

Duration of Course: 1 Semester

**Course Objectives**

- Knowledge about the conceptual foundations of research
- Knowing methods to objectively measure and analyse data collected through questionnaires and surveys using computational techniques
- Quantifying and classifying features of a population and constructing statistical models and figures to explain what is observed.
- Understanding of how different quantitative research designs can be applied to answer research question
- Explaining and validating research findings.

**Unit1****Conceptual Foundations of Research**

Meaning and scope of research methodology, Philosophy of research – ontological and epistemological considerations, Identification of problem area, Formulation of research questions, Typology of Research Designs. Overview of quantitative research, Logic of Inquiry, Construction of theories, Conceptual framework in quantitative research. Ethics in research. Introduction to Academic Writing, Structure of Academic Writing, Academic Styles, Plagiarism, Publication, Online Resources.

**Unit 2****Sampling Design and Tools**

Sampling: Process and Types, Probability and non-probability sampling, Errors in sampling. Test construction and standardization. Reliability, validity and norms. Methods of data collection- Observation, Interview, Tests, Case study, Projective Tests, Inventories, Rating Scales, Check Lists.

**Unit 3****Experimental Research Design**

Experimental designs: Introduction to causality, Between-subjects design, Within –subjects design, Factorial design, Mixed Factorial experiments, Single-subject research design. Tests of Significance, Significance of Difference between Means. Analysis of Variance - One Way, Two Way Classifications.

**Unit 4****Descriptive and Correlational Research Design**

Descriptive and correlation research strategies, Survey design, Quasi experimental designs: Non- equivalent group, Time-series and developmental design. Cross sectional research design

and longitudinal research design, observational designs. Biserial Correlation, Regression Lines, Multiple and Partial Correlation

## **Unit 5**

### **Multivariate Designs and Analysis**

Introduction to Multivariate methods and analysis, Discriminant Analysis Multiple, logistic and hierarchical regression. Factor analysis, structural equation modelling (SEM), Meta-analysis, Mediation Analysis, Canonical Analysis. Advantages of multivariate strategies.

#### **Text Books and Reference Books:**

Creswell, J.W & Clark, V.L.P (2011). Designing and Conducting Mixed Methods Research, 2nd Edition, Sage: New Delhi

Kothari, C.R. (2012). Research Methodology: Methods and Techniques, Wiley Eastern Ltd., New Delhi.

#### **Recommended Reading**

Coolican,H. (2004). Research methods and statistics in psychology. London: Hodder Arnold

Gravetter, F. J. & Forziano, L. B. (2003). Research methods for the behavioural sciences. United States. Thomson Wadsworth.