

MATHEMATICS-III
(PROBABILITY AND STATISTICS)
(CSE)

Instruction :	4 Periods per week (3 Theory + 1 Tutorial)
Duration of SEE:	3 Hours
SEE:	70 Marks
CIE:	30 Marks
Credits :	3

Course objectives :

- To provide the knowledge of probability distributions , tests of significance, correlation and regression.

Course Outcomes :

At the end of the course students will be able to

- apply various probability distributions to solve practical problems, to estimate unknown parameters of populations and apply the tests of hypotheses
- perform a regression analysis and to compute and interpret the coefficient of correlation

Unit-I : Measures of Central tendency, Moments, skewness and Kurtosis, 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, Variance of a sum.

Unit-II: Continuous random variables and their properties, Distribution functions and densities, Normal, Exponential and gamma densities.

Unit-III: Probability distributions, Binomial, Poisson and Normal - evaluation of statistical parameters for these three distributions.

Unit-IV: Curve fitting by the method of least squares , Fitting of straight lines, Second degree parabolas and more general curves, Correlation, Regression and Rank correlation.

Unit-V : Test of significance, Large sample test for single proportion, Difference of proportions, Single mean, difference of means, and difference of standard deviations. Small Sample test for single mean, Difference of means and correlation coefficients, Test for ratio of variances , Chi-square test for goodness of fit and independence of attributes.

Text / References:

1. R.K.Jain & S.R.K Iyengar, Advanced Engineering Mathematics, Narosa Publications, 4th Edition 2014.
2. B.S.Grewal, Higher Engineering Mathematics, Khanna Publications, 43rd Edition.
3. S. Ross, “A First Course in Probability”, Pearson Education India, 2002.
4. N.P. Bali and M. Goyal, “A text book of Engineering Mathematics”, Laxmi Publications, 2010.
5. E. Kreyszig, “Advanced Engineering Mathematics”, John Wiley & Sons, 2006.
6. S.C Gupta & Kapoor: Fundamentals of Mathematical statistics, Sultan chand & sons, New Delhi.