# Syllabus for Research Methodology

**Faculty of Engineering& Architecture**

**J.N.V.University, Jodhpur**

L-3/week, Exam 3Hrs, Maximum Marks 100

## UNIT 1- 8 LECTURES

Introduction to Research Methodology: Meaning, objectives, types, and significance of research.

Types of research: exploratory, conclusive, modeling, algorithmic etc, Research process- steps.

Research Problem: Definition. Necessity and techniques of defining research problem. Formulation and objectives of research problem.

## UNIT 2- 8 LECTURES

Research Design: Need, problem definition, variables, research design concepts. Literature survey and review. Research design process. Errors in research. Concepts and Type of research design. Design of research on the basis of application: pure and applied, design of research on the basis of techniques/methodology, qualitative and quantitativeresearch, field and laboratory experiments.

## UNIT 3- 8 LECTURES

Statistical Hypotheses: its formulation and test of significance.Procedures fortestingof hypothesis. Determining level of significance. Statistical techniques.

## UNIT 4- 16 LECTURES

Research Methods:

Design of Experiments: Objectives, strategies, factorial experimental design, designing engineering experiments, basic principles- replication, randomization, blocking, guidelines for design of experiments.

Modeling and Simulation: Types of Models, model building and stages,model validation,data consideration and testing, heuristics.Basic Computer Simulation: tools and techniques.Analysis of data and development of correlation.

## UNIT 5- 8 LECTURES

Report Writing: Pre-writing considerations, thesis writing, formats of report writing, formats of publications in research journals, report writingtools, presentation techniques.

## References


[3] Kothari C.K.,Research methodology - Methods and Techniques, New Age International, New Delhi, 2009.

[4] Panneerselvam R., Research methodology, Prentice-Hall of India, NewDelhi, 2004.

[1] Yogeskumar Singh, Fundamental of research methodology and statistics, New Edge International Publishers, 2006.

[2] Montgomery Douglas C., Design and analysis of experiments, WileyIndia, 2007

[5] Brown S.R. and Melamed L.E. Experimental design and analysis, New Bury Park, CA:Sage, 1990.


***Teaching of Units: 1- 8, 2-8, 3-8, 4-16, 5- 8 total 48 periods***