

Branch Name:	Bachelor of Computer Application (BCA)
Program Code:	CS101
Course Title:	Research Methodology–I
Course Code:	17-CAM401-4C
Pre-requisite Course:	Basic knowledge of statistics (mean, median, mode) , Fundamental understanding of computer applications (MS Excel, data handling) , Logical reasoning and analytical thinking skills , Basic academic writing skills

Course Objective (CO):

This course is intended to make the students:

- Introduce fundamentals of research and scientific methods.
- Develop understanding of research design and problem formulation.
- Familiarize students with data collection and analysis techniques.
- Enhance academic writing and research reporting skills.
- Prepare students for project work and dissertation.

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	--	2	4	50	25	--	25	100

Course Contents:

Sr. No	Topics	Total Hours	Weightage (%)
1.	Introduction to Research: Meaning and Objectives of Research, Types of Research (Basic, Applied, Exploratory, Descriptive), Research Process, Research Ethics, Role of Research in Computer Applications	15	20
2.	Research Problem and Design: Identification and Selection of Research Problem, Formulation of Research Objectives, Hypothesis: Meaning and Types, Research Design: Meaning and Types, Sampling Techniques (Probability and Non-Probability)	15	20
3.	Data Collection Methods: Primary and Secondary Data, Questionnaire Design, Interview Method, Observation Method, Case Study Method.	15	20
4.	Data Analysis and Interpretation: Data Processing and Classification, Tabulation and Presentation of Data, Measures of Central Tendency (Mean, Median, Mode), Correlation and Regression (Basic Concept), Use of MS Excel / Statistical Tools	15	20
5.	Case Study Based (Applied Investigation): Research Paper Review, simple Research Paper writing, Seminar / Presentation	15	20

Course Learning Outcomes (CLO):

At the end of this course, the student would be able

- CLO1: Understand basics of research, types, process, and ethics.
- CLO2: Identify research problems, objectives, hypothesis, and design.
- CLO3: Apply data collection methods like questionnaire, interview, and observation.
- CLO4: Analyze data using statistical tools (mean, correlation, Excel).
- CLO5: Develop research paper writing and presentation skills.

List of Text Book:

1. Research Methodology: Methods and Techniques – C.R. Kothari and Gaurav Garg, New Age International Publishers.
2. Research Methodology – R. Panneerselvam, PHI Learning Pvt. Ltd.
3. Research Methods for Business – Uma Sekaran and Roger Bougie, Wiley Publications.
4. Business Research Methods – McGraw-Hill Education.
5. Research Methodology: A Step-by-Step Guide for Beginners – Sage Publications.

List of Reference Book:

1. Research Methodology: Methods and Techniques – C.R. Kothari & Gaurav Garg
2. Research Methodology: A Step-by-Step Guide for Beginners – Ranjit Kumar
3. The Craft of Research – Wayne C. Booth et al.
4. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches – John W. Creswell
5. Business Research Methods – Donald R. Cooper & Pamela S. Schindler

E-Resource / Web Links:

- <https://www.sciencedirect.com>
- <https://core.ac.uk> (CORE – research papers)
- <https://citeseerx.ist.psu.edu> (CiteSeerX)
- <https://base-search.net> (BASE search engine)

List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may change/ Formulate it as per his/her methodology and requirement.

Practical List

- 1) Study of different types of research with examples in Computer Applications.
- 2) Identification of a research problem and formulation of research objectives.
- 3) Formulation of hypothesis for a selected research topic.
- 4) Preparation of a research design for a small research study.
- 5) Designing a questionnaire / survey form using MS Word or Google Forms.
- 6) Conducting Interview and Observation methods for data collection.
- 7) Data collection and data entry using MS Excel.
- 8) Data processing and tabulation of collected data.
- 9) Calculation of Mean, Median, and Mode using MS Excel.
- 10) Correlation analysis and graphical data presentation using Excel.
- 11) Research paper review of a published paper in Computer Applications.
- 12) Simple research paper writing and seminar presentation.

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO3
CLO1				H	H		M							L	
CLO2	H			H	H		M		M	M		M	L	M	
CLO3				M	H								M		
CLO4	H				H								M		
CLO5				H	H	H	M	M	M		H		M	M	H
CLO6				H	H	H	M	M	M		H		M	M	H

H: High, M: Medium, L: Low