

Punyashlok Ahilyadevi Holkar Solapur University, Solapur



Name of the Faculty: Science & Technology

CHOICE BASED CREDIT SYSTEM

Syllabus: Research Methodology

Name of the Course: Ph. D. Course Work Paper No. 1

(Syllabus to be implemented from w.e.f. June 2021)

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Ph.D. Course Work New Syllabus w.e.f. 2021-22

Course / Paper- I : RESEARCH METHODOLOGY

Learning / Course Objectives:

At the end of this course a candidate will be able to –

1. Understand the psychology of research which includes different perspectives and necessity of research.
2. Apply the research knowledge to formulate a suitable problem statement by adopting different research methods and models.
3. Analyze the research outcome by using suitable statistical tool.
4. Write or present a scientific report and research proposal by adopting copyright based ethical values.

Unit-I – Introduction to Research :

1) Definition- Scientific Research- Meaning and importance of Research – Types of Research – Selection and formulation of Research Problem – Research Design Motivation and objectives – 2) Defining and formulating the research problem - Selecting the problem - Necessity of defining the problem- 3) Importance of literature review in defining a problem – Literature review – Primary and secondary sources – reviews, treatise, monographs-patents – web as a source – searching the web - Critical literature review – Identifying gap areas from literature review - 4) Research methods vs Methodology. Types of research – Descriptive vs. Analytical, Applied vs Fundamental, Quantitative vs. Qualitative, Conceptual vs Empirical, development of working hypothesis.

[06 Hrs., / 0.5 Credit / 10 Marks]

Unit-II – Methods of Research:

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| (a) | Traditional Methods – | Historical, Institutional, Legal, Philosophical, Comparative, Ethical methods. |
| (b) | Modern Methods – | Survey of Literature, Sampling method, Questionnaire, Schedule etc, Interview method and Focus Group discussion, Observation Method, Case Study method, Content analysis, Delphi method, Statistical Method, Experimental method, Brainstorming Techniques, Rating Scale. |

[12 Hrs., / 01 Credit / 20 Marks]

(c) Ethnographic methods

(d) Documentation methods

Unit-III – Research Design :

Basic Principles- Need of research design, Features of good design important concepts relating to research design, Observation and Facts, Laws and Theories, Prediction and explanation, Induction, Deduction, Development of Models. The nature of research design, formulation of research design, classification of research designs: Descriptive, experimental, exploratory, diagnostic, correlative, action and evaluation, developing a research plan; determining experimental and sample designs, Pilot Study.

[12 Hrs., / 01 Credit / 20 Marks]

Unit-IV – Applications of Statistical tools & Methods :

Execution of the research , observation and Collection of data , diagrammatic & graphical presentation of data, sampling methods, tools & software , data Processing and analysis strategies, data analysis with statistical tools like mean, median, mode; dispersion: variance and deviation , analysis of variance : ANOVA and ANOCOVA, correlation, regression, hypothesis testing: parametric and nonparametric tests(chi square, t-test, two tailed test, one tailed test etc.) ; Generalization and Interpretation.

[12 Hrs., / 01 Credit / 20 Marks]

Unit-V – Report Writing :

Structure and components of scientific reports, types of report, Significance, Different steps in the preparation, layout, structure and language of typical reports, illustrations and tables, bibliography, Webliography, referencing, perfecto pages, prefectural quotation, different report writing manuals, Appendices, plagiarism.

[06 Hrs., / 0.5 Credit / 10 Marks]

[Total Credit = 04 ; Total Marks = 80; UA + 20 CA; Total hrs = 48]

Suggested References :

1. An introduction to Research Methodology; Garg B.L., Karadia, R., Agarwal, F. and Agarwal, U.K., 2002., RBSA Publishers.
2. Research Methodology: Methods and Techniques ,Kothari C.R., 1990.. New Age International.
3. Research Methodology; Sinha S.C. and Dhiman, A.K., 2002. Ess Publications. 2 volumes.
4. Research Methods: the concise knowledge base; Trochim W.M.K., 2005. Atomic Dog Publishing. 270p.
5. Research Methodology ; Panneerselvam R., PHI, Learning Pvt. Ltd., New Delhi - 2009
6. Research Methodology: Concepts and cases, Chawala D. and N. Sondhi ; Vikas Publishing House Pvt. Ltd.

Additional Suggestion:

1. Research Methods: A Process of Inquiry Anthony, M., Graziano, A.M. and Raulin, M.L., 2009., Allyn and Bacon.
2. Proposal Writing ; Coley, S.M. and Scheinberg, C. A., 1990, Sage Publications.
3. Marathi Reference books related to the paper.