

## SEMESTER VIII

**RESEARCH COURSE (RC) (FOR HONOURS WITH RESEARCH)****RC-1: RESEARCH METHODOLOGY****Credits: 04    Lectures: 60****Marks: 100 (End Semester Examination=75 Semester Internal Examination= 20 (Theory), Class Performance & Attendance =05)****Pass Marks (Internal + End Semester) = 40***Instructions to Question Setters***Semester Internal Examination (SIE) – 20 Marks:***The question paper will be divided into two groups: Group A and Group B.**Group A: Group A is compulsory, which will contain two questions.**Question No.1 will consist of five very short answer-type questions, each carrying 1 mark. All five questions are compulsory.**Question No.2 will be the short-answer type of 5 marks. This question is also compulsory.**Group B: Contains two descriptive-type questions, each carrying 10 marks. Candidates are required to answer only one question from this group.***End Semester Examination (ESE) – 75 Marks:***The question paper will be divided into two groups: Group A and Group B.**Group A (Compulsory): Question 1: Five very short answer-type questions of 1 mark each. Questions 2 and 3: Short answer-type questions, each carrying 5 marks.**Group B: Contains six descriptive-type questions, each carrying 15 marks. Candidates are required to answer any four questions from this group.**Note: Questions in the theory papers may have subdivisions.***COURSE OBJECTIVES**

- To introduce students to the basic concepts of research and research methodology.
- To develop an understanding of research design, data collection methods, and data analysis techniques.
- To equip students with skills for formulating research problems, hypotheses, and conducting literature reviews.
- To enable students to write research proposals and reports ethically and systematically.

**COURSE OUTCOMES**

After completion of the course, students will be able to:

1. Understand the fundamentals of research and its types.
2. Formulate research problems and hypotheses.
3. Conduct literature surveys using digital tools and databases.
4. Apply qualitative and quantitative research techniques.
5. Prepare research proposals, reports, and theses.
6. Understand ethical issues in research and plagiarism.



## **COURSE CONTENT**

### **Unit I: Introduction to Research**

**(12 Lectures)**

- Meaning, Objectives, and Characteristics of Research
- Types of Research: Basic, Applied, Descriptive, Analytical, Quantitative, Qualitative, Experimental
- Research in Interdisciplinary and Multidisciplinary Contexts
- Scientific Method and Research Process
- Identification and Formulation of Research Problem

### **Unit II: Literature Review and Research Design**

**(12 Lectures)**

- Sources of Literature: Journals, Books, Databases (INFLIBNET, JSTOR, Google Scholar, Scopus)
- Techniques of Review Writing and Referencing Styles (AIP/APA/MLA/Chicago)
- Plagiarism and Academic Integrity: Use of Plagiarism Detection Tools (Turnitin, URKUND)
- Research Design: Concept, Components, and Types (Exploratory, Descriptive, Experimental)

### **Unit III: Data Collection and Sampling Techniques**

**(12 Lectures)**

- Primary and Secondary Data
- Methods of Data Collection: Observation, Interview, Questionnaire, Survey, Case Study
- Sampling Techniques: Probability and Non-probability Sampling
- Tools and Techniques for Data Collection (e.g., Google Forms, Surveys)

### **Unit IV: Data Analysis and Interpretation**

**(12 Lectures)**

- Classification, Tabulation, and Presentation of Data (Charts, Graphs, Tables)
- Measures of Central Tendency and Dispersion
- Correlation and Regression Basics
- Introduction to Statistical Software (SPSS, Excel, R, Python – basic commands)
- Interpretation and Drawing Inferences

### **Unit V: Research Reporting and Ethics**

**(12 Lectures)**

- Structure of Research Report/Thesis
- Referencing and Citation Management Tools (Zotero, Mendeley)
- Ethics in Research: Fabrication, Falsification, Plagiarism, Authorship Issues
- IPR, Patents, Copyright, and Open Access Publishing

### **Suggested Readings and Tools**

1. Research Methodology: Methods and Techniques, C. R. Kothari and Gaurav Garg, New Age International Publishers, 4th ed., 2019.
2. Research Methodology: A Step-by-Step Guide for Beginners, Ranjit Kumar, Pearson Education, 5th ed., 2021.
3. Research Methodology, R. Panneerselvam, PHI Learning Pvt. Ltd., 2nd ed., 2014.
4. Research Methodology: Concepts and Cases, Deepak Chawla and Neena Sondhi, Vikas Publishing, 2nd ed., 2016.



5. Data Reduction and Error Analysis for the Physical Sciences, Philip R. Bevington and D. Keith Robinson, McGraw-Hill Education, 3rd ed., 2003.
6. How to Write and Publish a Scientific Paper, Robert A. Day and Barbara Gastel, Cambridge University Press, 8th ed., 2016.
7. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, John W. Creswell and J. David Creswell, SAGE Publications, 5th ed., 2018.
8. Technical Report Writing, Aditham Bhujanga Rao, PHI Learning Pvt. Ltd., 1st ed., 2012.

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## SEMESTER VIII

**RC-2: RESEARCH INTERNSHIP/ FIELD WORK/ DISSERTATION****Credits: 08**

This course will include laboratory work, practicums, field projects, survey analyses, or internship-based projects. Students must submit a comprehensive research report and defend their dissertation/thesis.

**The evaluation will consider the following:**

- ✚ Motivation for the choice of topic
- ✚ Project dissertation design
- ✚ Methodology and Content depth
- ✚ Results and Discussion
- ✚ Future Scope & References
- ✚ Participation in Internship programme with reputed organization
- ✚ Application of Research technique in Data collection
- ✚ Report Presentation
- ✚ Presentation style

**Marks distribution may be as follows or adjusted as appropriate:**

- ✚ Assessment of Project Synopsis: **75 marks**
- ✚ Assessment of Project Thesis: **100 marks**
- ✚ Viva-voce: **25 marks**

**About the Synopsis Format**

The synopsis must include the following sections:

1. **Introduction**
2. **Preliminary Review of Literature / State-of-the-Art**
3. **Problem to be Investigated**
4. **Objectives of the Research**
5. **Research Questions and/or Hypotheses**
6. **Research Methodology**
  - Research Type
  - Research Design
  - Tools to be Used for Data Collection and Analysis
7. **Significance of the Proposed Work**
8. **Research Limitations and Future Work**
9. **Tentative Chapterization**
10. **References** (*Bibliography is also desirable*)

