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				
				Theory Marks		Practical Marks		
Lecture	**Tutorial**	**Lab**	**Credit**	**SEE TH**	**IAT**	**SEE P**	**CCE**	**Total Marks**
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	**INFINITE SERIES**	12	25
	Convergence and divergence of sequences, Convergence and divergence of an infinite series, geometric series, telescoping series, th term test for divergent series, Combining series, Harmonic Series, Integral test, The p - series, The Comparison test, The Limit Comparison test, Ratio test, Raabe's Test, Root test, Alternating series test, Absolute and Conditional convergence.		
2	**FOURIER SERIES**	8	20
	Definition, Fourier series with arbitrary period, in particular periodic function with period 2. Fourier series of even and odd function, Half range Fourier series		
3	**FOURIER INTEGRAL**	4	10
	Fourier Integral theorem, Extension form of fourier series to fourier integral, Fourier sine and cosine integral of integral.		
4	**LAPLACE TRANSFORMS**	10	25
	Introduction, Definition, Existence conditions, basic properties, Inverse Laplace transform and properties, Convolution Theorem and properties, Applications of Laplace transforms to ODE.		
5	**PARTIAL DIFFERENTIAL EQUATIONS**	8	20
	Formation of partial differential Equation, Partial differential Equation of first order, Lagrange's Linear partial differential equation of first order (Pp + Qq =R) and method of obtaining its general solution, Non-linear partial differential equation- standard forms		
	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	To apply the various tests of convergence to sequence, infinite series
CO2	Obtain the Fourier series of periodic functions
CO3	Understand the concept of Fourier integral.
CO4	Understand the concept of Laplace transform and apply them in engineering
CO5	Understand the fundamentals of partial differential equations and methods for solving linear and non-linear PDE of the first order.

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

List of Tutorial

1.	**INFINITE SERIES** Convergence and divergence of sequences, Convergence and divergence of an infinite series, geometric series, telescoping series, th term test for divergent series, Combining series, Harmonic Series, Integral test, The p - series, The Comparison test, The Limit Comparison test, Ratio test, Raabe's Test, Root test, Alternating series test, Absolute and Conditional convergence.
2.	**FOURIER SERIES** Definition, Fourier series with arbitrary period, in particular periodic function with period 2. Fourier series of even and odd function, Half range Fourier series
3.	**FOURIER INTEGRAL** Fourier Integral theorem, Extension form of fourier series to fourier integral, Fourier sine and cosine integral of integral.
4.	**LAPLACE TRANSFORMS** Introduction, Definition, Existence conditions, basic properties, Inverse Laplace transform and properties, Convolution Theorem and properties, Applications of Laplace transforms to ODE.
5.	**PARTIAL DIFFERENTIAL EQUATIONS** Formation of partial differential Equation, Partial differential Equation of first order, Lagrange's Linear partial differential equation of first order (Pp + Qq =R) and method of obtaining its general solution, Non-linear partial differential equation- standard forms