

2018-2021

18MPH11C1

Core - I

Research Methodology and Thesis Writing

- I : Meaning of Research - Types of Research - Methodology of Research in Social Science - Research Problems.
- II : Approaches in Historical Research: Impact of Scientific approach on Historical Research - Interdisciplinary approach to History.
- III : Combining Qualitative Quantitative Methods in Historical Research - De - construction as a Method of Research - Empirical Research Methods.
- IV : Historical Method - Heuristics: Choosing a Research topic - Data collection - Sources : Primary and Secondary - Interviews - Research Design and Hypothesis.
- V : Analysis of Data : External Criticism and Internal Criticism - Synthetic Operations - Objectivity and Subjectivity in Thesis Writing - Drafting of Thesis - Documentation - Footnotes - Bibliography - Tables and Charts - Computer and its role in Research.

BOOKS FOR REFERENCES

Bridget Somekh and Cathy Lewin, *Research Methods in the Social Science*, Vistaar Publications, New Delhi : 2005.

Floud, Roderick, *An Introduction to Quantitative Methods for Historians*, Methuen (R.P), London.

Malcolm Williams, *Science and Social Science An Introduction*, Routledge, London and New York 2000.

Martin Hollis, *The Philosophy of Social Science : An Introduction*, Cambridge UP, New Delhi, 2000.

M.L.A. *Handbook for Researchers Thesis and Assignment Writing*. Wily Fastern, New Delhi, 1990.

Topolski, Jerzy, *Methodology of History* Reidal Publishing Co., Holland, 1976.

Watson, George *Writing a Thesis A Guide to Long Essays and Dissertations* Longman, London, 1987.

Rajayyan, K. *History of Theory and Method*, Maduari, 2004.



K. K. K.

Periyar EVR College (Autonomous),
Tiruchirappalli 620023
Department of Economics



M.Phil 2018-19 onwards

18MPEC1C1

Semester - I

Core-I : Research Methodology

This paper intends to provide the students the basic knowledge for pursuing research and also expose them to application of various quantitative techniques in their research.

Unit : I Social Science Research and Scientific Method

Social Science Research: Classification – Objectives - Basic assumptions – Significance - Difficulties and Limitations. Scientific Method: Definition – Assumptions – Characteristics – Components – Steps – Problems, difficulties and limitations – Objectivity – Essentials of goods research.

Unit : II Steps in Research:

Selection of the research problem – Formulation of hypothesis – Research design - #Source and types of data# - Census and Sampling Method – Processing and analysis of data – Interpretation of Data.

Unit : III Statistical Tools for Data Analysis

Descriptive Statistics: Measures of Central Tendency and Measures of Dispersion. Data Analysis: Simple Correlation and Regression Analysis – Partial and Multiple Correlation, Multiple Regression – A note on Problems in regression analysis (Multi-collinearity Autocorrelation, Heteroscedasticity and errors). Test of Significance: Z, t and F tests; Introduction to Non parametric Tests: Chi-square, U, Run, Sign and K-W

Unit : IV Uses of Computer in Data Processing and Analysis

#Introduction to Computers# - Preparation of Master Table – Data processing with the help of Excel and SPSS – Editing and modifying research data - Sub tables – Data analysis with Excel and SPSS.

Unit : V Report Writing

Structure and general format of Research Report – Style – Language, punctuation, grammar and symbols – Graphical and Dia-grammatical representations – Use of footnotes, references, citations and bibliography.

Note: #...# Self-study portions.

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Text Books

- | | | |
|----------------|---|---|
| Saravanavel. P | - | Research Methodology |
| Gupta. S.P. | - | Statistical Methods |
| Kolhari. C.R. | - | Research Methodology : Methods and Techniques |



Reference Books

- | | | |
|----------------------------|---|-----------------------------------|
| Brose, M.N. | - | Hand Book of Research Methodology |
| Goode, W.J. and Hatt. P.K. | - | Methods in Social Research |

Signature
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18MPEL1C1

DEPARTMENT OF ENGLISH
 PERIYAR EVR COLLEGE (AUTONOMOUS), TRICHY-620 023
 M.Phil. PROGRAMME (ENGLISH)
 (From 2018-2019 ONWARDS)
 COURSE I – RESEARCH METHODOLOGY



ENGLISH

Course Objectives:

- To inculcate research aptitude in the students
- To make them familiar with the dynamics of research.

