

DEPARTMENT OF STATISTICS
B.J.B. Autonomous College, Bhubaneswar
Value Added Course (2022-23)
on

“STATISTICAL TECHNIQUES FOR RESEARCH METHODS”

Objectives of the course:

- To develop the domain of human knowledge largely through empirical studies.
- Aims at enabling students to understand basic concepts and aspects related to research, data collection, analysis and interpretation.

Expected Outcomes: The course will help students to:

- Compare and contrast the basic research designs: exploratory, descriptive and causal and their relationships.
- Explain the difference between qualitative and quantitative research in terms of the objectives, sampling, data collection and analysis.
- Discuss the sampling design process and describe the probability sampling techniques of simple random sampling, stratified random sampling, systematic sampling and cluster sampling.
- Classify statistical techniques and give a detailed classification of univariate techniques and multivariate techniques.
- Describe data analysis associated with parametric hypothesis testing for one sample, two independent samples and paired samples.

Course Structure:

- Duration: minimum 30 hours
- Target population : UG/PG final year students
- Time Scheduled : In all working days from 3.15pm to 4.45 pm
- Student's strength :30

Mode of learning: Blended mode (online /offline)

Examination and clarification:

- MCQ pattern consists of 50 questions (each carrying 2 marks) consist of two hours.
- Certificate to be provided by the respective department /institution.

Syllabus

Unit-1 Introduction: The research process, Process of defining the problem and developing an approach, primary and secondary data, qualitative research quantitative research, pilot survey, case studies, model building-analytical, graphical, and mathematical, hypothesis.

Unit-2 Research Design: Definition, Classification-exploratory research, conclusive research, their difference, comparison of three basic research design-Exploratory, descriptive and casual, multiple cross-sectional designs, cohort analysis, longitudinal designs, choosing question structure for preparation of a questionnaire.

Unit-3 Survey methodology and measurement scale: Classification of survey methods, sample control, sampling frame, random digit dialling(RDD), response rate, nonresponse bias, primary scales of measurement: Nominal scale, ordinal scale, Interview scale, Ratio scale.

Unit-4 Sampling, Data analysis and hypothesis: Selection of sampling technique and determination of sample size, classification of sampling technique – simple random samples, stratified random samples, systematic sampling, and cluster sampling

Data analysis strategy, classification of statistical techniques, statistics associated with frequency distribution - measures of location, measures of variability, measures of shape, General procedure and steps for hypothesis testing.
