Unit 1: Introduction to Research (25 %)

Meaning and types of research: Basic Research, Pure Research, Applied Research, Qualitative v/s. Quantitative Research. Modern scientific approach to research, research in business, research process, Structuring a research proposal, Designing a research study, Characteristics of a good research, Salient features of research project, Scope of a research study, Criteria for evaluation of a research study.

Research Design: Sampling design, survey design, statistical design and operational design.

Unit 2: Data Collection and Description (25 %)


Unit 3: Techniques of Analysis of Univariate and Bivariate Data (25 %)

Basic concept and applications of the measures of Central Tendency, Dispersion and Skewness, Measures of Association for variables and attributes, Bivariate Correlation Analysis by Karl Pearson’s Product Moment Method and Spearman’s Rank Correlation Method, Probable error, Simple Linear Regression, Nonlinear Regression, Coefficient of determination and its interpretation, Multiple Regression model, Standard error for Multiple Regression, Multiple Coefficient of Determination and its interpretation.

Unit 4: Statistical Inference and Tests of Hypothesis (25 %)

Meaning of statistical inference, Parameter and Statistic, Concept of Point estimation and Interval estimation, Standard error of a statistic, Testing of Hypothesis, Null and Alternative hypothesis, Confidence level and level of significance, Critical Region, Type-I and Type-II errors, One tailed and two tailed tests, Properties of Normal distribution and their applications in hypothesis testing, Large sample Tests and Small sample tests for a single mean, single proportion, difference of two means and proportions (including paired t-test for small samples), Chi square ($\chi^2$) Test, F- Test, ANOVA for one way and two way analysis.
Note: Case studies on all of the above units indicating practical applications of the topics concerned must be included as a teaching pedagogy.

References:

2. Sharon Lohr: “Sampling: Design and Analysis” Duxbury Press
5. Levin & Rubin: “Statistics for Management” Pearson Education