

Research & Development Cell, Netaji Subhas University



NETAJI SUBHAS UNIVERSITY

Estd. Under Jharkhand State Private University Act



Ph.D. Course Work Syllabus

(Effective from Academic Session 2020 Onwards)



[Signature]
Dean Academics
Netaji Subhas University
Jamshedpur, Jharkhand

Aims and Objectives:

As per UGC Minimum Standards and Procedure for Award of PhD Degree Regulations, a PhD scholar shall be required to undertake course work for a minimum period of one semester which is compulsory pre-requisite for both full time and part time candidates.

It shall consist of three compulsory papers i.e. Research Methodology, Research and Publication Ethics and Computer Applications which shall cover areas such as quantitative methods, computer basics and applications, Research ethics and review of published research in the relevant field, training, and field work and other areas found relevant to the departments concerned. The two elective departmental papers are also included which will focus on advanced level areas in the subjects concerned for enabling the students to acquire deep understanding of the concepts for the preparation of doctoral degree.

PROGRAM OUTCOME (PO):

- **Advanced Research Skills** – Develop expertise in research methodologies, data collection, and analysis techniques.
- **Critical Thinking & Problem-Solving** – Enhance analytical abilities to evaluate literature and address complex research questions.
- **Subject Matter Expertise** – Acquire in-depth knowledge of the chosen discipline and its theoretical foundations.
- **Academic Writing & Communication** – Improve skills for writing research papers, dissertations, and presenting findings effectively.
- **Ethical Research & Integrity** – Understand and adhere to ethical guidelines in research, including plagiarism and data privacy.
- **Teaching & Pedagogical Skills** – Gain experience in teaching methodologies and mentoring students.
- **Interdisciplinary & Collaborative Research** – Develop the ability to work across disciplines and collaborate with global researchers.
- **Innovation & Impactful Research** – Conduct research that contributes to scientific, technological, and societal advancements.
- **Publication & Knowledge Dissemination** – Learn to publish in reputed journals and present at national and international conferences.
- **Professional & Leadership Development** – Enhance leadership, networking, and project management skills in academia and industry.

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PROGRAM SPECIFIC OUTCOME (PSO):

- **Advanced Research Competency** – Develop expertise in formulating research problems, designing methodologies, and conducting independent research.
- **In-Depth Subject Knowledge** – Attain a deep understanding of core and emerging concepts within the chosen discipline.
- **Scholarly Writing & Publication** – Enhance skills for writing high-quality research papers, dissertations, and publishing in reputed journals.
- **Interdisciplinary Research Integration** – Apply knowledge from multiple disciplines to solve complex problems and create innovative research solutions.
- **Ethical & Responsible Research Practices** – Adhere to ethical guidelines, maintain research integrity, and ensure academic honesty.
- **Effective Communication & Presentation** – Develop the ability to present research findings clearly in conferences, seminars, and academic discussions.
- **Teaching & Mentorship Skills** – Acquire pedagogical techniques to effectively teach, mentor, and guide students.
- **Industry & Societal Impact** – Conduct research that contributes to societal development, policy-making, and industry advancements.

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Course Structure and Evaluation Scheme:

Course Code	Course Name	Credit	Internal		End Semester	Total Marks
			Assignment	Presentation		
	Common Compulsory course					
PDC-101	Research Methodology	3	20	10	70	100
PDC-102	Research and Publication Ethics	2	10	10	30	50
PDC-103	Computer Application	3	20	10	70	100
Elective-1						
PDC-104	Elective1	4	20	10	70	100
Elective-2						
PDC-105	Elective-2	4	20	10	70	100

Compulsory Paper – 1st
Name of Paper – Research Methodology
Paper Code: PDC- 101

Course Objective:

This course is designed to empower students with the essential skills and knowledge needed to conduct meaningful research in the field of education. By the end of the course, students will be able to navigate the research process with confidence, from identifying research problems to analyzing data and presenting findings.