Also, this paper intends to familiarize researches with the principles, tools and technique of research in English Studies, to train them in collecting, classifying, organizing and analyzing materials in the writing of the thesis, to familiarize them with the conventions governing the written presentation of research and to train them to apply these conventions in their research work.

UNIT I: RHETORIC AND RESEARCH

Definitions, origin and history, Research - meaning, principle of research, kinds of research, formulation of research problem, Design and research project or thesis.

UNIT II: EXPOSITION AND FORMAT FOR THESIS WRITING

The five parts of a discourse, Styles in thesis writing the method of exposition –argument, persuasion, description, narrative material collection – note taking – outlines. Avoiding plagiarism, preparing a working bibliography. Diction, outline, the Paragraph and sentences, Tone and other aspects of style, using the research library –organizing the composition: Unity, development organization and coherence, emphasis.

UNIT III: SCHOLARSHIP AND CRITICISM

- a. “The Sense of fact”
 “The Literary Object”
 “The Scholar Critic”

Reference

Bateson, F.W.

- b. “Textual Criticism”,
 “Literary History” and “Literary Criticism”
 “The Aims and Methods of Scholarship in Modern Languages and Literatures.”



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Reference

James Thorpe.

Unit. IV : Theory of Literature:

Extrinsic and Intrinsic Approaches

Theory of Comparative Literature

(*Theory of Literature*. Wellek, Rene and Warren, Austin).



UNIT V: NORMS, CONVENTIONS OF THESIS AND TECHNIQUES OF PRESENTATION

Mechanics of writing – writing, quotation, titles, spelling and punctuations, abbreviations, documentations, Book Review, Mechanical accuracy, heading, numbers, figures, drafts. Special kinds of writing, a reference paper writing on literary topics, research papers overviews and review style and presentation outline-footnotes symbols abbreviation, bibliography, appendix and index. Preparation of drafts and final version of the dissertation.

Reference

Coles Editorial Board. *Dictionary of Literary Terms*. New Delhi: Rama Brothers, 1999

Corbett, Edward P.J. *Classical Rhetoric for the Modern Student* 2nd ed. New York: Oxford University Press, 1971

Guth, Hans P. *Words and Ideas: A Hand book for College Writing*. Sanfranciso: Wadsworth Publishing Company, 1959.

MLA Handbook for writers of Research Papers. 7th ed. New York: Modern Language Association of American, 2009.Print.

Watson, G. *The Literary Thesis*

Iverson. *Thesis Writing*

Camp Bell. *Form and Style in Thesis Writing*

Williamson, Karp & Others. *The Research Craft: An Introduction to Social Research Methods*.

Bateson, F.W. *The Scholar Critic*

Thorpe, J. *Aims and Methods of Scholarship in Modern Languages and Literatures*.



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18MPTL1C1

புதிய பாடத்திட்டம்

2018 - 2019 கல்வியாண்டு முதல் முன்றாண்டுகளுக்கு

ஆய்வியல் நிறைஞர் (M.Phil)

தாள் : I ஆராய்ச்சி நெறிமுறைகள்



அலகு - 1

ஆய்வு - சொற்பொருள் விளக்கம் - அறிவியல் முறையில் ஆய்வு - ஆய்வாளரின் பண்புகள் - அறிவியல் நெறியின் தேவையும் பயன்பாடும் - ஆய்வுத் தலைப்பைத் தேர்ந்தெடுத்தல் - ஆய்வுக்களம் - சிக்கலை மையமிட்ட தலைப்புகள்-ஆய்வு நெறித்திட்டம். - தகவல் வாயில்கள்- துணைநூற்பட்டியல் - குறிப்பிட்ட - ஆய்வின் தன்மையும் நோக்கமும்

