Research Methodology (PC874)

Objective of the course:
The course has two clear objectives, viz.,

➢ To enable researchers, irrespective of their discipline, in developing the most appropriate methodology for their research studies; and
➢ To make them familiar with the art of using different research methods and techniques.

Students will found this useful when they have to deal with data for their research study. The process of data collection, sample design and methodology for analyzing the data will be dealt in details. Statistical techniques for all these processes will be the major focus in this course.

Credit Structure:
Lecture hours per week: 3
Tutorial hours per week: 0
Practical hours per week: 0
Total Credits: 3

Category:
Core, PhD

Content:
1. Research Methodology – Introduction, terminologies. Types of research – good research and bad research. Structure of research project and research process.
2. Research Design – Meaning, need and features of research design. Different types of research design, principles of experimental design.
4. Methods of data collection - Collection of Primary Data, Observation Method, Interview Method, Collection of Data through Questionnaires, Collection of Data through Schedules, Difference between Questionnaires and Schedules, Some Other Methods of Data Collection, Collection of Secondary Data
5. Hypothesis testing: Define null hypothesis, alternative hypothesis, level of significance, test statistic, \( p \) value, and statistical significance. Define Type I error and Type II error, and identify the type of error that researchers control. Calculate the one-independent sample \( z \) test and interpret the results. Distinguish between a one-tailed and two-tailed test, and explain why a Type III error is possible only with one-tailed tests.

6. Analysis of variance (ANOVA) – one factor experiment, total variation, variation of within and between treatments. Distributions of the variations. F test for equal means. aNOVA for two factor experiments.


**Text and Reference ebooks:**
Already uploaded in the PDC folder

**Grading Policy (Tentative):**
Surprise Quizzes -10 %
Assignment -25%
In-Sem Exam-25%
Final Exam-40%