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INCLUSION OF RESEARCH ETHICS IN THE RESEARCH METHODOLOGY COURSE WORK
SYLLABI OF COURSES OF RESEARCH DEPARTMENTS
FATIMA COLLEGE (AUTONOMOUS), MADURAI

RESEARCH CENTRE OF ECONOMICS

III SEMESTER

COURSE CODE	COURSE TITLE	HRS/WEEK	CREDITS
PHD	Research Methodology	6	4

COURSE DESCRIPTION:

This course creates awareness among the students about the nature and the design of research. It also aims to give an understanding about collection of data, formulation of hypotheses and preparation of research reports.

COURSE OBJECTIVES:

This course is designed to

1. Make research as a potential scientific valuation of finding facts
2. Frame research design
3. Formulate hypotheses and interpret Hypothesis .
4. Analyze the method of data collection and sampling technique
5. Process data and prepare research report

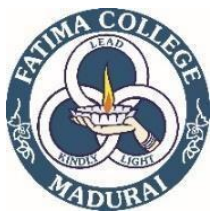**UNIT I: NATURE OF RESEARCH**   **[15 Hrs]**

Meaning of Research- Objectives of Research- Motivation in Research- Types of Research- Research approaches - Significance of Research and Scientific Method Research Process - Criteria of Good Research -Problems Encountered by Researchers in India- Plagiarism check and Ethics in Research

UNIT: II RESEARCH PROBLEM AND RESEARCH DESIGN   **[15 Hrs]**

Research Problem: Identification of the Problem – Formulation of the Problem- Criteria of a Good Research Problem. Role of Review of Literature.

Research Design: Meaning – Characteristics of a Good Research Design – Components of a Research Design – Types of Research Design.

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UNIT III: METHODS OF DATA COLLECTION [15 Hrs]

Primary Data: Mailed Questionnaire, Schedules, Interview Method, Observation and Case Study. Merits and Demerits of Primary Sources.

Census and Sample Survey – Criteria for Selecting a Sample Procedure – Different Types of Sampling.

Secondary Data: Sources of Secondary Data – Precautions in the use of Secondary Data – Merits & Demerits.

UNIT IV: FORMULATION AND TESTING OF HYPOTHESIS [15 Hrs]

Definition of Hypothesis. Role of Hypothesis – Types of Hypothesis – Criteria for useful Hypothesis – its Formulation. Procedure for Testing Hypothesis – level of significance.

UNIT V: PROCESSING OF DATA AND REPORT WRITING [15 Hrs]

Data Processing – Scaling Techniques – Likert's Scale - Tabulation – Editing – Coding – Analysis and Interpretation of Data – Precautions Interpretation – Steps in Report Writing – Format for Research Report – Preliminary, Text, Reference Material – Foot Note, Index, Bibliography.
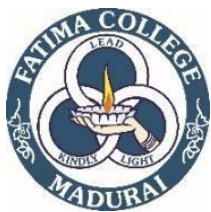
UNIT VI : DYNAMISM (Evaluation Pattern- CIA only)

Conducting Case study, Pilot Study, Sample survey, Review of Literature and Methodology, Plagiarism check.

Practical Evaluation Components using case study, Survey Reports and presentation (PPT or oral):

1. Seminar and presentation on practical research works

2. Doing individual project in research proposals

3, Collecting and writing review of articles with the above tools
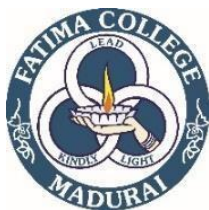
Reference Books:

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1. Donald .H. Mc Burney, "Research Methods", Thomson-Wordsworth, 5th Edition, 2003.

2. Ghosh B.N., "Scientific Method & Social Research", Sterling PublishersPvt.Ltd., New Delhi, 4th Edition 1987.

3. Goode and Hatt, "Methods and Social Research", McGraw Hill International Book Company, 23rd Printing, 1983.

4. Gopal Lal Jain,"Research Methodology – Methods tools and Techniques", Mangal Deep Publications, Jaipur 1998.

5. Kothari C.R., "Research Methodology", New Age International Publishers, New Delhi,3rd reprint Edition, 2004.

6. Sadhu & Singh, "Research Methodology in Social Sciences", Himalaya Publishing House, Mumbai, 2nd Edition,1983.

7. Santosh Gupta, "Research Methodology and Statistical Techniques", Deep and Deep Publications, New Delhi, 2001.

8. Sonachalam K.S., "Research Methodology of Social Science", Emerald Publishers, Madras, 1988.

9. Yogesh Kumar Singh and Ruchikanath, "Research Methodology", A.P.H Publishing Corporation, New Delhi 2005.

10. O.R. Krishnaswamy and M. Ranganathan, "Methodology of Research in Social Sciences", Himalaya Publishing House, New Delhi, 2006.

