - Weightage

Sr.	Topics	T	W
1	**NUMERICAL SOLUTIONS** Roots of Algebraic and Transcendental Equations: Bisection, false position, Secant and Newton-Raphson methods, Rate of convergence.	8	15
2	**INTERPOLATION** Finite Differences, Forward, Backward and Central operators and their relationships, Interpolation by polynomials: Newton's forward, Backward interpolation formulae, Newton's divided formulae and Lagrange's interpolation formulae for unequal intervals, Applications to engineering problems	8	25
3	**CURVE FITTING** Curve fitting by of method of least squares, fitting of straight lines, second degree parabola and more general curves	6	15
4	**NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS** Picard method, Taylor method, Euler and modified Euler methods and Runge-Kutta methods: second and fourth order method, Newton-Cotes formula, Trapezoidal and Simpson's formulae, Gaussian quadrature formulae	10	20
5	**COMPLEX VARIABLES AND ANALYTIC FUNCTIONS** Exponential, Trigonometric, De Moivre's Theorem, Roots of a complex number, Hyperbolic functions and their properties, Logarithmic function and Complex Exponent function Limit, Continuity and Differentiability of complex function, Analytic functions, Cauchy-Riemann Equations, Necessary and Sufficient condition for analyticity, Properties of Analytic functions	10	25
	Total	**42**	**100**

Suggested Distribution Of Theory Marks Using Bloom's Taxonomy

Level	Remembrance	Understanding	Application	Analyze	Evaluate
Weightage	10	25	35	0	0

NOTE : This specification table shall be treated as a general guideline for the students and the teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes

At the end of this course, students will be able to:	
CO1	Apply various numerical methods for algebraic equation related to engineering problem.
CO2	Find unknown value of given data by using various interpolation methods.
CO3	Understand the fitting of various curves by method of least square
CO4	Solve differential equations by using numerical methods and numerical integration by numerical various method.
CO5	To study the concept of complex variable and analytic function.

CO PO Mapping

CO	CO - 1	CO - 2	CO - 3	CO - 4	CO - 5
PO - 1	1	1	1	1	1
PO - 2	1	1	1	1	1
PO - 3	1	1	1	1	1
PO - 4	1	1	1	1	1
PO - 5	1	1	1	1	1
PO - 6	1	1	1	1	1
PO - 7	1	1	1	1	1
PO - 8	1	1	1	1	1
PO - 9	1	1	1	1	1
PO - 10	1	1	1	1	1
PO - 11	1	1	1	1	1