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	**INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATION** Introduction to Partial differential equation, Formation of partial differential Equation, Partial differential Equation of first order, Linear partial differential equation of first order (Pp + Qq=R) and method of obtaining its general solution, Non-linear partial differential equation of first order f(p, q)=0, f(z, p, q)=0, f(x, p)= g(y, q), z= px + qy + f(p, q).	10	20
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 electrical 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	**PROBABILITY** Experiment, definition of probability, conditional probability, independent events, Bayes' rule, Bernoulli trials, Random variables, discrete random variable, probability mass function, continuous random variable, probability density function, cumulative distribution function, properties of cumulative distribution function	10	20
5	**STATISTICS** Measure of central tendency: Moments, Expectation, dispersion, skewness, kurtosis, Bounds on probability, Chebyshev 's Inequality	8	20
	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	Understand the fundamentals of partial differential equations and methods for solving linear and non-linear PDE of the first order.
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	Apply the concept of probability, probability functions in engineering.
CO5	Apply the concept of Statistics and the central tendency methods in engineering

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.	**INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATION** Introduction to Partial differential equation, Formation of partial differential Equation, Partial differential Equation of first order, Linear partial differential equation of first order (Pp + Qq=R) and method of obtaining its general solution, Non-linear partial differential equation of first order f(p, q)=0, f(z, p, q)=0, f(x, p)= g(y, q), z= px + qy + f(p, q).
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 electrical engineering problems.
3.	**CURVE FITTING** Curve fitting by of method of least squares, fitting of straight lines, second degree parabola and more general curves.
4.	**PROBABILITY** Experiment, definition of probability, conditional probability, independent events, Bayes' rule, Bernoulli trials, Random variables, discrete random variable, probability mass function, continuous random variable, probability density function, cumulative distribution function, properties of cumulative distribution function.
5.	**STATISTICS** Measure of central tendency: Moments, Expectation, dispersion, skewness, kurtosis, Bounds on probability, Chebyshev 's Inequality.