Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		L	T	P	L	T	P	Total
MCA 25	Probability and Statistics	3	1	--	3	1	--	4
		Examination Scheme						
		ISE		MSE	ESE			
		10		30	100 (60% Weightage)			

Pre-requisite Course Codes	Discrete Mathematics (MCA13)	
Course Outcomes	CO1	Distinguish between quantitative and categorical data
	CO2	Apply different statistical measures on various types of data
	CO3	Identify, formulate and test hypothesis problems
	CO4	Analyze different types of Probability and their fundamental applications

Module	Unit	Topics	Ref.	Hrs.
1		**Measures of central tendency & Measures of Dispersion**	1	4
	1.1	Continuous Frequency Distribution		
	1.2	Histogram, Frequency Polygon, Stem and leaf diagram,		
	1.3	Arithmetic Mean, Geometric mean, Harmonic mean,		
	1.4	Range, Quartile Deviation, Mean Deviation,		
	1.5	Box whisker plot, Standard Deviation, Coefficient of		
2		**Skewness, Correlation and regression**	1,3	6
	2.1	Karl Pearson's coefficient of Skewness, Bowley's coefficient of Skewness, Scatter Diagram		
	2.2	Karl Pearson's coefficient of correlation, Spearman's rank		
	2.3	Linear Regression and Estimation		
	2.4	Coefficients of regression		
3		**Skewness and Kurtosis**	2,7,8	8
	3.1	Hypothesis, Type I and Type II errors,		
	3.2	Tests of significance– Student's t-test:Single Mean,		
	3.3	Paired t-test		
	3.4	Chi-Square test:Test of Goodness of Fit, Independence Test		
4		**Axiomatic Approach to Probability**	4	6
	4.1	Random experiment, sample space, events		
	4.2	axiomatic Probability		
	4.3	Algebra of events		
	4.4	Conditional Probability, Multiplication theorem of		
	4.5	Independent events		
	4.6	System reliability, Baye's Theorem		
5		**Random variables and Distribution Functions**	4,5	6
	5.1	Discrete random variable		
	5.2	Continuous random variable, Two-dimensional random		

	5.3	Joint probability distribution		
	5.4	Stochastic independence		
6		**Mathematical Expectation**	**6**	**3**
	6.1	Properties of expectation		
	6.2	Properties of variance		
	6.3	Covariance		
7		**Special Discrete probability Distributions**	**4,6**	**4**
	7.1	Bernoulli		
	7.2	Binomial		
	7.3	Poisson		
	7.4	Geometric		
8		**Special Continuous probability Distributions**	**4,5,6**	**5**
	8.1	Normal		
	8.2	Uniform		
	8.3	Exponential		
	8.4	Gamma		
	8.5	Beta		
			Total	**42**

Reference Books

[1] S.C.Gupta, V.K.Kapoor , S Chand, "Fundamentals of Mathematical Statistics" ,1 st Edition

[2] J.Susan Milton, Jesse C. Arnold, "Introduction to Probability & Statistics", Tata McGraw Hill, 4th Edition

[3] S C Gupta, "Fundamentals of Statistics", Himalaya Publishing house, 7th edition.

[4] Kishore Trivedi, "Probability and Statistics with Reliability, Queuing, And Computer Science Applications", PHI (English) 1st Edition

[5] Schaum's, "Outlines Probability, Random Variables & Random Process", Tata McGraw Hill, 3rd Edition

[6] Dr J Ravichandran , "Probability & Statistics for Engineers", Wiley

[7] Dr Seema Sharma, "Statistics for Business and Economics", Wiley

[8] Ken Black, "Applied Business Statistics", Wiley, 7th Edition