- **Building a Strong Foundation in Research** – Understand the fundamental concepts, significance, and different types of research in education.
- **Exploring Research Designs & Methods** – Get hands-on experience with qualitative, quantitative, and mixed-method research approaches.
- **Identifying and Refining Research Problems** – Learn how to ask the right questions and shape research topics that contribute to educational improvements.
- **Mastering Data Collection Techniques** – Discover how to gather valuable information using surveys, interviews, observations, and standardized tests.
- **Analyzing Data Effectively** – Develop the skills to interpret data using statistical methods and qualitative analysis to draw meaningful conclusions.
- **Applying Research to Real-World Education** – Learn how to use research insights to shape policies, enhance teaching strategies, and improve learning outcomes.
- **Leveraging Technology in Research** – Explore modern digital tools and software for data analysis, literature review, and research documentation.
- **Developing a Critical Eye for Research** – Cultivate the ability to critically evaluate existing research for its credibility, relevance, and impact.

Unit-I: Conceptual Framework of Educational Research

- Research as a Process of Acquiring Knowledge
- Meaning, Nature and Scope of Educational Research
- Types of Educational Research: Quantitative Descriptive, Historical/Philosophical, Developmental, Casual comparative, Correlational, Experimental (Weak, true and quasi-experimental and Action Research.
- Qualitative Phenomenology, Ethnography, Case Study, Grounded Theory, Narrative Analysis. (Purpose, Characteristics, Steps with common errors committed in planning and conducting the research).

Unit-II: Planning of Good Research/Preparing and Research Proposal

- Formulation of the problem for research (Sources, Specification, Forming Research Questions, problem-analysis procedures, evaluation of the Problem)
- Building Rationale for the Study (Review of related literature, identifying the emerging trends from the review, building a strong rationale for selecting the

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problem.

- Specifying objectives and hypotheses of the Study.
- Choosing appropriate design and stating the procedure (Selecting appropriate methods, instruments/tools/techniques, deciding about the subjects for the study, conditions for conducting the study including procedures of data collection and data-processing).
- Operational definitions of the concepts and terms used (with the statements of Underlying assumptions, perceived limitations and specific delimitations of the study).

Unit-III: Basic Methods of Educational Research

- Sampling -Types and Techniques of sampling
- Hypothesis and Testing of Hypothesis -Sources of Hypotheses
 - Type of Hypotheses (Null, Directional, Statistics)
 - Characteristics of good hypothesis -Hypothesis Testing and Theory -Errors in Testing Hypothesis

Unit-IV: Tools & Techniques of Educational Research

- Tools, preparing, piloting and finalizing.
 - Tests, Tasks, Attitude Scales, Check lists, Questionnaires/ Opinionnaire, Interview Schedules for interview and observation, Inventory, Semantic Differentiate Scale.
 - Use of ICT
- Techniques Observation, Interview, focused Group Discussion, Ethnography, Document Study, Anecdotal. Role play and Simulation, Case Study

Unit-V: Preparation of Research Report

- General Guidelines: format, language style, bibliography and appendices
- Format of Research Report (Journal Article, Thesis and Dissertation, Paper at Professional Conferences)
- Preparation of the Manuscript
- Writing style
- APA Reference Style
- Preparation of summary and abstract
- Evaluating and Finalizing the Report (Including the process of converting dissertations and theses for publication as a journal article)
- Research Ethics
- Steps to avoid Plagiarism in Research

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Suggested Reading:

