Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		L	T	P	L	T	P	Total
BS41	**Applied Mathematics-II**	3	1	--	3	1	--	4
		Examination Scheme						
		ISE		**MSE**		**ESE**		
		10		30		100 (60% Weightage)		

Course Objectives:

- To familiarize learners with mathematical tools and methods to solve engineering problems

Course Outcomes:

Pre-requisite course codes	BS11 (Engineering Mathematics I) BS21 (Engineering Mathematics II)
After successful completion of the course, student will be able to	

Course Outcomes	**CO1**	Check if matrix is diagonalizable, derogatory & to calculate functions of a square matrix.
	CO2	Find Correlation between two variables.
	CO3	Find the measures of central tendency
	CO4	Solve a problem by identifying the appropriate distribution.
	CO5	Test the hypothesis for means and variances for single and multiple samples using 't'& chi-square distribution tests.

Module No	Module name	Unit No.	Topics	Ref.	Hrs.
1	**Matrices**	1.1	Eigen values and Eigen vectors and its properties.	1,3,4	04
		1.2	Cayley-Hamilton theorem and its applications.		02
		1.3	Similar matrices, diagonalizable matrices. Singular Value Decomposition.		04
		1.4	Derogatory and non-derogatory matrices, functions of square matrix.		03
		1.5	Application to finding google page rank		01
2	**Probability**	3.1	Random Variables: - discrete & continuous random variables, expectation, Variance, Probability Density Function & Cumulative Density Function.	2,3,4,5	04

		3.2	Moments, Moment Generating Function.		02
		3.3	Probability distribution: binomial distribution, Poisson & normal distribution.		07
3	**Sampling Theory**	4.1	Sampling, point and interval estimations, Test a hypothesis using Large sample test	2,3,4 ,5	04
		4.2	Testing of hypothesis using 't' and chi-square distribution tests.		04
4	**Correlation and Regression**	2.1	Karl Pearson's coefficient of correlation, covariance, Spearman's rank correlation		03
		2.2	Regression.	1,3,4	04
				Total	**42hrs**

NOTE: ISE component will be evaluated through assignments conducted in the tutorial sessions. (tutorials will be conducted class –wise)

References:
   [1] Kreyszig, "Advanced Engineering Mathematics", 9th edition, John Wiley
   [2] Kishor S. Trivedi, "Probability & Statistics with reliability", 2nd edition, Wiley India
   [3] C. Ray Wylie & Louis Barrett, "Advanced Engg. Mathematics", 6th Edition, New York : McGraw-Hill, c1995.
   [4] K. B. Datta, "Mathematical Methods of Science and Engineering", First edition, Cengage Learning India, 2011
   [5] Sheldon M. Ross, "Introduction to Probability and Statistics for Engineers and Scientists", 3rd , Elsevier Academic Press,2004