

PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(Autonomous)

KANURU, VIJAYAWADA-520007

I B.Tech – II Sem CSE (AI&ML)

PROBABILITY AND STATISTICS

Course Code	20BS1204	Year	I	Semester	II
Course Category	Basic Science	Branch	CSE(AI&ML)	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	Nil
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	Connect the concepts of probability, correlation and regression to real life problems	L4
CO5	Identify appropriate test statistic to test given hypothesis for statistical decision	L4
CO6	Apply the concepts of probability and statistics to the given data and submit the report.	L3

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:High, 2: Medium, 1:Low)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1													1	1
CO2	3								2	2			1	1
CO3	3								2	2			1	1
CO4		3											1	1
CO5		3											1	1
CO6	3								2	2			1	1

Syllabus		
Unit No.	Contents	Mapped CO's
I	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,CO6
II	Random Variable and Probability Distributions: Random variables (discrete and continuous), probability density functions, probability distribution - Binomial, Poisson and normal distribution-their properties (mathematical expectation and variance).	CO1,CO2, CO4,CO6
III	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,CO6
IV	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,CO6
V	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,CO6

Learning Resources	
Text Books:	
<ol style="list-style-type: none"> 1. S.C. Gupta and V.K. Kapoor, Fundamentals of Mathematical Statistics, 11/e, Sultan Chand & Sons Publications, 2012. 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. 	
Reference Books:	
<ol style="list-style-type: none"> 1. S. Ross, A First Course in Probability, Pearson Education India, 2002. 2. Miller and Freunds, Probability and Statistics for Engineers,7/e, Pearson, 2008 	
e- Resources & other digital material:	
<ol style="list-style-type: none"> 1. https://nptel.ac.in/courses/111/106/111106150/ 2. https://nptel.ac.in/courses/111105035 3. http://202.53.81.118/ -> PVPSIT FED-Moodle 	