<div align="center">**Semester – III**</div>

Course Title	RESEARCH METHODOLOGY
Total Hrs.	75
Hrs./Week	5
Sub.Code	21PCCS33
Course Type	DSC-IX
Credits	4
Marks	100

General Objective:

To identify the problem and carry out the research individually in a perfect Scientific method.

Course Objectives:

CO No.	The learners will be able to
CO-1	Identify the Research and Scientific methods
CO-2	Determine the different Sampling techniques.
CO-3	Categorize the various Scaling techniques.
CO-4	Examine the analysis techniques for Data Processing.
CO-5	Write Research Report.

UNIT – I INTRODUCTION TO RESEARCH

Research Methodology: Introduction -– Objectives of Research – Types of Research - Research approaches – Significance of Research – Research Methods versus Methodology – Research and Scientific method – Research process – Criteria of good Research – Problems encountered by Researchers in India. Defining the Research problem: What is a Research problem - Selecting the Problem – Techniques involved in defining a problem.

UNIT – II RESEARCH AND SAMPLE DESIGN

Research design: Meaning of research design – Need for Research Design – Features of Good Design – Important concepts relating to Research design – Different Research designs – Basic Principles of Experimental Designs – Important Experimental designs . Design of sample surveys: Introduction - Sample design - Types of sampling designs – Non probability sampling – Probability sampling.

UNIT – III SCALING, DATA COLLECTION

Measurements and scaling: Quantitative and qualitative data – Classifications of measurement scales – Goodness of measurement scales – Sources of error in measurement – Scaling – Scale classification bases – Scaling techniques – Comparative Scaling Techniques – Non- Comparative Scaling Techniques. Data Collection : Collection of Primary Data — Observation Method – Interview method – Collection of data through Questionnaires – Collection of data through Schedules – Difference between Questionnaire and schedule – Guidelines for constructing Questionnaire/schedule – Some other methods of data collection – Collection of secondary data – Selection of Appropriate method for data collection.

UNIT – IV ANOVA

Data Preparation : Data preparation process – Questionnaire checking – Editing – coding – classification – tabulation – Graphical representation – Data cleaning – Data adjusting – Some problems in preparation process – Types of analysis – Statistics in research. Analysis of variance: The ANOVA technique – One way ANOVA – Two way ANOVA

UNIT – V REPORT WRITING, ALGORITHMIC RESEARCH

Interpretation and Report Writing : Meaning of interpretation –Technique of interpretation – Precaution in Interpretation – Significance of Report Writing – Different Steps in Writing Report – Layout of the Research Report – Types of Reports – Mechanics of Writing a Research Report. Algorithmic Research: Algorithmic Research Problems – Types of Solution Procedure/ Algorithm – Steps of Development of Algorithm – Comparison of Algorithms.

TEXT BOOK (S)
1. C.R.Kothari, "Research Methodology, Methods and Techniques", Fourth edition, New Age International Publishers, 2019. Unit I (Chapter 1 and 2.1, 2.2, 2.3, 2.4), Unit II (Chapter 3 and 4.1, 4.2, 4.5),Unit III (Chapter 5 and 6), Unit IV (Chapter 7 and 12.1 to 12.4),
2. R.Panneerselvam, "Research Methodology", PHI, 2009. Unit V-(Chapter 13)

Course Outcomes

CONo.	Upon completion of the course, the students will be able to	PSOs Addressed	Cognitive Level
CO-1	Select Research problem and techniques.	1,2,3,4,5	Understanding
CO-2	Choose suitable sample designs for Research problem.	1,2,3,4	Applying
CO-3	Select appropriate method for data collection.	1,2,3,4,5	Analyzing
CO-4	Characterize the Data using ANOVA techniques.	1,2,3,4,5	Analyzing
CO-5	Prepare Report writing.	1,3,4,5	Creating

Relationship Matrix

Semester	Course Code	Title of the Course		Hours	Credits
III	21PCCS33	Research Methodology		75	4

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO-2	✓		✓	✓	✓	✓	✓	✓	✓	
CO-3	✓			✓	✓	✓	✓	✓	✓	✓
CO-4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO-5	✓		✓	✓	✓	✓		✓	✓	✓
	Number of matches (✓) = 44 Relationship = High									