ANNAMACHARYA UNIVERSITY

(ESTD UNDER AP PRIVATE UNIVERSITIES (ESTABLISHMENT AND REGULATION) ACT, 2016)

(UNIVERSITY LISTED IN UGC AS PER THE SECTION 2(f) OF THE UGC ACT, 1956)

RAJAMPET, YSR District, AP – 516126, INDIA

Title of the Course	**:**	Research Methodology for Sciences
Couse Code	**:**	26CPHY01T
Course offered to	**:**	Physics, Chemistry, Mathematics, and Computer Science/ Computer Applications
Credits	**:**	2

Course Objectives:

1. To understand the basics of research and research process.
2. To understand the design of research along with sampling in research
3. To utilize measurement, scaling and statistical techniques.
4. To gain knowledge of collection and analysis of data.
5. To gain ability to represent data and report preparation.

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

1. understand the formulation of research problem and hypothesis in social sciences.
2. determine sample size appropriate to the research design
3. demonstrate measurement scales and questionnaires.
4. memorize the data collection methods in statistical analysis
5. Discuss research reports for managerial decision making

Unit 1 Fundamentals of Scientific Research

Meaning and Significance of Research – Scientific reasoning (Inductive & Deductive) - Types of Research (Basic, Applied and Experimental) - Research Process – Literature review and research gap - Problem Identification – Criteria for Good Research.

Unit 2 Research Design and Sampling Methodology 10

Meaning of and Need for Research Design – Types of Research Design – Nature of Sampling – Probability and Non-Probability Sampling Methods – Steps in Sample Design – Sample Size Determination and Approaches– Hypothesis: Null Hypothesis Vs Alternative Hypothesis, Formulation, and testing of Hypothesis.

Unit 3 Measurement and Statistical Techniques 9

Nature of Measurement and Scaling – Measurement Scales – Scaling Techniques – Constructing and drafting – Forecasting techniques – Time series analysis – Correlation and Regression.

Unit 4 Data Collection, Processing and Analysis 10

Sources of Data: Primary and Secondary Data – Data Collection Method – Processing and Analyzing Data. Chi-square test to test the goodness of fit and independence of attributes.

Unit 5 Data Presentation and Report Writing 9

Diagrammatic and Graphical Presentation: Techniques, Merits and Demerits – Report Writing – Journal article writing – Presentation at conferences – Reference management tools – Structure of thesis/ dissertation.

Prescribed books:

1. Research Methodology – Methods & Techniques, C.R. Kothari, 2/e New Age International, New Delhi. 2008.

Reference books:

1. Methodology and Techniques of Social Science Research, Wilkinson &Bhandarkar, Himalaya Publishing House.
2. Research Methodology in Management, Michael, V.P., Himalaya Publishing House.
3. Research Methodology, Dipak Kumar. Bhattacharya, Excel Books, 2006.