

# SRI SATYA SAI

UNIVERSITY OF TECHNOLOGY & MEDICAL SCIENCES  
SEHORE (MP)



## Research Methodology

Ph.D. Course Work (I) Syllabus

## Research Methodology

### **Unit I:- Research Foundation:**

Evolution of scientific inquiry and Research, definition, characteristics , types and objectives of Research, importance of Research methodology in scientific Research. Selection and formulation of Research problem. Research design: meaning of Research design, features of good research design , inductive, deductive, and development of models.

Hypothesis: Different types and significance, development of working Hypothesis, Null Hypothesis.

### **Unit II: - Review of Literature:**

Meaning and Significance of review of literature, literature search procedure , sources of literature: primary and secondary sources, web source, critical literature review , Review Quality Instrument(RQI) .

### **Unit-III:- Data Collection And Analysis:**

**Data Collection** Sources of data – primary, secondary and tertiary Types of data- categorical, nominal and ordinal methods of data collection: observations, field investigations, Direct studies: reports, record, or experimental observations.

**Data analysis:** graphical representation, descriptive analysis, inferential analysis, correlation analysis and regression analysis. Measure of central tendency, measure of dispersion, measure of variation, Measure of central tendency vs measure of dispersion, normal distribution, measure of skewness and interpretation, purpose and use of chi-square test. Data analysis by using statistical software's: MATLAB, MINITAB and SPSS. Hypothesis Testing, generalization, interpretation and modeling.

### **Unit IV :- Scientific Writing And Ethics:**

**Scientific Writing:** Structure and components of research paper and thesis writing. Different steps in the preparation: Layout, structure, language, illustrations, tables, citation styles and Bibliography.

**Ethics:** Ethical issue, Ethical committees, commercialization, copy right , royalty, intellectual property, rights and patent laws, plagiarism, citation, acknowledgement, Reproducibility and accountability

## **Unit-V:- Computer Applications and Statistics:**

**Computer Applications** Application of computer in research, M.S. Office and its applications. Internet and its applications: E-mail, www, Web browsing, acquiring technical skills, drawing inferences from data.

**Statistics** Introduction to Statistics - Probability Theories - Conditional Probability, Poisson distribution, Binomial Distribution and Properties of Normal Distributions, Estimates of Mean, mode, median and Proportions.

### **References:**

1. Kothari, C.R.(2008). Research Methodology: Methods and Techniques. Second Edition New Age International Publishers, New Delhi.
2. Sinha, S.C. and Dhiman, A.,2002. Research Methodology, Ess Ess Publications.2 volumes.
3. Gupta S.P. (2008). Statistical Methods. 37<sup>th</sup>ed. (Rev)Sultan Chand and Sons.New Delhi. 1470 p.
4. Leon & Leon (2202). Internet for everyone, Vikas Publishing House.
5. Wadehra, B.L.2000. Law relating to patents, trade marks, copyright designs and geographical indications. Universal Law Publishing.
6. Research Methodology Dr PM Bulakh,Dr P. S. Patki and DrAS Chodhary 2010OPublished by Expert Trading Corporation Dahisar West, Mumbai 400068
7. Statistical method for Research works by fisher R.A. Cosmo publication, New Delhi ISBN : 81-307-0128-6
8. Design and analysis of experiments by montgomery D.C., john wiley ,ISBN: 0471260088
9. MINITAB online manual
10. Methodology of Research in Social Science by O.R. Krishnaswamy and Rangnatham, Himalaya Publication Hore, ISBN: 8184880936
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