அலகு - 2

சமூகப் பண்பாட்டுத் தொடர்பு - ஆய்வின் நில எல்லை - ஆய்வின் கால எல்லை - ஆய்வு எல்லை - தரவுகளைத் திரட்டப் பயன்படும் உத்திகள் - உற்றுநோக்கல் - பேட்டி - வினாநிரலும் பட்டியலும் - நிகழாய்வு - கருதுகோளின் இலக்கணம் - ஆய்வில் கருதுகோளின் இடம் - கருதுகோளை உருவாக்கும் வாயில்கள் - கருதுகோளை உருவாக்கும் விதம் - கருதுகோளை உருவாக்கும் முறை - கருதுகோளின் வகைகள்.

அலகு - 3

வரலாற்றுத் தரவுகளும் இலக்கிய ஆய்வும் - சமூக ஆய்வும் வரலாறும் - இலக்கிய ஆய்வும் வரலாறும் - வரலாற்று முறையின் இன்றியமையாமை - வரலாற்றுத் தரவுகளின் வாயில்கள் - வரலாற்றாய்வில் ஆவணங்கள் - வரலாற்று ஆய்வின் வரையறைகள் - வரலாற்றுத்தரவின் ஒத்ததன்மை.

அலகு - 4

உற்றுநோக்கல் -- உற்றுநோக்கலின் பயன்கள் - கருதுகோளும் உற்றுநோக்கலும் - உற்றுநோக்கலின் வகைகள் - தன்மை உற்றுநோக்கல் - சமூக ஆய்வில் உற்றுநோக்கலின் இன்றியமையாமை - உற்றுநோக்கலில் இடர்பாடுகள்.

அலகு - 5

வினாநிரலும் பட்டியலும் - வினாநிரலின் வகைகள் - பட்டியலின் வகைகள் - வினாநிரல், பட்டியல் உருவாக்கும் முறை - வினாநிரல், பட்டியல் அமைப்பு - இடர்பாடுகள் - பேட்டி - பேட்டியின் வகைகள் - பேட்டிக்குரிய ஆயத்தம் - உத்திமுறைகள் - பயன்கள் - இடர்பாடுகள் - தமிழியல் ஆராய்ச்சியின் தோற்றமும் வளர்ச்சியும்.

முதன்மை நூல்: இலக்கிய ஆராய்ச்சி நெறிமுறைகள், முத்துச்சண்முகன், சுவேங்கடராமன், என். சி.பி.எச்., சென்னை.

பார்வை நூல்கள்

1. தமிழண்ணல், இலக்குமணன், ஆய்வியல் அறிமுகம், ஏரக வெளியீடு, மதுரை.
2. சுப்பிரமணியன், ச.வே., ஆராய்ச்சி நெறிமுறைகள், உலகத் தமிழாராய்ச்சி நிறுவனம், சென்னை
3. பாலசுப்பிரமணியன், கு. வே., ஆய்வு நெறியியல்
4. பொன்னுசாமி மு., ஆராய்ச்சி முறையியல் ஓர் அறிமுகம், கலா பதிப்பகம், கோயம்புத்தூர்
5. ஞானப்பிரகாசம்.சி., ஆராய்ச்சி முறையியல், அறிவுச்சுடர் நிலையம், கோவில்பட்டி
6. கணேசன் எஸ்.என்., ஆய்வியல் கோட்பாடுகளும் செயல்முறைகளும், போனியா புக் சர்வீசஸ், சென்னை
7. சிதம்பரநாதன், வே. ஆய்வியல் முறைகள், சுபா பதிப்பகம், நாகர்கோவில்.

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PERIYAR EVR COLLEGE (AUTONOMOUS) TRICHY – 23

PG AND RESEARCH DEPARTMENT OF COMMERCE

M.Phil DEGREE – 2018 – 2019

COURSE – I

MAX. MARKS: 60

RESEARCH METHODOLOGY

CODE:

Unit – I

Research - Meaning – Objectives – Types of research-Pure, applied, analytical, historical, and experimental – Case study – Research problem – Definition – Setting up of objectives – Source – Research design – Meaning – Steps and significance.

