Semester	**FIVE**
Paper No	B3ST230512T/B3ST230512P
Paper Title	**Descriptive Statistics**
No. of credits	4
Theory/Composite	**Composite**
No. of periods assigned	**3 Th + 2 Practical**
Module	**One**
Learning Outcomes	○ To understand the fundamentals of Statistics. ○ To organize and present data effectively. ○ To analyse univariate, bivariate and categorical data.
Syllabus	**UNIT 1:** Statistical Methods - Definition and scope of Statistics, concepts of statistical population and sample. Variables, Scales of measurement. Types of statistical data. Tabulation. Diagrammatic representation of non-frequency data: line, bar, pie, and component bar diagram. Frequency distribution and their graphical representation: column diagram, histogram, step diagram, and ogive. [8L] **UNIT 2:** Analysis of Univariate Quantitative Data –Moments and Quantiles. Concepts and measures of central tendency, dispersion and skewness. Moment measure of kurtosis. Box-plot. [13L] **UNIT 3:** Analysis of Categorical Data: Contingency Tables. Association and Independence. Measures for 2x2 Tables – Odds Ratio. k x l contingency tables: Gamma measure, Pearsonian χ^2. [5L] **UNIT 4:** Analysis of bivariate data: Scatter plot, product moment correlation coefficient, Regression Analysis: Fitting of linear, quadratic and exponential curves by principle of least squares, Correlation Index of order 2. Spearman's rank correlation coefficient without ties. [13L]
List of Practical Problems	○ Graphical representation of data ○ Problems based on measures of central tendency ○ Problems based on measures of dispersion ○ Problems based on moments, skewness and kurtosis ○ Categorical Data Analysis ○ Scatter plot ○ Fitting of linear, quadratic and exponential curves ○ Karl Pearson correlation coefficient ○ Spearman rank correlation without ties.

<table>
<tr><td>Reading/ Reference list</td><td colspan="2">Goon A.M., Gupta M.K. and Dasgupta B. (2002): Fundamentals of Statistics, Vol. I, & II, 8th Edn. The World Press, Kolkata.
Yule G.U. and Kendall M.G (1994) : An Introduction to the theory of Statistics. 14th Edn. Universal Book stall, Delhi.
Nagar A. L., Das R. K. (1997): Basic Statistics. Oxford University Press.
Hogg, R.V., Tanis, E.A. and Rao J.M. (2009): Probability and Statistical Inference, Seventh Ed, Pearson Education, New Delhi.
Agresti: ordinal</td></tr>
<tr><td>Evaluation</td><td>Theory
CIA: 15
Semester Exam: 45</td><td>Practical
CA: 40
Semester Exam: (Not applicable)</td></tr>
<tr><td rowspan="2">Paper Structure for Theory Semester Exam</td><td>Short Questions (5 Marks Each)</td><td>Long Questions (15 Marks Each)</td></tr>
<tr><td>3 out of 5</td><td>2 out of 3</td></tr>
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