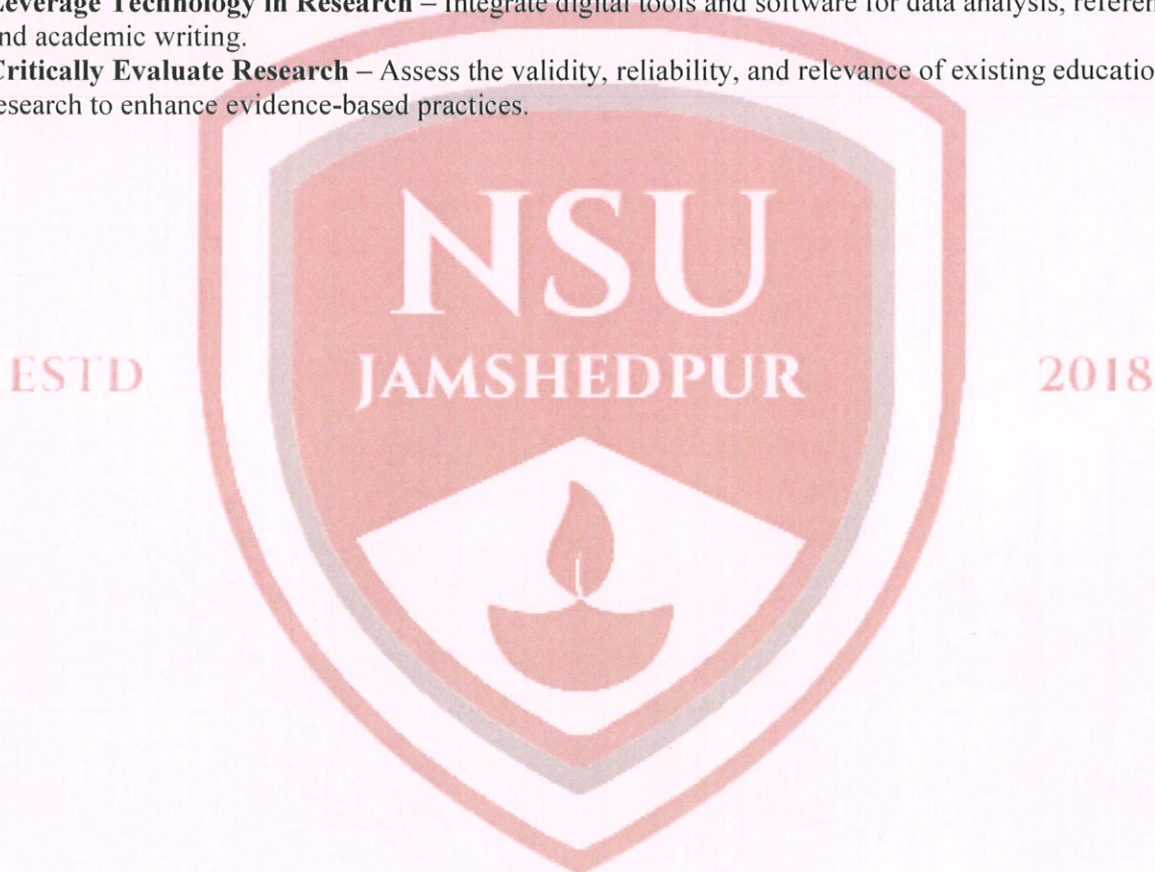
- Anfara, Vincent & Mertz Norma T. (2006). *Theoretical Frameworks in Qualitative Research*. SAGE Publication.
- Best J.W. (1986) *Research in Education*, New Delhi: Prentice Hall of India Pvt. Ltd.
- Borg, W.R. and Gall, M.D. (1983) *Educational Research - An Introduction*, New York, Longman, Inc.
- Booch, M.B. (1978) *A Survey of Educational Research*, CASE, The M.S. University Barodara.
- Broota, K.D., *Experimental design in behavioural sciences*, New age international publishing house, New Delhi.
- Chohan, L., Manion, L. & Morrison, K. (2007) *Research method in education* (6th edition) Routledge, London.
- Elliott, Jane (2005). *Using Narrative in Social Research: Qualitative and Quantitative Approaches*. SAGE Publication.
- Fraenkel, J.R., Wallen, N.E. (1983) *How to Design and Evaluate Research in Education*, Singapore: McGraw Hill, Inc.
- Gravetter, F.J. & Wallanau, C.B. (2002). *Essentials of Statistics for the Behavioural Sciences* (4th edition) Australia, Wodsworth.
- Grbich, Carol (2006). *Qualitative Data Analysis: An Introduction*. SAGE Publication.
- Gupta, Santosh (1983) *Research Methodology and Statistical Techniques*, New Delhi : Deep and Deep Publisher.
- Kerlinger, F.N. (1973) *Foundations of Behavioural Research*, New York : Holt, Rinehart and Winston.
- Kaul, Lokesh (1984) *Methodology of Educational Research*, New Delhi : Vikas Publications.
- Leary, M.R. (2004). *Introduction to Behavioural research Methods* (4th edition) Boston: Pearson Prentice hall
- Lichtman, Marilyn (2006). *Qualitative Research in Education-A User Guide*. SAGE Publication.
- Srivastava, G.N.P. (1994) *Advanced Research Methodology*, New Delhi : Radha Publications.
- Sidhu, K.S. (1987) *Methodology of Research in Education*, New Delhi: Sterling Publishers Pvt. Ltd.
- Travers, R.M.W. (1969) *An Introduction to Educational Research*, New Delhi: Sterling Publishers Pvt. Ltd.
- Van, Dalen, Debonald, B. and Meyer, William J. (1979) *Understanding Educational Research: An Introduction*, New York: McGraw Hill Co.