Unit – II

Sampling – Meaning – Steps-Criteria – Sample size – Sampling methods and their application – Sampling error – Hypothesis – Concept – Steps – Testing of Hypothesis.

Unit – III

Collections of Data – Methods – Primary sources – Techniques – Observation Interview – Questionnaire and Schedule – Types, essentials and limitations – Scaling technique – Pre testing – Pilot study.

Unit – IV

Processing and Analyzing of Data – Editing – Coding – Tabulation – Types of Analysis – tools of analysis – Correlation - Regression – Time series – Analysis of Variance.

Unit – V

Report Writing – Types of Reports – Contents of Reports – Steps in Drafting Reports – Presentation of Report.

Text book

Research methodology – C.R. Kothari, sultan chand and sons, New Delhi.

Reference books

1. Methods of social survey and research – SR. Bajpai, kitab Ghar, Kanpur.
2. Research in social science – Pattenshetti, Sultan Chand and Sons, New Delhi.
3. Thesis and assignment writing – Anderson. J. Berry & Poole.M



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A. megalu

18MPMTIC1

(For the candidates admitted from the academic year 2018 onwards)

CORE I : RESEARCH METHODOLOGY

Semester : I

Subject Code :

Hours : 6

Credits : 4

Objectives:

1. To introduce method of research
2. To learn and teach Mathematics

UNIT I : Research Methodology : An Introduction

UNIT II : Defining the Research problem, Research Design.

UNIT III : Mathematics Classroom – Instructional style of Mathematics – Aesthetic image to Mathematics

UNIT IV : Algebra : Symbol Sense, Insight and its expectations – Research in Mathematics – Impact of Computing Technologies.

UNIT V : Math disabilities – Modern Mathematics and its Applications – Paradigm Shift in Learning and Teaching Maths.

Text Books

1. "Research Methodology" by C.R.Kothari, Wiley Eastern Limited, New – Delhi.

UNIT I : Chapter 1 - pages : 1 to 23

UNIT II : Chapters 2 and 3 - pages : 24 to 52.

2. "Learn and Teach Mathematics" by Amit Goel, Authors Press, Reprint 2008

UNIT III: Chapters 2,3,4 - pages :9-38

UNIT IV: Chapters 6,8,9 – pages: 44-52,61-103

UNIT V : Chapters 13,15,16 - pages : 137-142,149-167

S. Kaul

RESEARCH METHODOLOGY

Unit – I: Working on a Research Problem

Scientific research – Research approaches and Significance of Research – Identification of research problem: Determining the mode of attack – Current status – Literature survey – Abstraction of a research paper – Access using Internet web tools – e-mail – Impact and usefulness of the research problem – Role of research guide – Guidance and rapport – Preparation and presentation of Scientific reports; need and methods – Writing of synopsis and dissertation and thesis.

Unit – II: Techniques of Scientific Writing

Scientific Writing - definition – organizing a scientific paper – Title – listing of authors and address – abstract – introduction – materials and methods section – results section – discussion section – acknowledgement – references – review process – publishing process – reprints – review paper – conference report – oral and poster presentation – thesis – Preparation for a research projects – Statement of problem – Design of project – budget proposal.

Unit – III: Data Analysis

Introduction – Statistical description of data - Mean, variance, skewness, median, mode – Distributions – Student's t-test, F-test, Chi-square test – Linear and rank correlations – Modeling data: Least-squares, Fitting data. (Theory and elementary Problems).

Unit IV: Numerical Solution of Ordinary Differential Equation

Power Series approximation – Point wise Method – Solution by Taylor Series (Type I) – Taylor series method for first and second order differential equation – Iterative method for Eigen values: Jacobi method for Eigen values - Numerical Methods for double integration: Trapezoidal rule - Simpson's rule.

Unit V: Spectral Analysis

Powder X-ray diffraction – Debye - Scherrer technique – indexing the powder pattern – calculation of particle size using Scherer method – Problems associated with Scherrer method – Weber - Fechner method for particle size analysis - Selected area diffraction – FTIR and Raman Spectroscopy .



