**RESEARCH METHODOLOGY AND TECHNIQUES OF DATA ANALYSIS**

**MA ECONOMICS**

**III Semester (Hardcore Course)**

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**Module-1: Introduction to Research Methodology 1 - 53**

Meaning, Objectives, Motivation - Types of Research: Pure and Applied Research - Qualitative, Quantitative and Mixed - Exploratory, Descriptive, Diagnostic, Evaluation, Action & Experimental Research - Historical Research - Surveys - Case Study - Field Study - Steps in Research.

Approach and Significance of Research - Identification of Research Problem - Theoretical Foundation - Review of Literature - Objectives - Hypotheses - Scope - Methodology - Data Source.

Sampling Design: Census & Sample Survey - Steps in Sample Design - Criteria of Selecting a Sample Procedure.

*Types of Sample Design*: Probability Sampling Techniques - Simple and Complex Random Sampling Designs: Systematic Sampling - Stratified Random, Cluster, Area and Multi-Stage Sampling - Sampling with Probability Proportional to Size - Sequential Sampling.

*Non-Probability Sampling Techniques*: Quota Sampling, Convenient Sampling, Purposive Sampling, Judgment Sampling, and Other Methods.

Determination of Sample Size - Advantages and Disadvantages - Errors in Sampling.

**Module-2: Data Sources, Scaling Techniques, 54 - 78**

**Methods of Data Collection & Analysis**

*Sources of Data*: Primary and Secondary Sources of Data - Quantitative Data: Availability of Sources - Time Series Data - Cross Section Data and Pooled Data - Census, Reports and Documents, other Published and Unpublished Sources.

*Measurement and Scaling Techniques*:Nominal, Ordinal, Interval and Ratio Scale - Sources of Error in Measurement

*Qualitative Methods of Data Collection*: Direct Observation - Indirect Observation: Interview Method, Schedules and Questionnaires - Case Study, Projective Methods - Simulation - Merits and Demerits.

**Module-3: Data Processing and Data Analysis 79 - 105**

*Processing Operation*: Editing - Classification and Coding - Tabulation - Transcription.

*Types of Analysis*: Univariate, Bivariate and Multivariate Data Analysis - Descriptive vs Inferential Analysis - Testing of Hypotheses: Concepts, Steps in Testing of Hypothesis – Parametric Tests: Normal Distribution - Estimation of Mean and Variance - Test of Single Sample Mean - Two Independent Means Test - Testing for Means of Paired Data - Test of Single Sample Variance - Two Sample Variance Test - Non-Parametric Tests: Advantages & Disadvantages - Chi-square Test - Tests for Randomness.

**Module-4: Analysis of Variance and Factor Analysis 106 - 112**

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Meaning and Techniques of Interpretation - Importance of Report Writing - Types of Reports: Brief Reports, Detailed Reports, Technical Reports and Business Reports - Report Preparation - Report Structure: Preliminary Section, Main Report - Interpretations of Results - Research Findings and Suggested Recommendations - Limitations of the Study, and End Notes - Report Writing: Report Formulation - Effective Documentation: Need and Guidelines - Presenting Tabular Data - Visual Representations: Tables, Graphs, Charts - Presenting Footnotes and Bibliography, Reference and Documentation - Plagiarism - Ethical Issues in Research.

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