Program	BACHELOR OF TECHNOLOGY (B.Tech)	**Semester - 3**
Type of Course	Basic Science Course	
Prerequisite		
Rationale	-	
Effective From A.Y.	2025-26	

Teaching Scheme (Contact Hours)				Examination Scheme				
				Theory Marks		Practical Marks		Total Marks
Lecture	**Tutorial**	**Lab**	**Credit**	**SEE TH**	**IAT**	**SEE P**	**CCE**	
3	1	-	4	70	30	-	50	150

***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 SOLUTION OF ALGEBRAIC EQUATIONS:**	8	15
	Roots of Algebraic and Transcendental Equations: Bisection, false position, Secant and Newton-Raphson methods, Fixed Point Iteration, Rate of convergence		
2	**NUMERICAL INTEGRATION**	6	15
	Newton-Cotes formula, Trapezoidal and Simpson's formulae, error formulae, Gaussian quadrature formulae.		
3	**NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS**	10	20
	Picard Method, Taylor Method, Euler and Modified Euler Methods and Runge-Kutta Second order and Fourth order methods, Milne 's Predictor-Corrector Methods.		
4	**LAPLACE TRANSFORMS**	10	25
	Laplace Transform and inverse Laplace transform, Linearity, First Shifting Theorem (s-Shifting), Transforms of Derivatives and Integrals, Unit Step Function (Heaviside Function), Second Shifting Theorem (t-Shifting), Laplace transform of periodic functions, Short Impulses, Dirac's Delta Function, Convolution, Integral Equations, Differentiation and Integration of Transforms, Application of Laplace transform to ODE.		
5	**FOURIER SERIES**	7	15
	Fourier Series of 2n periodic functions, Dirichlet's conditions for representation by a Fourier series, Orthogonality of the trigonometric system, Fourier Series of a function of period 2n, Fourier Series of even and odd functions, Half range Fourier series.		
6	**FOURIER INTEGRAL AND FOURIER TRANSFORM**	4	10
	Fourier Integral, Fourier Cosine Integral and Fourier Sine Integral, Fourier Transform, Fourier Cosine Transform, Fourier Sine Transform		
	Total	**45**	**100**

Suggested Distribution Of Theory Marks Using Bloom's Taxonomy

Level	Remembrance	Understanding	Application	Analyze	Evaluate	Create
Weightage	10	25	35	0	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	Solve algebraic equation by using numerical methods and understand convergent of it
CO2	Able to solve numerical integration problems.
CO3	Able to solve problems in ordinary differential equations.
CO4	To grasp the concept of Laplace transform and to solve initial value problems.
CO5	Expand the functions in Fourier series
CO6	Expand the functions in Fourier integral and Fourier Transform.

CO PO Mapping

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