COURSE OUTCOME:

- **Understand the Foundations of Educational Research** – Demonstrate a clear understanding of research concepts, significance, and different types of research in education.
- **Design and Conduct Research Studies** – Develop well-structured research designs using qualitative, quantitative, and mixed-method approaches.
- **Identify and Formulate Research Problems** – Define research problems effectively and create research questions that address educational challenges.

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- **Apply Data Collection Methods** – Utilize various techniques such as surveys, interviews, observations, and standardized assessments to gather reliable data.
- **Analyse and Interpret Data** – Use statistical tools and qualitative analysis methods to process and interpret research findings accurately.
- **Maintain Ethical Research Practices** – Adhere to ethical guidelines, ensuring integrity, authenticity, and responsible handling of research data.
- **Develop Research Proposals and Academic Reports** – Write well-structured research proposals, literature reviews, theses, and scholarly papers.
- **Apply Research Findings in Educational Settings** – Use research insights to improve teaching methodologies, curriculum design, and education policies.
- **Leverage Technology in Research** – Integrate digital tools and software for data analysis, referencing, and academic writing.
- **Critically Evaluate Research** – Assess the validity, reliability, and relevance of existing educational research to enhance evidence-based practices.



Compulsory Paper – 2nd

Name of Paper - Research & Publication Ethics

Paper Code: PDC-102

Course Objective:

Understand the Fundamentals of Research Ethics – Learn the core principles of ethical research, including honesty, integrity, and transparency in academic work.

Recognize Ethical Issues in Educational Research – Identify ethical concerns such as plagiarism, data fabrication, falsification, and conflicts of interest.

Adopt Responsible Research Practices – Develop skills to conduct research ethically, including informed consent, confidentiality, and participant rights.

Ensure Ethical Data Collection and Management – Understand how to collect, store, and analyze research data responsibly while maintaining accuracy and credibility.

Understand Plagiarism and Copyright Laws – Learn how to avoid plagiarism, properly cite sources, and comply with intellectual property rights.

Navigate the Academic Publishing Process – Gain knowledge of journal selection, peer review systems, and ethical considerations in manuscript submission.

Address Predatory Journals & Misconduct – Learn how to identify predatory publishers and unethical publishing practices.

Develop Ethical Writing & Citation Practices – Master proper citation techniques, reference management, and the use of plagiarism detection tools.

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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-II: 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-III: Publication Ethics: Publication ethics: definition, introduction and importance, Best practice/ standards setting initiatives and guidelines: COPE, WAME, etc., Conflicts of interest, Publication misconduct: definition, concept, problems that lead to unethical behavior and vice versa, types, Violation of publication ethics, authorship and contributorship, Identification of publication misconduct, complaints and appeals, Predatory publishers and journals.

Unit-IV: Open Access Publication - Open Access Publication and initiatives, SHERPA/ RoMEO online resource to check publisher copy, write and self-archiving policies, software tool to identify predatory publications develop by SPPU, journal finder/journal suggestion tools viz. JANE, ELSEVIER journal finder, springer journal suggester.

