

Research Methodology

22ECMC2T6D

Credits: 4

Lecture: 4 periods/week

Internal assessment: 40 marks
Semester end examination: 60 marks

Prerequisites: ---

Course Outcomes

Upon successful completion of the course, the student will be able to

- Understand basic concepts and its methodologies (L2)
- Demonstrate the knowledge of research processes (L3)
- Apply research articles in their academic projects (L3)
- Analyze various types of testing tools used in research (L4)
- Design a research paper (L4)

Unit-I

Introduction: Meaning of Research, Objectives of Research, Types of Research, Research Approaches.

Research Ethics: Objectives, codes, policies, conventions of publications, ethics for editors, reviewers and publishers, IPR.

Research Problem: What is a Research Problem? , Selecting the Problem, Necessity of Defining a problem.

Research Design –Features of Good Design, Important Concepts related to Research Design, Basic Principles of Experimental Designs

Unit-II

Sampling Design –Sample Design, Sampling and Non-Sampling errors, Goodness of Measurement scales, Sources of error in measurement.

Data Collection Methods – Collection of Primary Data – Collection of Secondary data.

Data Preparation: Data Preparation Process, Some problems in Preparation Process, Missing Values and Outliers, Types of Analysis, Statistics in Research.

Descriptive Statistics: Measures of Central Tendency, Measures of Dispersion, Measures of Skewness, Kurtosis, Measures of Relationship, Association in case of Attributes, Other Measures

Unit-III

Sampling and Statistical Inference: Parametric vs Statistic, Sampling and Non-Sampling errors, Sampling Distribution, Degrees of Freedom, Standard Error.

Testing of Hypothesis: What is a Hypothesis, Basic Concepts Concerning Testing of Hypothesis, Testing the Hypothesis, Test Statistic and Critical Region, Critical Value and Decision Value, Procedure for Hypothesis Testing.

Unit-IV

Interpretation and Report Writing: Meaning of Interpretation, Techniques of Interpretation, Precautions in Interpretation Significance of Report Writing, Different Steps in Writing Report, Layout of a Research Paper, Types of Reports, Oral Presentation, Mechanics of Writing a Research Report, Precautions for Writing Research Reports

Learning Resources

Text Books

1. C.R.Kothari, Research Methodology: Methods and Techniques, 2nd Ed., New Age International Publishers, 2014.
2. Garg, B.L., Karadia, R., Agarwal, F. and Agarwal, An introduction to Research Methodology, RBSA Publishers, U.K., 2002

Reference Books

1. Day, R.A., How to Write and Publish a Scientific Paper, Cambridge University Press, 1992
2. Anthony, M., Graziano, A.M. and Raulin, M.L., Research Methods: A Process of Inquiry, Allyn and Bacon, 2009

e- Resources

1. <https://www.youtube.com/watch?v=8iFfzYVuCuM>
2. https://onlinecourses.nptel.ac.in/noc22_ge08
3. <https://www.youtube.com/watch?v=GSeeyJVD0JU>