11. Villiam .J. Good & paul k. methods in social research hatt mcgraw hill international book company.Andrew J. Oswald "surveys in economics" black well oxford Uk Cambridge USA

    https://www.slideshare.net/DVutkarsh/research-process-and-research-design
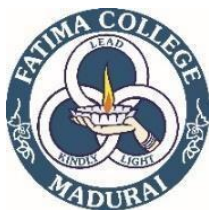
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COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand some basic concepts of research and its methodologies	**K2,K3,K4**	PSO1&PSO3
CO 2	Understand the role of selection of research problem and Select and define appropriate research problem and parameters	**K2,K3,K4**	PSO3
CO 3	Identify the sources of data collection and sampling methods to Prepare a project proposal (to undertake a project)	**K2,K3,K4**	PSO1& PSO4
CO 4	Organize and conduct research (advanced project) in a more appropriate manner to	**K2,K3,K4**	PSO2 &PSO4

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	Formulate and test hypothesis		
CO 5	Write a research report and thesis and proposal for grant and assess critically the case study, structured surveys, interviews, report writing research methods	**K3,K4,K5**	PSO5

COURSE DESIGNER:

Dr. Shobana Nelasco

Shobana Nelasco

Dr N.SHOBHANA NELESCO
Head of the Department of Economics
Fatima college, madurai

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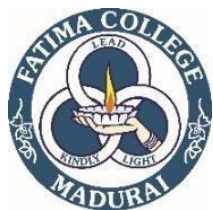Mary Land, Madurai - 625018, Tamil Nadu.

RESEARCH CENTRE OF ENGLISH

Ph. D Coursework

PROGRAM ME CODE	COURSE CODE	COURSE TITLE	CATEGORY
PhD	2020PHDL01	RESEARCH METHODOLOGY	COURSE WORK

COURSE DESCRIPTION

This course provides insights on the groundwork of research methodology and its application.

COURSE OBJECTIVES

This course makes the researcher understand the significance of research methodology and practice the right way of documentation.

UNITS

UNIT –I Introduction to Research Writing (12 HRS.)

What is Research - Selecting a Topic - Language and Style

UNIT –II Plagiarism and Research Ethics (12 HRS.)

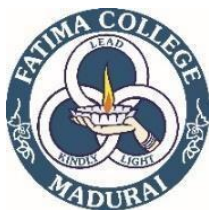Plagiarism – types – consequences – copyright – Ethical aspects of Research

UNIT –III Introduction to Documentation (12 HRS.)

Why Document Sources? – Think, Select, Organize Sources

UNIT –IV The Mechanics of Scholarly Prose (12 HRS.)

Names of Persons – Titles of Sources – Quotations – Numbers – Dates and Time - Abbreviation

UNIT –V Documentation (8 HRS.)

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Works Cited – In-text Citations – Citations in Forms Other than Print

REFERENCES:

The Modern Language Association of America. *MLA Handbook.* 8th ed., 2016.

COURSE OUTCOMES

On the successful completion of the course, the researcher will be able to:

NO.	COURSE OUTCOMES
CO 1	understand the significance of research writing
CO 2	acquire knowledge about plagiarism and academic dishonesty
CO 3	apply the different methodologies of documentation
CO 4	analyse the different types of primary, secondary and tertiary sources
CO 5	evaluate research writing

COURSE DESIGNER:

1. Staff Name :Dr. S. J. Kala

Dr. A.Roselin Mary,
Associate Professor & Head,
Research Centre of English,
Fatima College,
Madurai - 625 018.

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RESEARCH CENTRE OF TAMIL

Ph. D Coursework

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY
PhD	19PHDRMT02	RESEARCH METHODOLOGY	COURSE WORK

பாடத்திட்ட விரிவாக்கம்

ஆய்வு நெறிமுறைகளைப் பின்பற்றி ஆய்வேடு எழுதும் திறன் பெறுதல்

இலக்கு

திறனாய்வு அணுகுமுறைகளை அறிந்து அவற்றை இலக்கியத்தில் பொருத்திப் பார்க்கும் திறன் பெறுதல். ஆய்வுக் கட்டுரைகள் எழுதும் ஆற்றல் பெறுதல்.

கூறு 1 : ஆய்வியல் அறிமுகம்

1. ஆய்வாளரின் தகுதிகள்; அமையவேண்டிய பண்புகள் : ஆய்வு அறம்.

2. ஆய்வுத் தலைப்பும், சிக்கலும்.