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Unit-V: Publication misconduct

A. Group Discussion: Subject specific ethical issues, FFP, authorship, Conflict of interest, Complaints and appeals: example and fraud from India and abroad

B. Software tools - Use of plagiarism software like Turnitin, Urkund another open software tools.

Unit-VI: Data Base and Research Matric

A. Data base: Indexing data base, Citation Data base: web of science, Scopus, research scholar, etc.

B. Research matrix : Impact of journals as per journal citation report, SNIP, SJR, IPP, Cite score, Matrix: h-index, g- index, i 10 index, altmetric

Suggested Readings:

- Bird, A. (2006) Philosophy of science. Routledge.
- Macintyre, Alasdair (1967) A short history of ethics, London.
- P. Chaddah (2018) Ethics in competitive research: Do not get plagiarized, ISBN: 978-9387480865.
- National Academy of Science, National Academy of Engineering and institute of medicine (2009) On being a scientists: A guide to responsible conduct in research: third Edition. National academy press

Course Outcome:

- **Understand Ethical Principles** – Demonstrate knowledge of core research ethics and responsible academic conduct.
- **Identify Ethical Issues** – Recognize and address ethical concerns such as plagiarism, falsification, and conflicts of interest.
- **Ensure Integrity in Research** – Conduct research with honesty, transparency, and adherence to ethical guidelines.
- **Apply Ethical Data Practices** – Collect, store, and analyze research data responsibly while maintaining confidentiality.
- **Comply with Copyright & Plagiarism Guidelines** – Properly cite sources and avoid academic misconduct.

Compulsory Paper – 3rd

Name of Paper - Computer Applications

Paper Code: PDC-103

Course Objective:

- **Develop Basic and Advanced Computing Skills** – Understand fundamental and advanced computer applications relevant to educational research.
- **Utilize Word Processing & Documentation Tools** – Learn to format, edit, and manage research documents using software like MS Word and LaTeX.
- **Master Data Analysis Software** – Gain proficiency in statistical and qualitative data analysis tools such as SPSS, R, NVivo, or Excel.
- **Enhance Literature Review Management** – Use reference management tools like Zotero, Mendeley, or EndNote for organizing research papers.

Unit-I: Basic Knowledge of Computer – Definition of Computer, Block diagram of computer, classification of computer, role of computer in Education, Components of Computer Hardware (CPU, Monitor, Keyboard etc.), Software, Operating system(OS), Functions of OS.

Unit- II: Computer Applications for Research

Word Processing: Introduction of word processor, creating & saving documents, Formatting of document, Steps in writing report, layout of research report, types, precautions, Presentation of research report.

Data Processing: Introduction to excel, need of spreadsheet, creating, opening & saving workbook, editing worksheet, using links, applying different views, Types of functions, Use of statistical tool and their presentation in the form of charts and graphs, Use of EXCEL in synthesizing and summarizing

Power Point: Introduction of Power Point for presentation-preparation of slides, Designs & Animation, Use of Power Point in preparing the presentation on Research Work (PhD Progress Report, PhD Semester Registration, PhD Pre-Submission Seminar and PhD Defense Seminar).

Unit-III: Use of Different Software for Research– Statistical Package for the Social Sciences (SPSS) and other statistical software for data analysis.

Unit-IV: Use of Internet in Research- Introduction, Evaluating internet resources: Authority, Accuracy and objectivity, Brief note on ebooks and virtual library, UGC info net, INFLIBNET and ERNET, What is Plagiarism and how to avoid it?

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Suggested Readings:

- Sanders D. H., Computer Today, McGraw Hill, New York.
- Rajaram V., Fundamentals of computers, Prentice Hall of India, New Delhi

Course Outcome:

- **Demonstrate Proficiency in Computing Tools** – Apply fundamental and advanced computer applications in educational research.
- **Create and Format Research Documents** – Use word processing software (MS Word, LaTeX) for thesis writing and academic documentation.
- **Analyze Data Using Statistical Software** – Utilize tools like SPSS, R, or NVivo for quantitative and qualitative data analysis.
- **Manage References Efficiently** – Organize and cite research sources using Mendeley, Zotero, or EndNote.
- **Utilize Educational and E-Learning Technologies** – Integrate learning management systems (LMS) and digital teaching tools in research.
- **Manage Data with Spreadsheets** – Use Excel and Google Sheets for organizing, analyzing, and visualizing research data.

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A. K. Mehta
Dean Academics
Netaji Subhas University
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