

Subject Code : 1CS1010404	Subject Title: STATISTICAL COMPUTING
Pre-requisite :	-NONE-

Course Objective:

The objective of this course is to provide basic knowledge of statistical concepts to like measurements of location and dispersion, probability, probability distributions, sampling, estimation, hypothesis testing, regression, and correlation analysis, multiple regression and business/economic forecasting. This course intended to learn the theory of optimization methods and algorithms for solving various types of optimization problems .

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				Total
Lecture	Tutorial	Practical	Credit	Theory		Practical		
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	1	-	4	70	30	-	-	100

Subject Contents			
Sr. No	Topics	Total Hours	Weight (%)
1	<p>FREQUENCY DISTRIBUTION Collection of data, Classification of data, Class interval, Types of Classes, Class frequency, Class mark, Class Boundaries, Width of a class, Frequency density, Relative frequency, Percentage frequency, Cumulative frequency.</p> <p>MEASURES OF CENTRAL TENDENCY Introduction, Arithmetic Mean, Simple and weighted for raw data, Discrete frequency, distribution, Continuous frequency distribution, Properties of A.M., Merits & Demerits of A.M.- Median for raw data, Discrete frequency distribution, Continuous frequency distribution (C.F.S.), Merits and demerits of Median, Mode for raw data and for C.F.S., Merits & demerits of mode</p>	10	20
2	<p>MEASURES OF DISPERSION Introduction, Range, coefficient of range, Quartiles, Quartiles deviations, coefficient of quartile deviations, Mean deviation and coefficient of mean deviation, S.D and variance for all types of frequency distribution, Coefficient of Dispersion, Coefficient of variation</p> <p>CORRELATION Definition of Correlation, Types of Correlation, Scatter Diagram Method, Karl Person's , Correlation Coefficients, Rank Correlation Coefficients, Correlation Coefficients for Bi-variate frequency distribution, Probable error for Correlation Coefficients</p>	11	25
3	<p>REGRESSION Definition of Regression, Regression lines, Regression Coefficients, Properties of regression Coefficients, Fitting of regression lines and estimation for Bi-variate frequency distribution</p>	9	15
4	<p>LINEAR PROGRAMMING Mathematical model, standard form of an LPP, Graphical solution, Simplex method, Duality in LPP, PERT & CPM</p>	9	20
5	<p>TRANSPORTATION & ASSIGNMENT MODEL. Introduction, Mathematical Formulation, Tabular Presentation, Special Structure of Transportation Problem, Optimum solution of transportation problem, Optimality</p>	9	20

	test, Degeneracy transportation problem, Mathematical formulation of the assignment problem, Hungarian method for solving an assignment problem, Unbalanced assignment problem, Traveling Salesman Problem, Applications.		
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Course Outcomes:

At the end of this course, the students would be able to :

- Analyze the statistical data.
- Calculate and apply measures of location and measures of dispersion grouped and ungrouped data cases.
- Apply discrete and continuous probability distributions to various business problems
- Handle, solve and analyze problems using linear programming and other mathematical programming algorithms.
- Learn different techniques to solve Non- Linear Programming Problems.
- Deal with real world problems of Network analysis, Project Management for their optimal solutions.

List of References:

1. Statistical Methods, S.P. Gupta, Published by New India Publishing Agency
2. Business Statistics, R.S. Bhardwarj, Publishing Made Easy · Alexa
3. Fundamental of Statistics, S.C. Gupta, Publisher: Himalaya Publishing
4. Operation Research, Sharma S.D., Kedar Nath & Co. Meerut, 1988-89.