

COC102 Research Methodology & Statistical Analysis [4 Credits]

Learning Objective: *This course is designed to motivate the students in the field of research and enable them to develop the methodology for research work. It is also aimed to equip the students with the skills which will enable them to formulate research objectives, hypothesis, and develop appropriate research design. At the end of the course work, students will be in a position to apply appropriate data analysis tools and techniques in the research reports. During the course of study, students will be familiarized with the statistical software used for data analysis.*

UNIT 1: Introduction to Research Methodology (5 Hours)

Meaning and importance of research – Steps in the process of research – **Ethics in research** – Types and methods of research – Features of Good research – Fallacy in Research

UNIT 2: Literature Review & Research Design (9 Hours)

Importance of literature review – **Identification of source of information** – literature search procedure - online/offline sources – **Identification of research gap** – **Defining research problem** – **Identification of objectives** – **Developing related hypothesis** – research design

UNIT 3: Introduction to Data Management (12 Hours)

Data Sampling techniques or methods – sampling design – sample size – sampling and non sampling errors – meaning and importance of data - Types and source of data - Primary and Secondary data – **Methods of collecting primary data** - tools for data collection - **Questionnaire Designing** – **Conducting Pilot survey** – **Secondary Data collection**

Attitude measurement and scaling – **Validating Data / Data Reliability** - **Data entry operation using appropriate software's** – **Importing and Exporting data files between different software's** – **Data editing and formatting** – **coding, classification, tabulation- data mining**

UNIT 4: Statistical Analysis of Data (25 Hours)

Data Analysis – **Organizing and Summarizing the Raw data** – Measures of Central Tendency – Measures of Dispersion – Skewness and Kurtosis – **Correlation and Regression Analysis** – Theory of Probability – Mathematical Expectation – Theoretical Probability Distributions (Binomial, Poisson, and Normal) (**Includes Practical Problems**) Theory of Estimation and Hypothesis testing (**Using MS-Excel, SPSS, Gretl**)

UNIT 5: Report Writing (9 hours)

Intellectual Honesty and Ethics (Plagiarism - Cheating - Fabrication and Falsification - Multiple Submission - Misuse of Academic Materials - Complicity in Academic Dishonesty) – **Use of Data Base Management and Scientific Editing** - **Tools using available open source Software** - Types of Reports – **Planning report writing** – **Research report format** – **Principles of writing** – **Documentation** – **Writing/typing the report** – **Briefing** – **Evaluation of a research report.**

Suggested Readings:

1. Chawla, Deepak and Sondhi, Neena. Research Methodology: Concepts and Cases. Vikas Publishing House Private Ltd.
2. Cooper, Donald R and Schindler, Pamela S, Business Research Methods, Tata McGraw Hill.
3. Krishnaswami, O. R and Ranganathan. M. Methodology of Research in Social Sciences. Himalaya Publishing house.
4. Gupta, S.C. Fundamentals of Statistics. Himalaya Publishing House.
5. Aizel, Amir D & Sounderpandian, Jayavel. Complete Business Statistics, Tata McGraw Hill.
6. Sachdeva, J. K., Business Research Methodology, Himalaya Publishing House