Book for Study and Reference:

1. Research Methodology - Methods and Techniques (2nd revised edition), C.R. Kothari
New and International Publishers. (Unit I & IV)
2. Research Methods (Tips and Techniques), G. Vijayalakshmi and C. Sivapragasam,
MJP Publishers. (Unit I)
3. Scientific Thesis Writing and Paper Presentation – N. Gurumani - MJP Publishers.
(Unit II)
4. Instrumental Methods of Analysis (7th Edition), Hobart H. Willard, Lynne L. Merritt, Jr.,
John A. Dean and Frank A. Settle, Jr.
4. Fundamentals of Mathematical Statistics (11th Revised Edition), S.C. Gupta and V.K.
Kapoor – Sultan Chand & Sons. (Unit IV – 2.7 - 2.10, 2.13-2.15, 2.19, 2.32 – 2.33, 2.36 –
2.37, 2.52 – 2.53, 15.2- 15.4, 16.2 -16.3, 16.29 – 16.31).
5. Numerical Methods, P. Kandasamy, K. Thilagavathy and K. Gunavathi – S. Chand &
Company Ltd. (Unit IV & V)
6. Numerical Methods (2nd Edition), S. Arumugam, A. Thangapandi Isaac, A.
Somasundaram – Scitech publication (India) Pvt. Ltd.



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Semester	Course	Course Title	Marks			Credit
			IA	EA	Total	
I	Core I	Research Methodology	40	60	100	4

Unit I Survey of Literature

- 1.1 Need for literature survey-Primary, Secondary and Tertiary Sources. Journals, Chemical Abstracts - Subject index, Substance index, Author Index, Formula index and other indices. Other similar abstracts for special topics. Current Titles-Reviews - Monographs - Selection of Research topic-Selection of Research Facility - Location of Journals and Articles.
- 1.2 Use of computers in the Literature Survey - Websites - Search Engines, Internet, E-mail. Scientific Information and Documentation centers - INSDOC, BANSDOC, NCSI, British Library - Digital Library - e-Journals - e-Content.

Unit II Presentation of Research Output

- 2.1 Research Paper - Preparation of Manuscript for Publication in National and International Journals like Indian Journal of Chemistry (Section A and Section B), Journal of Indian Chemical Society, Current Science, Journal of American Chemical Society and Tetrahedron.
- 2.2 Thesis - Rough drafting-Title, Abstract, Introduction, Scope of the Work, Literature Review, Problem and Time Limitation, Experimental Methods, Results and Discussion, Foot Notes. Data Presentation - Figures and Tables. Sign Conventions followed. Bibliography - Conclusion and Recommendations. Abbreviations used. Storing and Retrieval of Information using Computer-CD, Pen Drive and DVD.

Unit III Data Analysis

- 3.1 Error Analysis - Errors - Types - Precision and accuracy - Significant figures - Tests for accuracy of results - Positive and negative deviation from accuracy - Distributions: Normal, Binomial and Gaussian-The normal distribution of random errors - Mean value - Variance - Standard deviation - Correlation coefficient-Curve fitting-Method of Least Squares- Reliability interval - t-test, F-test, Q-test and Chi-Square test - Regression analysis -Multiple linear Regression - Observation and Inference.

Unit IV Separation and Purification Techniques

- 4.1 Extraction - Solvent extraction Principle - Theory - Different methods of extraction.
- 4.2 Separation techniques - Chromatography - Paper, Thin layer, Column, Ion-Exchange, Gas, HPLC and GC-MS. Principles and uses of other separation techniques: Filtration and Crystallization.

Unit V Computers in Chemistry

- 5.1 Introduction to computers-history of computers -Main frame, mini, micro and super computer systems-Computer hardware -CPU, input, output devices, auxillary storage devices, interpreter, compiler-Languages-C Language & Programming-Constants, variables, function -Logical & Arithmetic statements-Transfer & control structure-arrays- pointers-File handling procedures.



