VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

PROBABILITY AND STATISTICS

B. TECH- III Semester **L/T/P/C**
3/0 /0 /3

Pre-requisites: Mathematical Knowledge at pre-university level

Course Objectives:

To learn

- The ideas of probability and random variables and various discrete and continuous probability distributions and their properties
- Find the application of discrete probability distributions.
- Find the application of continuous probability distributions.
- The basic ideas of statistics including measures of central tendency, correlation and regression.
- To apply the tests in deriving the conclusions of the data.

UNIT-I: Basic Probability: Probability spaces, conditional probability, independent events and Bayes' theorem. Random variables: Discrete and continuous random variables, Expectation of Random Variables, Variance of random variables.

UNIT-II: Discrete Probability distributions: Binomial, Poisson, evaluation of statistical parameters for these distributions, Poisson approximation to the binomial distribution.

UNIT-III: Continuous Random variable and Distributions: Continuous random variables and their properties, distribution functions and densities, Uniform, exponential and Normal distributions, evaluation of statistical parameters for these distributions.

UNIT-IV: Applied Statistics: Curve fitting by the method of least squares: Fitting of straight lines, second degree parabolas and more general curves, Correlation and regression, Rank correlation.

UNIT-V: Testing of Hypothesis: Test of significance: Large sample test for single proportion, difference of proportions, single mean, difference of means, Test for single mean, difference of means for small samples, test for ratio of variances for small samples.

COURSE OUTCOMES:

On successful completion of this course, students will be able to:

CO-1: Use probability theory and deals with modeling uncertainty in order to evaluate The probability of real world events.

CO-2: Develop discrete probability distributions and its applications, and use the techniques to generate data from Binomial and Poisson Distributions.

CO-3: Use the techniques of continuous probability distributions to generate data from Normal Distributions.

CO-4: Perform correlation and regression analysis, in order to estimate the nature and the strength of the linear relationship between two variables.

CO-5: Construct confidence interval to estimates population parameters to test the hypothesis.

TEXT BOOKS:

1. Probability and statistics for engineers and scientists, 9th Edition, Pearson Publications, Ronald E. Walpole, Raymond H. Myers, Sharon L. Myers, keying Ye.
2. Fundamentals of Mathematical Statistics, Sultan Chand & Sons Publications, S C Guptha and V.K. Kapoor.