NARSIMHAREDDYENGINEERINGCOLLEGE

UGCAUTONOMOUS

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COMPUTER ORIENTED STATISTICAL METHODS

B.Tech. II Year I Semester								
Course Code	**Category**	**Hours / Week**			**Credits**	**Maxumum Marks**		
MA2103BS	**Foundation**	**L**	**T**	**P**	**C**	**CIA**	**SEE**	**Total**
		3	**1**	**0**	**4**	**30**	**70**	**100**
Contact classes: 45	**Tutorial Classes : 15**	**Practical classes : NIL**				**Total Classes :60**		
Prerequisites: Mathematics courses of first year of study.								

Course Objectives:

To learn

1. The theory of Probability, and probability distributions of single and multiple random variables
2. The sampling theory and testing of hypothesis and making inferences

Course Outcomes:

After learning the contents of this paper the student must be able to

1. Apply the concepts of probability and distributions to some case studies
2. Correlate the material of one unit to the material in other units
3. Resolve the potential misconceptions and hazards in each topic of study.

COURSE SYLLABUS

UNIT I: Probability

Sample space, Events, Counting Sample points, probability of an event, additive rules, conditional probability, independent events, product rule and Bayes theorem. Random variables: Discrete and continuous random variables, Expectation of random variables, Moments, variance of random variables.

UNIT II: Mathematical Expectation

Mean of a Random variable, variance and covariance of Random variables, Means and variances of linear combinations of random variables, Chebyshevs theorem.

Discrete Probability Distributions: Introduction and motivation, Binomial distribution, Geometric distribution and Poisson distribution.

UNIT III: Continuous Probability Distributions:

Continuous uniform distribution, Normal distribution, areas under the normal curve, applications of the normal distribution, normal approximation to the Binomial, Gamma and exponential distributions.

Fundamental sampling distributions: Random sampling, some important statistics, sampling distributions, sampling distribution of Means and the central limit theorem, sampling distribution of S2, t- distribution, F- distribution.

UNIT IV: Testing of Hypothesis - Large sample

Tests of hypothesis - null hypothesis, alternate hypothesis, type I, type II errors, critical region. Inferences concerning means and proportions- Large samples- test of hypothesis for single mean and difference between the means. Test of hypothesis for the proportions- single and difference between the proportions, confidence interval for the mean and proportions.

UNIT V: Correlation and Regression Coefficient of correlation, regression coefficient, the lines of regression, rank correlation

TEXT BOOKS:

1. Ronald E. Walpole, Raymond H. Myers, Sharon L. Myers, Keying Ye, Probability & Statistics for Engineers & Scientists, 9th Ed. Pearson Publishers.
2. S C Gupta and V K Kapoor, Fundamentals of Mathematical statistics, Khanna publications.
3. S. D. Sharma, Operations Research, Kedarnath and Ramnath Publishers, Meerut, Delhi

REFERENCE BOOKS:

1. T.T. Soong, Fundamentals of Probability And Statistics For Engineers, John Wiley & Sons Ltd, 2004.
2. Sheldon M Ross, Probability and statistics for Engineers and scientists, Academic Press.