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		Total Marks
Lecture	**Tutorial**	**Lab**	**Credit**	**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	**PROBABILITY DISTRIBUTIONS**	12	30
	Random variables, discrete random variable, probability mass function, continuous random variable, probability density function, cumulative distribution function, Binomial, Poisson and normal distributions- problems (derivations for mean and standard deviation for Binomial and Poisson distributions only)		
2	**STATISTICS**	8	20
	Measure of central tendency: Moments, Expectation, dispersion, skewness, kurtosis, expected value of two-dimensional random variable, Linear Correlation, correlation coefficient, rank correlation coefficient, Regression		
3	**STATISTICAL INFERENCE**	10	25
	Introduction, sampling distribution, standard error, testing of hypothesis, levels of significance, test of significances, confidence limits, simple sampling of attributes, test of significance for large samples, comparison of large samples, Sampling variables, central limit theorem and confidences limit for unknown mean. Test of Significance for means of two small samples, students 't' distribution, Chi-square distribution as a test of goodness of fit. F-Distribution		
4	**CURVE FITTING**	6	15
	Curve fitting by of method of least squares, fitting of straight lines, second degree parabola and more general curves		
5	**LINEAR TRANSFORMATION**	6	10
	Standard Transformations, Rank and Nullity of a Linear Transformation, Dimension theorem of Linear Transformation. The Null Space and Range, Isomorphism, Matrix Representation of Linear Transformations		
	Total	42	100

Suggested Distribution Of Theory Marks Using Bloom's Taxonomy					
Level	Remembrance	Understanding	Application	Analyze	Evaluate
Weightage	7	28	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 terminologies of basic probability and various discrete and continuous probability distributions.
CO2	Understand the central tendency, correlation and correlation coefficient and regression
CO3	Apply the statistics for testing the significance of the given large and small sample data by using various tests.
CO4	Understand the fitting of various curves by method of least square.
CO5	Apply concept of linear transformation in engineering problems.

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.	**PROBABILITY DISTRIBUTIONS** Random variables, discrete random variable, probability mass function, continuous random variable, probability density function, cumulative distribution function, Binomial, Poisson and normal distributions- problems (derivations for mean and standard deviation for Binomial and Poisson distributions only)
2.	**STATISTICS** Measure of central tendency: Moments, Expectation, dispersion, skewness, kurtosis, expected value of two-dimensional random variable, Linear Correlation, correlation coefficient, rank correlation coefficient, Regression
3.	**STATISTICAL INFERENCE** Introduction, sampling distribution, standard error, testing of hypothesis, levels of significance, test of significances, confidence limits, simple sampling of attributes, test of significance for large samples, comparison of large samples, Sampling variables, central limit theorem and confidences limit for unknown mean. Test of Significance for means of two small samples, students 't' distribution, Chi-square distribution as a test of goodness of fit. F-Distribution
4.	**CURVE FITTING** Curve fitting by of method of least squares, fitting of straight lines, second degree parabola and more general curves.
5.	**LINEAR TRANSFORMATION** Standard Transformations, Rank and Nullity of a Linear Transformation, Dimension theorem of Linear Transformation. The Null Space and Range, Isomorphism, Matrix Representation of Linear Transformations.