

Paper - I
RESEARCH METHODOLOGY
(Common for Engineering / Technology / Pharmacy)

Teaching Scheme:

Theory: 4 hrs/week

Examination Scheme:

Theory Examination: 100 Marks

Objectives:

- To get introduced to research philosophy and processes in general.
- To be able to formulate the problem statement and prepare research plan for the problem under investigation.
- To be able to apply various numerical /quantitative techniques for data analysis.
- To be able to communicate the research findings effectively.

Unit 1: Introduction

Concepts of Research, Meaning and Objectives of Research, Research Process, Types of Research, Criteria of Good Research, Research Problem – Identifying and Defining, Research Proposals – Types, contents, Sponsoring agency's requirements, Ethical aspects, IPR issues like patenting, copyrights etc.

Unit 2: Research Design

Meaning, Need and Types of research design, Literature Survey and Review, Research Design Process, Measurement and scaling techniques, Data Collection – concept, types and methods, Processing and analysis of data, Design of Experiments.

Unit 3: Quantitative Techniques

Sampling fundamentals, Testing of hypothesis using various tests like ANOVA, Chi square test, Multivariate analysis, Applications of various statistical softwares.

Unit 4: Computer Applications

Pre-writing considerations, Principles of Thesis Writing, Formats of Report Writing & Publication in Research Journals, Documentation and presentation tools – LATEX, Microsoft Office with basic presentations skills, Use of Internet and advanced search techniques,

Reference Books:

1. 'Research Methodology: An Introduction for Science & Engineering Students', by Stuart Melville and Wayne Goddard
2. 'Research Methodology: An Introduction' by Wayne Goddard and Stuart Melville
3. 'Research Methodology: A Step by Step Guide for Beginners', by Ranjit Kumar, 2nd Edition
4. 'Research Methodology: Methods and Techniques', by Dr. C. R. Kothari, New Age International Publisher
5. Research Methodology, G.C. Ramamurthy, Dream Tech Press, New Delhi
6. 'Management Research Methodology' by K. N. Krishnaswamy, Appa Iyer Sivakumar & M. Mathirajan, Person Education.