

Probability & Statistics

SYLLABUS

PVP-23

Course Code	23BS1402	Year	II	Semester	II
Course Category	Basic Science	Branch	CSE	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	Basic concepts of probability
Continuous Internal Evaluation	30	Semester End Evaluation	70	Total Marks	100

Course Outcomes

Upon successful completion of the course the student will be able to

CO1	Understand the basic concepts of probability and statistics(L2).
CO2	Calculate the measures of central tendencies, correlation and regression to the given data and apply appropriate probability distributions to the given problem (L3).
CO3	Apply the concepts of testing hypothesis for large and small samples(L3).
CO4	Analyze the concepts of probability, correlation and regression to real life problems(L4).
CO5	Analyze the given data and identify appropriate test statistic to test given hypothesis for statistical decision(L4).

Syllabus

Unit No.	Syllabus	Mapped CO's
1	Measures of Central Tendency and Probability: Measures of central tendency: Mean, Median, Mode Probability: Probability axioms, addition law and multiplicative law of probability, conditional probability, Baye's theorem (without proof).	CO1,CO2, CO4
2	Random Variables and Probability Distributions: Random variables (discrete and continuous), probability density function, probability distribution-Binomial, Poisson and normal distribution-their Properties(without proof), mathematical expectation and variance.	CO1,CO2, CO4
3	Correlation, Regression: Correlation, correlation coefficient, rank correlation, regression, lines of regression, regression coefficients, principle of least squares and curve fitting (straight Line, parabola and exponential curves).	CO1,CO2, CO4
4	Testing of Hypothesis and Large Sample Tests: Formulation of null hypothesis, alternative hypothesis, the critical region, two types of errors, level of significance. Large Sample Tests: Test for single proportion, Difference of proportions, test for single mean and difference of means. Confidence interval for parameters in one sample and two sample problems	CO1,CO3, CO5
5	Small Sample Tests: Student t-distribution(test for single mean, two means and paired t-test), testing of equality of variances (F-test), χ^2 -test for goodness of fit, χ^2 - test for independence of attributes.	CO1,CO3, CO5

Learning Resources

Text Books

1. S.C.Gupta and V.K.Kapoor, Fundamentals of Mathematical Statistics, 11/e, Sultan Chand & Sons Publications, 2012.
2. Miller and Friends, Probability and Statistics for Engineers,7/e,Pearson,2008

Reference Books

1. S. Ross, A First Course in Probability, Pearson Education India,2002.
2. Dr.T.K.V. Iyengar, Dr. B. Krishna Gandhi, S. Ranganatham, Dr.M.V.S.S.N. Prasad, Probability& Statistics, Publications: S. Chand, 4th Revised Edition, 2012.

e-Resources & other digital material

1. <https://nptel.ac.in/courses/111/106/111106150/>
2. <https://nptel.ac.in/courses/111105035>
3. https://onlinecourses.nptel.ac.in/noc22_mg31/preview
4. PVPSIT FED- Moodle