3. கருதுகோள் விளக்கம், இயல்புகள், கருதுகோளின் வகைகள், கருத்து உருவாக்கம், ஆய்வில் அதன் பங்கு.

கூறு 2 : ஆய்வு முறைகள்

1. மரபு வழி ஆய்வு முறைகள்

2. அறிவியல் ஆய்வு முறைகள்

    1. ஒப்பீட்டு முறை ஆய்வு

    2. அமைப்பியல் முறை ஆய்வு

    3. வரலாற்று முறை ஆய்வு

    4. விளக்க முறை ஆய்வு

    5. பகுப்பு முறை ஆய்வு

கூறு 3 : ஆய்வுத் திட்டம்

1. தகவல் திரட்டல்

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2. தகவல் திரட்டப்பயன்படும் உத்திகள் - பேட்டி, கள ஆய்வு, வினாநிரல், உற்று நோக்கல்.

3. தகவல் பதிவு (Documentation)

4. தகவல்களைப் பகுத்தாய்தலும், விளக்கமும் (Analysis and Interpretation).

5. நூலகப் பயன்பாடு

கூறு 4 : குறியீடுகளின் பயன்பாடு

1. காற்புள்ளி, அரைப்புள்ளி, முக்காற்புள்ளி, முற்றுப்புள்ளி.

2. மேற்கோள் குறி அல்லது கூற்றுக்குறி.

3. இடைக்கோடு, சொல்லிடை இணைப்புக்குறி, சாய்க்கோடு.

4. உணர்ச்சிக்குறி, விட்டிசைக் குறி, அடிக்கோடு.

கூறு 5 : ஆய்வறிக்கை, ஆய்வேடு, எழுதுதல்
(Research Report and Thesis Writing)

1. ஆய்வேட்டின் அமைப்பு

2. மேற்கோள் நெறி, மேற்கோள் அறம்

3. மேற்கோள் வகைகள்

4. துணைநூற்பட்டியல் அமையும் முறை

5. எழுத்துத்திருட்டு (Plagiarism)

6. பின்னிணைப்பு :   1. விளக்கப் படங்கள்

2. வரைகட்டப் படங்கள்

3. அட்டவணைகள்

பாடநூல்கள் :

1. டாக்டர் தமிழண்ணல், டாக்டர் எம்.எல். இலக்குமணன், ஆய்வியல் அறிமுகம், அரசு வெளியீடு, சதாசிவ நகர், மதுரை - 20.

2. கு.வெ. பாலசுப்ரமணியன், ஆய்வியல் நெறிகள், உமா வெளியீட்டகம், தஞ்சாவூர்.

பார்வை நூல்கள் :

1. டாக்டர் முத்துச் சண்முகன் & டாக்டர் சு. வேங்கடராமன், இலக்கிய ஆராய்ச்சி நெறிமுறைகள், முத்துப் பதிப்பகம், மதுரை – 19.

2. க. பஞ்சாங்கம், தமிழிலக்கியத் திறனாய்வு வரலாறு, அன்னம் - அகரம் வெளியீடு, மதுரை, முதற்பதிப்பு, 1991

3. S.A. Bajbai Kitab Chen, Methods of Social Survey and Research, Kanpur, 1974.

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COURSE OUTCOMES

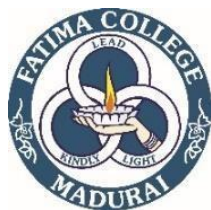On the successful completion of the course, the researcher will be able to:

NO.	COURSE OUTCOMES
CO 1	ஆய்வியல் அறிமுகம் குறித்துத் தெளிவு பெறுவர்
CO 2	ஆய்வு முறைகளைக் கற்றுக் கொள்வர்.
CO 3	ஆய்வைத் திட்டமிடும் திறன் பெறுவர்
CO 4	குறியீடுகளின் பயன்பாட்டை அறிந்து கொள்வர்
CO 5	ஆய்வறிக்கை, ஆய்வேடு, எழுதும் ஆற்றலைப் பெறுவர்

Forwarded By

Dr.K.Latha

HOD'S Signature

& Name

Fatima College

RESEARCH CENTRE OF PHYSICS
FULL TIME DOCTOR OF PHILOSOPHY

PHYSICS - SEMESTER - I

For those who joined in 2020 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PHD	19PHDCWP01	NANOSTRUCTURES FOR ENERGY STORAGE APPLICATIONS	Core	-	2

COURSE DESCRIPTION

This course emphasise the basic concepts of nanomaterials which involves its structure, properties, preparation and its applications in energy storage.
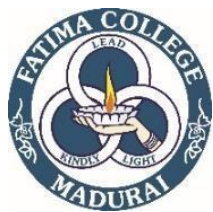
COURSE OBJECTIVES

This course provides detailed information about the magnetic nanostructures and its contribution in energy storage.

