

Research Methodology

(Open Elective)

B.Tech -III Year, II Semester

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Course objectives: This course will enable the students:

1. To develop an understanding towards basic concepts of the research methodology.
2. To familiarize primary disparity between quantitative research and qualitative research.
3. To provide knowledge to define appropriate research problem and its parameters.
4. To familiarize tools and techniques used for preparation of report writing.

UNIT 1 (10 Lectures)

Research Methodology: Objectives and Motivation of Research, Types of Research, Research Approaches, Significance of Research, Research Methods verses Methodology, Research and Scientific Method, Importance of Research Methodology, Research Process, Criteria of Good Research, Problems Encountered by Researchers in India.

UNIT 2(8 Lectures)

Defining the Research Problem: Definition of Research Problem, selecting the Problem, Necessity of Defining the Problem, Technique involved in Defining a Problem.

Literature Survey: Importance of Literature Survey, Sources of Information, Assessment of Quality of Journals and Articles, Information through Internet. Literature Review: Need of Review, Guidelines for Review, Record of Research Review.

UNIT 3(8 Lectures)

Research Design: Meaning of Research Design, Need for Research Design, Feature of a Good Design, Important Concepts Related to Research Design, Different Research Designs, Basic Principles of Experimental Design.

Design of Sample Surveys: Sample Design, Sampling and Non Sampling Errors, Sample Survey Versus Census Survey. Types of Sampling Designs: Non Probability Sampling, Probability Sampling.

UNIT 4 (8 Lectures)

Data Collection and Preparation: Collection of Primary data: Observation method, Interview method, Questionnaires, Schedules. Collection of Secondary data, Case study method.

Data Preparation: Questionnaire checking, Editing, Coding, Classification, Tabulation.

Graphical Representation: Pie chart, Bar chart, Histogram, Frequency Polygon.

- 1) Al. M. K. K. K.
- 2) D. S. S. S.
- 3) E. S. S. S.
- 4) F. S. S. S.
- 5)

- 6) G. S. S. S.
- 7) H. S. S. S.
- 8) I. S. S. S.
- 9) J. S. S. S.
- 10) K. S. S. S.
- 11) L. S. S. S.

- 12) M. S. S. S.
- 13) N. S. S. S.
- 14) O. S. S. S.
- 15) P. S. S. S.
- 16) R. S. S. S.

UNIT 5(8 Lectures)

Interpretation and Report Writing: Meaning of Interpretation, Techniques of Interpretation, Precautions of interpretation. Significance of Report Writing, Steps in Writing the Report, Format of the Research Report. Technical paper writing/Journal paper writing, Making Presentation, Use of Visual Aids, Elementary Treatment of Plagiarism Tools.

Text Books

1. C.R Kothari & Gaurav Garg, "Research Methodology, Methods & Technique", New Age International Publishers, 2019.
2. R. Ganesan, "Research Methodology for Engineers", MJP Publishers, 2016.

Reference Books

1. R .Pannerselvam, "Research Methodology", Prentice hall of India, 2014.
2. Ratan Khananabis and Suvasis Saha, "Research Methodology", Universities Press, Hyderabad, 2015.
3. G. Nageswara Rao, "Research Methodology and Quantitative methods", BS Publications, Hyderabad, 2012.

Course Outcomes

At the end of the course students are expected to

CO1: Develop an understanding on various kinds of research and objectives of doing research.

CO2: Perform literature reviews using print and online databases.

CO3: Design good research.

CO4: Collect required data for Research and to adopt methods for data collection.

CO5: Interpret the data from research perception.

CO6: Write and present a substantial technical report and document.

Online Courses: onlinecourses.nptel.ac.in

- 1) N. Mallekudiyil
- 2) Dr. Suresh Babu
- 3) eom
- 4) S. S. Srinivasan
- 5)

- 6) J. S. Srinivasan
- 7) M. Srinivasan
- 8) K. Srinivasan
- 9) S. Srinivasan
- 10) S. Srinivasan
- 11) R. Srinivasan

- 12) G. Srinivasan
- 13) C. R. Reddy
- 14) R. Srinivasan
- 15) M. Srinivasan
- 16) R. Srinivasan