- 5.2 Simple programming examples from chemistry like Temperature conversion, Calculation of frequency of electromagnetic Radiation, Cv of solid (Cv at T<30 K and at T>30 K), Activity coefficient of Electrolytes, Rate constants of I & II order reactions, $t_{1/2}$ of I, II & III order reactions, Calculation of Arrhenius Parameters, Calculation of Modes of Vibration.

References

1. J.Anderson, B.H.Durston and M.Poole, *Thesis and Assignment writing*, John Wiley Publications, Sydney, 1970.
2. C.R.Kothari, *Research Methodology (Methods & Techniques)*, 2nd Edition, WishwaPrakasam, 2002.
3. P.Ramadass and A.WilsonAruni, *Research and Writing Across the Disciplines*, MJP Publishers, Chennai, 2009.
4. J.March, *Advanced Organic Chemistry: Reactions, Mechanisms and Structure*, 5th Edition, Wiley, New York, 1996.
5. G.H.Jeffery, J.Bassett, J.Mendham and R.C.Denney, *Vogel's Text book of Quantitative chemical analysis*, 5th Edition, Longman Group UK Ltd., England, 1989.
6. R.A.Day, Jr., and A.L.Underwood, *Quantitative analysis*, 6th Edition Prentice-Hall of India Private Ltd., New Delhi, 1993.
7. Hobart A.Willard, Lynne L.Merritt, Jr., John A.Dean and Frank A.Settle, Jr., *Instrumental methods of Analysis*, 6th Edition, CBS Publishers & Distributors, Delhi, 1986.
8. K.V.Raman, *Computers in Chemistry*, Tata McGraw-Hill Publishing Company Limited, New Delhi, 2005.
9. E. Balagurusamy, "*Programming in ANCI C*" – Tata McGraw-Hill Publishing Company Limited, New Delhi, 2005.
10. E. Balagurusamy, "*Object Oriented Programming with C++*"– Tata McGraw-Hill Publishing Company Ltd., New Delhi, 2003.
11. D. Ravichandran, "*Programming with C++*", Tata McGraw-Hill Publishing Company Limited, New Delhi, 2005.

WEBSITES

<http://indianchemsoc.org/jourindx.htm>
<http://www.ias.ac.in/currsci/>
<http://pubs.acs.org/journal/jacsat>
<http://ees.elsevier.com/tet/>



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RESEARCH METHODOLOGY – M. Phil**UNIT – I**

Research:- Definition; Types of research; Literature review – Selection of problem, defining the problem, **Hypothesis testing:** Framing the objectives, Research design- Execution – Data processing, analysis and Interpretation; Ethics in research.

UNIT – II

Laboratory hazards and safety measures - Hazardous handling, Fire, electrical and radio hazards, Bio-safety equipment; Disposal of various category wastes; **Animal maintenance for research** - CPCSEA guidelines and ethics. **Maintenance of glass wares and instruments** - washing, drying and sterilization; **Preparations of solutions** – Normality, Molarity and Percentage solution.

UNIT – III

Scientific documentation: Drafting of dissertation – Layout- Introduction, Review of literature, Materials and Methods, Results, Discussion, Summary and conclusion, References – Referencing styles – APA, MLA, Oxford, Harvard, Chicago; **Preparation of research articles;** Journals – Scope – National and International, Refereed and Non refereed journals, Predatory journals; Impact factor; Citation index; **Indexing and Abstracting services** –PubMed, Scopus, BIOSIS, AGRICOLA, DOAJ, CAS, CAB, Zoological Record.

UNIT – IV

Statistical Packages: Microsoft Excel – Spreadsheet, Cell, Main menu – File, Edit, View, Insert, Format tools, Data, Window help; **Data entry** – Analysis, Graphical representation, Applications of Microsoft Excel; **SPSS** – Data editor, creating – coding variable, Output viewer, Exploring data with SPSS- Diagrammatic representations, Application of SPSS in biological sciences.