UNITS

UNIT –I INTRODUCTION TO PHYSICS OF THE SOLID STATE AND ITS MEASURING PROPERTIES

Structure : Size Dependence of Properties **-** Crystal Structures **-** Face-Centered Cubic Nanoparticles **-** Tetrahedrally Bonded Semiconductor Structures **-** Lattice Vibrations - Energy Bands : Insulators, Semiconductors, and Conductors - Reciprocal Space - Energy Bonds and Gaps of Semiconductors - Effective Masses - Fermi Surfaces - Localized Particles : Donors, Acceptors, and Deep Traps – Mobility - Excitons - Particle Size Determination ; Surface Structure

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; Microscopy - Transmission Electron Microscopy - Field Ion Microscopy - Scanning Microscopy - Spectroscopy - Infrared and Raman Spectroscopy - Photoemission and X-Ray Spectroscopy- Magnetic Resonance

UNIT –II PROPERTIES OF INDIVIDUAL NANOPARTICLES

Introduction - Metal Nanoclusters : Magic Numbers - Theoretical Modeling of Nanoparticles - Geometric Structure - Electronic Structure - Reactivity - Fluctuations - Magnetic Clusters - Bulk to Nanotransition - Methods of Synthesis : RF Plasma - Chemical Methods - Thermolysis - Pulsed Laser Methods

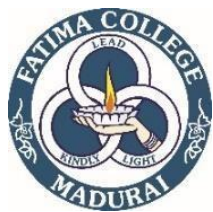## UNIT –III NANOSTRUCTURED FERROMAGNETISM

Basics of Ferromagnetism - Effect of Bulk Nanostructuring of Magnetic Properties **-** Dynamics of Nanomagnets **-** Nanopore Containment of Magnetic Particles **-** Nanocarbon Ferromagnets - Giant and Colossal Magnetoresistance **–** Ferrofluids techniques for ME effects in nanocomposites - Layered multiferroic composites : Ferromagnetic–ferroelectric composites - Direct magnetoelectric effects - Converse ME effects - Conclusions - Epitaxial multiferroic heterostructures : Introduction - $BiFeO_3$ systems-related multiferroics - Ferrite-related multiferroics - Summary and prospects- Magnetoelectric characterization techniques : Introduction ; Direct-ME effects - Converse ME effects - Scanning probe microscopy

UNIT –IV SUPERCAPACITORS: FUNDAMENTAL ASPECTS

Introduction ; Electrostatic Capacitor ; Electrolytic Capacitor ; Electrical Double-Layer Capacitor - Technological Aspects of Supercapacitors : Construction **–** Electrodes **–** Electrolyte **–** Separator- Charge Storage Mechanism : Helmholtz Model - Gouy–Chapman Theory - Stern Modification of the Diffuse Double Layer ; Equivalent Model of an EDLC ; Pseudocapacitance- Applications- Advantages and Disadvantages of Supercapacitors

UNIT –V RESEARCH ETHICS

Ethics code of American Psychological Association; Collaboration, cooperation and teamwork; Research outcome; Intellectual property right, Copy-right, patent, 4 4 fundamentals of patent
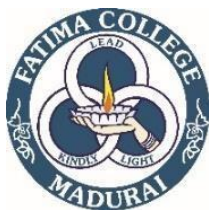
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filing; Usage of pirated version of literatures and software; Plagiarism – Case Studies, Web based verification

REFERENCES:

1. INTRODUCTION TO NANOTECHNOLOGY, Charles P. Poole, Jr. ,Frank J. Owens
   Sec 2, Sec 3, Sec 4.1, 4.2, 4.5, Sec 7

2. COMPOSITE MAGNETOELECTRICS: Materials, Structure and Applications, Gopalan Srinivasan, Shanshank Priya, Nian X.sun
   Sec 3, Sec 5.1, 5.2, 5.4, 5.5, Sec 2

3. NANOSTRUCTURED CERAMIC OXIDES FOR SUPERCAPACITOR APPLICATIONS, edited by Avinash Balakrishnan and K. R. V. Subramanian
   Sec 3

4. RESEARCH METHODOLOGY: The Aims, Practices and Ethics of Science, P. Pruzan, Springer, 2016 RESEARCH METHODS FOR SCIENCE, M. P. Marder, Cambridge University, 2011.

