10. STATISTICAL METHODS FOR ECONOMICS

Course Objectives: The course teaches students the basics of statistics with a special focus on its day-to-day applications in economics. It sets a necessary foundation for the econometrics courses and courses in advanced microeconomic theory within the Honours programme**.**

Course Learning Outcomes:
At the end of the course, the student is expected to demonstrate the following cognitive abilities and psychomotor skills:

CO1: Understand the nature of statistics and able to collect data using questionnaire
CO2: Draws critical diagrams and graphs for presentation of data
CO3: Calculates and Analyses Averages and Dispersions using given data and information
CO4: Explains the uses of correlation and regression analysis, time series and index numbers in economic analysis.
CO5: Calculate index numbers

Unit – 1: Introduction to Statistics

- Nature and Definition of Statistics, scope, importance and limitations of Statistics
- Primary and Secondary data
- Census and Sampling techniques and their merits and demerits
- Schedule and questionnaire, Collection of data
- Applications in economics

Unit – 2: Diagrammatic Analysis

- Data: Meaning and Types; Frequency distribution
- Tabulation, Graphical presentation of data: Line graph, Histogram, Frequency Polygon, Cumulative Frequency Curves
- Diagrammatic presentation of data: Line, Bar, Pie Diagrams
- MS.Excel for Diagrammatic Analysis; Applications in economics

Unit – 3: Measures of Central Tendency and Dispersion

- Averages: Arithmetic Mean, Median, Mode, Geometric Mean, Harmonic Mean
- Dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variation
- MS.Excel for Measures of Central Tendency and Dispersion; Applications in economics

Unit – 4: Correlation and Regression

- Correlation: Concept, Definition and Use

- Types of Correlation: Karl Pearson's Correlation coefficient, Spearman's Rank Correlation
- Regression: Concept, Definition, Use, Regression Equations, Demand forecasting
- MS Excel for Correlation and Regression; Applications in economics

Unit – 5: Time Series and Index Numbers

- Time Series: Definition and Components; Measurement of Time Series: Moving Average and the Least Squares Method
- Index Numbers: Concepts of Price and Quantity Relatives, Laspeyer's, Paasche's and Fisher's Ideal Index Numbers
- Uses and Limitations of Index Numbers
- MS Excel for Index Numbers; Applications in economics

References:

1. B. R. Bhat, T. Srivenkataramana and K.S. MadhavaRao (1996): Statistics: A Beginner's Text, Vol. I, New Age International (P) Ltd
2. Goon A.M, Gupta M.K., Das Gupta B. (1991), Fundamentals of Statistics, Vol. I, World Press, Calcutta.
3. M. R. Spiegel (1989): Schaum's Outline of Theory and Problems in Statistics,Schaum's Outline Series.
4. S.P. Gupta, Statistical Methods , S. Chand & Co, 1985
5. Telugu Akademy Book, ParimanathmakaPaddathulu (For B.A.).

Suggested Activities:

Unit-1: Assignments of the application of various statistical methods
Unit-2: Student Seminar on themes requiring usage of tables, diagrams, statistical analysis and interpretation
Unit-3: Group project work for collection of data on locally relevant economic problems
Unit-4: Exercise on calculation of correlation and regression using Excel.
Unit-5: Chart Preparation on formulas of different index numbers.