UNIT – V

Intellectual Property Rights: Patent, Copyright, Royalty, Trade marks, Industrial design rights, Plant variety rights, trade dress, Geographic indications; **Objectives of IPR** – Financial incentive, Economic growth, Morality, **Infringement** - Patent infringement, Copyright Infringement, Trade mark infringement; **Misappropriation** – Trade mark misappropriation; Plagiarism – softwares – Turnitin, URKUND, Plagiarism checker.

Textbooks

1. Guramani, N. 2009. Research Methodology for Biological Sciences. MJP Publishers, Chennai.
2. Kothari, C. R. 2008. Research Methodology- Methods and Techniques. New Age International Publishers, New Delhi – 110002.
3. Vijayalakshmi, G., Sivapragasam, C. Research Methods Tips and Techniques. MJP Publishers, Chennai – 600005.

References

1. Leedy, P. D and Ormrod, J.E., 2004 Practical Research: Planning and Design. Prentice Hall.
2. Reviewing Clinical Trials: A Guide for the Ethics Committee –Pfizer.
3. Satarkar. S.V., 2000. Intellectual property rights and copy right. ESS ESS publications.
4. Wadehra, B. I. 2000. Law relating to patents, trademarks, copyright designs and geographical indications. University law publishing.



Paper Code: ~~18MPPGIEIC1~~ 18MPPGIEIC1
Course I - Research Methodology

Objectives:

1. Explain the concepts and process of research methodology in geography.
2. Explain the concepts of analysis of data and method of report writing.

UNIT - I

Research in Geography, Meaning - Need of Research - Types of Research - Approaches to Geographical Research: Identification of Fields, Area of Interests and Themes. Problems encountered by researcher in India.

UNIT - II

Logic in Research: Hypotheses, Concepts and Facts, Principles and Laws, Theory and their implications in Geographical Research - Role of Models - Research problems - selecting the problem - Defining the problem - Techniques involved in defining the problem.

UNIT - III

Research Design: Literature Survey, Selection of the Topic - Formulation of Hypotheses, Testing of Hypotheses - Role of Inter Net, Preparation of Proposal and Research Design.

UNIT - IV

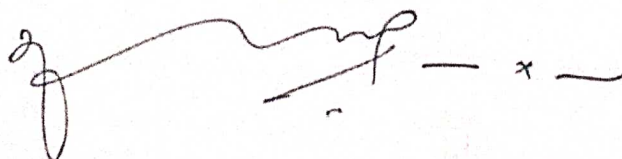
Collection of Data: Sources of Data: Primary and Secondary, Sampling Techniques, Structuring Database - Data Transformation - Quantitative and Qualitative Techniques in Geographical research.

UNIT - V

Thesis Writing: Organization of the Thesis, Thesis Writing Styles, Formats, Literature Review and Appraisal, Reference Materials. Selection of Writing and Reference Citing Styles, Drafting of Thesis, Thesis Editing and Enriching - Writing of Abstracts, Reports, Research Papers and Research Project Proposal.

References:

1. Anderson J, Durston, B.H. and Poole, M. (1970) - Thesis and Assignment Writing. Wiley Eastern Ltd., New Delhi.
2. Demoko et al. - Scientific Reasoning in Geographical Research.
3. Cooray P.G. (1992) - Guide to Scientific and Technical Writing, Hindagala, Sri Lanka.
4. Davis J.C. (1986) - Statistics and Data Analysis in Geology, John Wiley and Sons, New York.
5. Davis W.K.D. (1972) - Conceptual Revolution in Geography, University of London Press Ltd., London.
6. Fitzgearld B.P. et al., (1974) - Science in Geography 1, 2, 3, 4, 5 and 6, Oxford University Press, London.
7. Hammond. R and Megullagh, P., (1978) - Quantitative Techniques in Geography: An Introduction, Clarendon Press, Oxford
8. Hanag. L.L., and Lounsbury, J.F. (1971) - Research Methods in Geography, Brown Company Publishers, Iowa.