5. FUNDAMENTALS OF RESEARCH METHODOLOGY AND STATISTICS, Y.K. Singh, New Age, 2006

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COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand the structure and properties of nanoparticles	K1, K2	PSO1,PSO2
CO 2	Get exposed to various methods of measuring various properties	K1, K2, K3	PSO3,PSO4
CO 3	Gain knowledge about the structure and properties of metal nanoclusters, semiconducting nanomaterials, rare gas and molecular clusters and their methods of preparation	K1, K2	PSO1,PSO3
CO 4	Comprehend the basics of ferromagnetism, multiferroic composites , multiferroic heterostructures and the magnetoelectric characterization techniques.	K2, K2, K3 & K4	PSO4, PSO5
CO 5	Apply the basics of supercapacitors, their technical aspects, storage mechanisms towards device fabrication	K1, K2, K3 & k4	PSO3,PSO4& PSO5

Course Designer

Dr.A.SHEELA VIMALA RANI

Head, Research centre of physics,

Fatima College,

Madurai.

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RESEARCH CENTRE OF PHYSICS

FULL TIME DOCTOR OF PHILOSOPHY

PHYSICS - SEMESTER - I

PROGRA MME CODE	COURSE CODE	COURSE TITLE	CATE GORY	HRS/WEEK	CREDITS
	19PHDRMP02	RESEARCH METHODOLOGY	Ph.D Core	-	2

COURSE DESCRIPTION

This is a cross-curricular subject, which may be of interest for those students who are considering undertake a research career, especially in the fields of physics and technologies in physics.

COURSE OBJECTIVES

This paper highlights the various postulates of research problems, research design, writing a thesis and modern statistical methods. This helps to carry out research problem individually in a perfect scientific method.
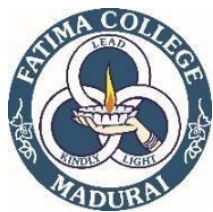
UNITS

UNIT I: INTRODUCTION TO RESEARCH

Meaning of Research-Objectives of Research-Motivation in Research-Types of Research-Research Approaches-Significance of Research-Research and Scientific Method-Importance of Knowing How Research is Done-Research Process-Criteria of Good Research-Problems Encountered by Research.

UNIT II: SOURCE MATERIAL AND REVIEWING OF LITERATURE IN THE AREA OF STUDY

Preparing a list of reading material and reference in the concerning area of specialization

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and

topic of research-Critical evaluation and review of research work carried out so for on the topic-Difficulties with reviews-Primary and secondary source of materials and methods and technique to be adopted in the collection of primary data.

UNIT III: DESIGN AND PLANNING OF EXPERIMENTS, TIME SCHEDULING

Aims and Objectives-Selecting the problem-Necessity of Defining the problem-Technique involved in Defining a problem-An illustration-Expected outcome-Methodology to be adapted-Planning of experiments for achieving the aims and objectives- Importance of reproducibility of research work.

UNIT IV : THE COMPUTER: IT'S ROLE IN RESEARCH

Introduction-The Computer and Computer Technology-The Computer System-Important Characteristics-Computer Applications-Computers and Researcher-Software Using Origin-Microsoft Office-Matlab-Mathematica etc.

UNIT V :INTERPRETATION AND REPORT WRITING

Meaning of Interpretation-Interpretation-Technique of Interpretation: Precaution in Interpretation-Significance of Report Writing-Different Steps in Writing Report-Layout of the Research Report-Types of Reports-Oral Presentation-Mechanics of Writing Research Report-Precautions for Writing Research Reports-Conclusions.

TEXT BOOK

1. C.R. Kothari, Research Methodology Methods and Techniques, 2/e, Vishwa Prakashan, 2006 2. Donald H.McBurney, Research Methods, 5th Edition, Thomson Learning, ISBN:81-315-0047- 0,2006.

BOOKS FOR REFERENCE

1. Donald R. Cooper, Pamela S. Schindler, Business Research Methods, 8/e, Tata McGraw-

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Hill Co. Ltd., 2006.

2. Fuzzy Logic with Engg Applications, Timothy J.Ross, Wiley Publications, 2nd Ed[d]

3. Simulated Annealing: Theory and Applications (Mathematics and Its Applications, by P.J. van Laarhoven& E.H. Aarts[e]

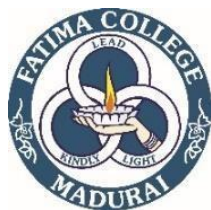4. Genetic Algorithms in Search, Optimization, and Machine Learning by David E. Goldberg

COURSE OUTCOMES

On the successful completion of the course, students will be able to

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand the basics of research and its objectives	K1,K2	PSO1,PSO2
CO 2	Gain knowledge about the theoretical research involved	K1, K2	PSO1,PSO2
CO 3	Get exposure to planning of experiments and the various methodologies involved	K1 , K2, K3	PSO2, PSO3
CO 4	Apply the use software and other computational techniques for data presentation	K1, K2, K3 & K4	PSO4,PSO5
CO 5	Understand and analyse the techniques of interpretation involved in written and oral presentations	K1, K2 , K3 & K4	PSO4,PSO5

Dr.A.SHEELA VIMALA RANI
Head, Research centre of physics,
Fatima College,
Madurai.

