SEMESTER 2

S. No.	Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
								Sessional	Final Exam	Total
1	BSC-201	Engineering Mathematics-II	BSC	5	3	2	0	50	100	150

Course Outcomes:

	At the end of the course the student will be able to
CO1	Understand probability and random variables and various discrete and continuous probability distributions and their properties
CO2	Calculate probabilities, and derive the marginal and conditional distributions of bivariate random Variables
CO3	Analyze statistical data using measures of central tendency, dispersion and location
CO4	Understand and discuss the issues surrounding sampling and significance
CO5	Develop analytical skills in structuring and interpreting the business problems statistically

Detailed Syllabus
Section-A

Unit 1: Probability spaces, conditional probability, independence; Discrete random variables, Independent random variables, the multinomial distribution, Poisson approximation to the binomial distribution, infinite sequences of Bernoulli trials, sums of independent random variables; Expectation of Discrete Random Variables, Moments, Variance of a sum, Correlation coefficient, Chebyshev's Inequality

(**9 Hrs)**

Unit 2: Continuous random variables and their properties, distribution functions and densities, normal, exponential and gamma densities. Bivariate distributions and their properties, distribution of sums and quotients, conditional densities, Bayes' rule**.**

(12 Hrs)

Unit 3: Measures of Central tendency: Moments, skewness and Kurtosis - Probability distributions. Binomial, Poisson and Normal - evaluation of statistical parameters for these three distributions, Correlation and regression – Rank correlation

(10 Hrs)

Section-B

Unit 4: Hypothesis ─ Introduction, Format and Types; Procedure of Hypothesis Testing; Errors in Hypothesis; Two-tail and One-tail Test of Hypothesis; Tests of Significance for Attributes; Tests of Significance for Variables; Tests of Significance for Small Samples; t-distribution and its application

(11 Hrs)

Unit 5: Difference of means and correlation coefficients, test for ratio of variances - Chi-square test for goodness of fit and independence of attributes **(10 Hrs)**

Text Books

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Advanced Engineering Mathematics	Erwin Kreyszig	Wiley	10th (2015)
2	A First Course in Probability	S. Ross	Pearson Education India	6th (2002)
3	"Introduction to Probability and Statistics for Engineers and Scientists	Sheldon M. Ross	Academic Press	5th (2009)

Reference Books

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Advanced Engineering Mathematics	R.K. Jain, S. R. K. Iyenger	Narosa Publishing House Pvt. Ltd.	5th (2016)
2	Higher Engineering Mathematics	Dr. B. S. Grewal	Khanna Publications	43rd (2017)
3	Engineering Mathematics	N.P Bali	Laxmi publications	13th (2009)