CORE - I

18MPST101

RESEARCH METHODOLOGY

Note: A candidate has to answer five questions, one from each unit with internal choice

Semester – I

Code:

Credits: 4

Unit I

An introduction: Meaning- Objective-Motivation in research-Types of Research Significance of Research- Defining the Research Problem- Necessity of defining the problem- Technique involved in defining a problem.

Unit II

Research Design: Meaning and need of Research Design-Features of a good design- Different research designs. Sampling Design: Census and Sample Survey, Implications of a sample design, Steps in sampling design, Criteria of selecting a sampling procedure, Characteristics of a good sample design, Different Types of Sample Design, Select a random sample, Random sample form an Infinite Universe, and Complex Random sampling design.

Unit III

Interpretation and Report Writing: Meaning of Interpretation, Technique of interpretation, Precaution in Interpretation, Significance of Report writing, Different steps in report writing, Layout of the Research Report, Types of reports, Mechanics and precautions for writing a Research Report.

Unit IV

Acceptance quality control and process- Quality Control-Sampling by attributes, Operation, Selections and measures-Sequential sampling by attributes, Selections, Measure.

Sequential sampling for process parameter-Single sampling for Process Parameter-Acceptance control, Sequential plan for process parameter (Known and Unknown)

Unit V

Stochastic Processes, State Space and Parameter Space, Markov Process, Markov Chain, Poisson Process, Time Dependent Poisson Process, Pure Birth Process, Yule Process, Discrete Branching Process, Pure Death Process and Birth and Death Process.

Books for Study and Reference :

1. Kothari C.R: Research Methodology, New Age International Publishers, Chennai.
2. Montgomery, D.C: Introduction to Statistical Quality Control, John Wiley and Sons, New Delhi.
3. J. Medhi (2009): Stochastic Process, Wiley Eastern.
4. Karlin, S and H.W. Taylor (1975): a First Course in Stochastic Processes, Academic Press.
5. U.N Bhat: Stochastic Process.



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Course I – RESEARCH METHODOLOGY

Scope and Objective: To impart the basic concepts on formal languages and Automata, which are required for research and to give knowledge on research types and thesis writing.

UNIT I

Thesis Writing: Literature Survey – Writing Reviews and Journal Articles – Publication of Papers – Planning a Thesis – General Format – Page and Chapter Formats – Footnotes – Tables and Figures – References and Appendices.

UNIT II

Analysis of Algorithm: The Role of Algorithm in Computing – Case Study: An analysis of Insertion Sort – Analyzing and Designing Algorithms – Growth of Functions – Asymptotic notation – properties.

UNIT III

Mathematical Logic: Logical statement of Proposition – Types of Propositions – The Propositional Calculus – Negation of a Proposition – Disjunction – Conjunction – Tautologies and Contradictions – Logical Equivalence – The Algebra of Propositions – Conditional Propositions – Converse, Inverse and Contrapositive Propositions – Negation of a Conditional Proposition – Biconditional Propositions – Arguments.

UNIT IV

Probability: Probability – Conditional Probability – Bayes Theorem: Measures of central tendency – Variance – Coefficient of variation – Correlation – Regression.

UNIT V

Sampling Theory and Testing of Hypotheses: Types of Samples – Parameter and Statistic – Tests of Significance – Procedure for Testing Hypothesis – Applications of t-test – t-test for Single Mean – Paired t-test for difference of means – F-test for equality of two population variances – Analysis of variance – Assumptions – Technique of Analysis of Variance – One Way Classification Model – Two Way Classification Model – Case Study: SPSS Software.

References

1. Janathan Anderson, Berry H. Durston, Millicent Poole, "*Thesis and Assignment Writing*", Wiley Eastern Limited, 1992.
2. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein, "*Introduction to Algorithms*", PHI, Third Edition, 2010.
3. S.P. Gupta, "*Statistical Methods*", Sultan Chand & Sons Publishers, New Delhi, Fortieth Revised Edition, 2011.
4. B.S.Vatssa, "*Discrete Mathematics*", Wishwa Prakashan Publishers, A Division of Wiley Eastern Ltd., Third Edition, 1993.