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THE RESEARCH CENTRE OF HOME SCIENCE

Ph.D. FOOD AND NUTRITION RESEARCH METHODOLOGY

(For those who joined in 2019 onwards)

SUBJECT CODE: 19PHDRMN02   **CREDITS: 2**

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
DSHS	19PHDRMN02	RESEARCH METHODOLOGY	Ph.D Core	-	2

COURSE DESCRIPTION:

The course provides a detailed insight on the components and types of Research, methods of data collection and sampling techniques, Hypothesis formulation, report writing, plagiarism, testing of hypothesis and statistical analysis

COURSE OBJECTIVES:

- To understand the basics of research and its objectives.
- To gain knowledge about the various research designs and sampling techniques.
- To identify various sources of information for literature review and data collection.
- To develop an understanding of the ethical dimensions of conducting applied research.

UNIT –I   RESEARCH COMPONENTS AND TYPES

Meaning of research – objectives of Research – Motivation in Research – Types of Research – Research approaches – Significance of Research and Scientific Method. Qualities of Good Research – Problems Encountered by Researchers in India. Identifying a Research, Necessary condition for Formulation of the research Problem – Criteria for Good Research Project.

UNIT – II METHODS OF DATA COLLECTION AND SAMPLING TECHNIQUES

Primary data: Observation, Experimentation, Simulation, Interviewing, Questionnaire, Projective technique. Secondary data: Published and Unpublished sources.

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Characteristics of good sample, advantages and disadvantages of sample.

Sampling techniques – Probability or random sampling, Non-Probability or Non random sampling, Sampling and non-sampling errors.

UNIT – III   FORMULATION OF HYPOTHESIS, PROCESSING OF

DATA, REPORT WRITING AND PLAGIARISM

Hypothesis – Definition, Role and Types, criteria for useful hypothesis –– its formulation. Tabulation – editing – coding – analysis and interpretation of data. Procedure for testing hypothesis.

Components or layout of a Thesis – Introduction, Review of Literature, Methodology, Results and discussion, Summary and conclusion, Bibliography, Footnotes and Appendix.

Significance of report writing – Types of report, oral presentation, Mechanics of writing and Precautions of writing research report, scientific writing-Research Ethics-Plagiarism - Meaning and significance.

UNIT –IV   TESTING OF HYPOTHESIS

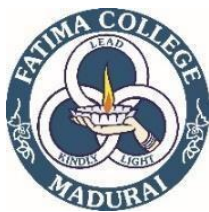Measures of central tendency- Mean, Median, Mode, and Standard deviation. Procedure for testing hypothesis, student's't' test, and 'f' test.

UNIT – V   STATISTICAL ANALYSIS

Chi-squared test, Co-efficient of correlation, Regression, ANOVA, Data result interpretation.

REFERENCES

1. Donald.H.Mc. Burney, "Research Methods", Thomson – Wordsworth, 5th Edition, 2003.
2. Ghosh B.N., "Scientific method & Social Research:, Sterling Publishers Pvt. Ltd., NewDelhi, 4th Edition 1987.
3. Goode and Hatt, "Methods and Social Research", McGraw Hill International Book Company, 23rd Printing, 1983.
4. Gopal Lal Jain, "Research Methodology – Methods tools and Techniques", Mangal Deep Publications, Jaipur, 1998.
5. Kothari C.R., "Research Methodology", New Age International Publishers, New Delhi, 3rd reprint Edition, 2004.
6. O.R. Krishnaswamy and M.Ranganathan, "Methodology of Research in Social Sciences", Himalaya Publishing House, New Delhi, 2006.
7. Sadhu and Singh, "Research Methodology in Social Sciences", Himalaya Publishing House, Mumbai, 2nd Edition, 1983.
8. Santhosh Gupta, "Research Methodology and Statistical Techniques", Deep and Deep publications, New Delhi, 2001.

