

II Year II Semester

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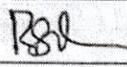
PROBABILITY AND STATISTICS (23BS4T05)
(Common to CSE, AI&ML ~~ONE~~ branches)

Course Objectives:

- To familiarize the students with the foundations of probability and statistical methods
- To impart probability concepts and statistical methods in various applications in Engineering

Course Outcomes: Upon successful completion of this course, the student will be able to

1. Determine the measures of central tendency and the measures of variability(L5)
2. Apply various Probability distributions for both discrete and continuous random variables(L3)
3. Compute the mean and variance of samples with and without replacement(L5)
4. Infer the statistical inferential methods based on small and large sampling tests(L4)
5. Interpret the association of characteristics and through correlation and regression tools (L4)

			
Mr. B Sessa Rao	Dr. GVSR Deekshitulu	Dr. G Venkata Rao	Dr. M Bala Prabhakar
Chairman	University Nominee	Subject Expert-I	Subject Expert-2

BoS Members			
	Dr. NVSRC Murty Gamini	Mr. B Simhadri Rao	Mr. V Seshu Kumar
	Mrs. SNPG Vani	Mrs. A Sravani	Mr. KVNVS Prasad

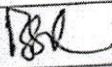
Unit-I: Descriptive statistics and methods for data science:
 Data science – Statistics Introduction – Population vs Sample – Collection of data – primary and secondary data – Type of variable: dependent and independent Categorical and Continuous variables –Data visualization – Measures of Central tendency – Measures of Variability – Skewness – Kurtosis.

UNIT-II: Probability and Distributions:
 Probability– Conditional probability and Baye’s theorem – Random variables – Discrete and Continuous random variables – Distribution functions – Probability mass function, Probability density function and Cumulative distribution functions – Mathematical Expectation and Variance – Binomial, Poisson, Uniform and Normal distributions.

UNIT-III: Sampling Theory for Large & Small Samples:
 Introduction – Population and Samples – Sampling distribution of Means and Variance – Point and Interval estimations (small and large samples) – Maximum error of estimate – Central limit theorem (without proof).

UNIT-IV: Tests of Hypothesis:
 Introduction – Hypothesis – Null and Alternative Hypothesis – Type I and Type II errors – Level of significance – One tail and two-tail tests – Test of significance for large samples and Small Samples: Single and two means – Single and two proportions – Student’s t-test, F-test, χ^2 - test.

UNIT-V: Correlation and Regression:
 Correlation – Correlation coefficient – Rank correlation.
 Linear Regression: Straight line – Multiple Linear Regression - Regression coefficients and properties – Curvilinear Regression: Parabola – Exponential – Power curves.

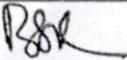
			
Mr. B Sesa Rao Chairman	Dr. GVSr Deekshitulu University Nominee	Dr. G Venkata Rao Subject Expert-I	Dr. M Bala Prabhakar Subject Expert-2
BoS Members			
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	Mrs. SNPG Vani	Mrs. A Sravani	Mr. KVNVS Prasad

Text Books:

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

Reference Books:

1. Shron L. Myers, Keying Ye, Ronald E Walpole, Probability and Statistics Engineers and the Scientists, 8th Edition, Pearson 2007.
2. Jay I. Devore, Probability and Statistics for Engineering and the Sciences, 8th Edition, Cengage.
3. Sheldon M. Ross, Introduction to probability and statistics Engineers and the Scientists, 4th Edition, Academic Foundation, 2011.
4. Johannes Ledolter and Robert V. Hogg, Applied statistics for Engineers and Physical Scientists, 3rd Edition, Pearson, 2010.

			
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