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9. Sonachalam K.S., "Research Methodology of Social Science", Emerald Publishers, Madras,1988.
10. Yogesh Kumar Singh and Ruchikanath, "Research Methodology", A.P.H. Publishing Corporation, New Delhi 2005.
11. Gupta S.P. "Statistics", S. Chand & Company LTD, New Delhi, 2001.
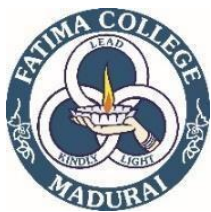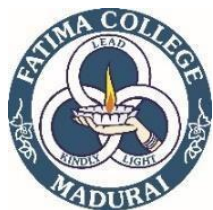12. Pillai and Bagavathi R.S.N. "Statistics", S. Chand & Company LTD, New Delhi, 2001.

Web Reference:

13. http://www.biomedcentral.com

14. http://www.tandfonline.com

COURSE OUTCOMES

On the successful completion of the course, students will be able to

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Identify the basics of research and its objectives	K1,K2	PSO1,PSO2
CO 2	gain knowledge about the methods of data collection & sampling techniques	K1, K2	PSO1,PSO2
CO 3	To organize the planning of experiments and the various methodologies involved	K2&K3	PSO2, PSO3
CO 4	To analyze the testing of hypothesis	K3 & K4	PSO4,PSO5
CO 5	To explain the different statistical techniques involved in data interpretation	K4& K5	PSO4,PSO5

COURSE DESIGNER :

STAFF NAME : Dr.K.Karthiga

Forwarded By

Dr. *Vasantha Esther Rani*
Associate Professor & Head
The Research Centre of Home Science
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(Dr.Vasantha Esther Rani)

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THE RESEARCH CENTRE OF HOME SCIENCE

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
DSHS	21PHDREPN04	RESEARCH AND PUBLICATION ETHICS	Ph.D Core	-	2

SUBJECT CODE: 21PHDREP04   **CREDITS:2**

COURSE DESCRIPTION:

This course emphasise the basic concepts of philosophy of science and ethics.

COURSE OBJECTIVES:

This course provides detailed information about research integrity and publication ethics.
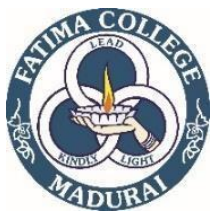
UNIT I: PHILOSOPHY AND ETHICS

Introduction to philosophy: definition, nature and scope, concept, branches. Ethics: definition, moral philosophy, nature of moral judgments and reactions.

UNIT 2: SCIENTIFIC CONDUCT

Ethics with respect to science and research. Intellectual honesty and research integrity. Scientific misconducts: Falsification, Fabrication, and Plagiarism (FFP). Redundant publications: duplicate and overlapping publications, salami slicing. Selective reporting and misrepresentation of data.

UNIT 3: PUBLICATION ETHICS

Publication ethics: definition, introduction and importance Best practices / standards setting initiatives and guidelines: COPE, WAME, etc. Conflicts of interest. Publication misconduct: definition, concept, problems that lead to unethical behaviour and vice versa,

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types. Violation of publication ethics, authorship and contributorship. Identification of publication misconduct, complaints and appeals. Predatory publishers and journals practice.

UNIT 4: PUBLICATION MISCONDUCT

Group Discussions: Subject specific ethical issues, FFP, authorship. Conflicts of interest. Complaints and appeals: examples and fraud from India and abroad.

Software tools: Use of plagiarism software like Turnitin, Urkund and other open source software tools
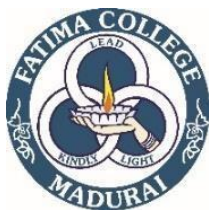
UNIT 5: DATABASES AND RESEARCH METRICS

Databases: Indexing databases. Citation databases: Web of Science, Scopus, etc.

Research Metrics: Impact Factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score. Metrics: h-index, g index, i10 index, altmetrics.

BOOKS FOR REFERENCE

1. The Ethics of Teaching and Scientific Research By Miro Todorovich; Paul Kurtz; Sidney Hook.

2. Research Ethics: A Psychological Approach By Barbara H. Stanley; Joan E. Sieber; Gary B. Melton.

3. Research Methods in Applied Settings: An Integrated Approach to Design and Analysis By Jeffrey A. Gliner; George A. Morgan Lawrence Erlbaum Associates, 2000.

4. Ethics and Values in Industrial-Organizational Psychology By Joel LefkowitzLawrence Erlbaum Associates, 2003.

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COURSE OUTCOMES

On the successful completion of the course, students will be able to

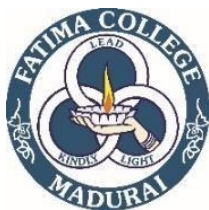| NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Outline the basics of philosophy and ethics of research	K2	PSO1,PSO2
CO 2	Explain the scientific misconducts like falsification, fabrication and plagiarism	K2	PSO1,PSO2
CO 3	Develop knowledge about the publication Ethics	K3	PSO2, PSO3
CO 4	Analyze the publication misconducts	K4	PSO4,PSO5
CO 5	Select the databases and research metrics for publication.	K5	PSO4,PSO5

COURSE DESIGNER

STAFF NAME: Dr.Vasantha Esther Rani

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Associate Professor & Head
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Forwarded By

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RESEARCH CENTRE OF COMMERCE

COURSE CODE	COURSE TITLE	HRS/WEEK	CREDITS
PHD	Research Methodology	6	4

COURSE DESCRIPTION

This course creates awareness among the students about the nature and the design of research. It also aims to give an understanding about collection of data, formulation of hypothesis and preparation of research report

COURSE OBJECTIVES

This course is designed to

1. Screen research as a potential scientific valuation of finding facts
2. Frame research design
3. Select the method of data collection and sampling technique.
4. Formulate hypothesis and interpret Hypothesis
5. Process data and prepare research report

UNIT –I INTRODUCTION TO RESEARCH METHODOLOGY   (20 HRS)

Meaning of Research- Types of Research – Research approaches – Significance of Research –

Research gap –Scientific Method - Types of research—Methods of research - Research Process –

Criteria of Good Research- Problems encountered by Researchers in India - Ethics in Research
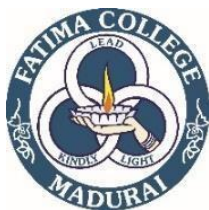
UNIT II: RESEARCH PROBLEMS AND RESEARCH DESIGN   (20 HRS)

Research problem: Identification of the problem-Formulation of the Problem- Criteria of a good Research Problem- Role of Review of literature –Research Design: Meaning-Characteristics of a good Research Design-Components of a Research Design – Types of Research Design.

UNIT III: METHODS OF DATA COLLECTIONS AND SAMPLING   (20 HRS)

Types of data-Secondary and Primary data –Secondary data : Sources of Secondary data – Precautions in the use of secondary data - Primary Data – Mailed Questionnaire , Schedules, Interview Method, Observation and case study. Merits

and Demerits of Primary sources. Census and Sample Survey – Criteria of selecting a sample Procedure - Different types of sampling,

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UNIT IV: FORMULATION AND TESTING OF HYPOTHESIS   (15 HRS)

Definition of Hypothesis - Role of hypothesis – Types of hypothesis - Criteria for useful Hypothesis – Its formulation - Procedure for testing Hypothesis

UNIT V: PROCESSING OF DATA AND REPORT   (15 HRS)

Data Processing – Scaling techniques – Likert's scale – tabulation- editing – coding- Decoding - analysis and interpretation of data – precautions in interpretation – steps in report writing – format for research report – preliminary, text, reference material – footnote, index and Bibliography.

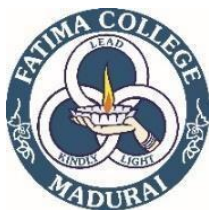## UNIT VI: DYNAMISM (Evaluation Pattern- CIA only)
Journals in Commerce, Impact factor of journals, Plagiarism.

TEXT BOOK:

Research Methodology ,C.R.Kothari& Gaurav Garg, New Age International Publishers, Latest Edition

BOOKS FOR REFERENCE:

1. **"Research Methods",** Donald.H.Mc Burney," Thomson-Wodsworth,Latest Edition

2. **Research Methodology,** Krishnaswamy. O.R&M.Ranganathan, Himalaya Publications, New Delhi, Latest Edition

3.**Fundamentals of Statistics,** Gupta. S.C, Sultan Chand & Sons, New Delhi, Latest Edition

4. **Statistical Methods,** Gupta. S.P, Sultan Chand & sons, New Delhi, Latest Edition

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COURSE OUTCOMES

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CO 1	Approach research with a bent of mind, as a scientific method of study, and comprehend on the problems faced by the researchers in India	K2,K3,K4	PSO1&PSO3
CO 2	Understand the role of selection of research problem and formulate research design	K2,K3,K4	PSO3
CO 3	Identify the sources of data collection and sampling methods	K2,K3,K4	PSO1& PSO4
CO 4	Formulate and test hypothesis	K2,K3,K4	PSO2 &PSO4
CO 5	Use data processing techniques and present research work in research report	K3,K4,K5	PSO5

COURSE DESIGNER:

S. Fatima Rosaline Mary.

Dr.S.Fatima Rosaline Mary
Forwarded By

B. Sahaya Rani

Dr. B. SAHAYARANI FERNANDO
HOD & ASSOCIATE PROFESSOR
DEPARTMENT OF COMMERCE

HOD'S Signature & Name