Doctor of Philosophy (Ph.D.) in Education

Course Work Syllabus for Pre - Ph.D. in Education

SCHOLL OF EDUCATION

U.P. Rajarshi Tandon Open University

Shantipuram Sector- F, Phaphamau, Prayagraj-211021 (U.P.)

Pre- Ph.D. Course Work in Education: Structure, Course Content, Instruction and Assessment

Duration: Minimum – 1 Semester (06 Months)
Maximum- II Semester (01 Year)
Total Credits: 12

Course Structure

Paper	Paper Name	Credit	Teaching Hrs
Paper I (PCWRM-01)	**Research Methodology and Publication Ethics**	**06 Credits**	**90 Hrs**
Paper II (PCWCS-02)	**Skill Development in Educational Research, Data Analysis and Innovative Practice**	**06 Credits**	**90 Hrs**
Practicum	**Related with PCWRM-01**	**Non Credit**	**15 Hrs**
Field work	**Village Educational and Social Survey. (At list one Village)**	**Non Credit**	**----**
	Total	**12 Credits**	**195 Hrs**

Course Content

Paper I - RESEARCH METHODOLOGY AND PUBLICATION ETHICS

Course Code: PCWRM-01 **Credits: 6**

Objectives

(i) To acquaint with the nature of Research & Educational Research.

(ii) To develop awareness about the purpose and the thrust areas of Educational Research.

(iii) To develop understanding about the various perspectives of Educational Research.

(iv) To train the students to draw sample scientifically for Research studies.

(v) To sharp the abilities of analyzing information, documentation and articulation of ideas.

(vi) To familiarize with basics of philosophy of science and ethics, Research integrity, publication ethics and Hands-on-sessions.

(vii) To develop the skills to identify Research misconduct and predatory publications.

(viii) To enable for Indexing and citation databases, open access publications and Research metrics (citation, h-index Impact Factor, etc.)

(ix) To aware about the plagiarism and plagiarism tools.

UNIT 1 BASICS OF RESEARCH

Knowledge and the Approaches of Acquiring knowledge
- (deductive, inductive and scientific)

Meaning of Research
Objectives of Research
Motivation in Research
Significance of Research
Importance of knowing How Research is Done

Criteria of Good Research

UNIT 2: APPROACHES OF RESEARCH

Types of Research
Research Approaches
Research Methods versus Methodology
Research and Scientific Method
Research Process

UNIT 3 DEFINING THE RESEARCH PROBLEM

What is a Research Problem?
Selecting the Problem
Necessity of Defining the Problem
Technique involved in Defining a Problem

UNIT 4 RESEARCH DESIGN

Meaning of Research Design
Need for Research Design
Features of Good Design
Important Concepts Relating to Research Design
Different Research Design
Basic Principles of Experimental Designs

UNIT 5: REVIEW OF LITERATURE

Meaning and importance of Review of Literature
Types of research literature
Applications/uses of review of literature
Presentation of references/ bibliography

UNIT 6 SAMPLING DESIGN

Census and Sample Survey
Implications of a Sample Design
Steps in Sampling Design
Criteria of Selection of Sampling Procedure
Characteristics of a Good Sample Design
Different Types of Sample Designs

UNIT 7 TYPES AND METHODS OF DATA COLLECTION

Meaning and concept of data
Types of data- primary and secondary
Introduction of data collection
Sources of data collection
Collection of Primary Data

UNIT 8: TOOLS AND TECHNIQUES OF DATA COLLECTION

Tools of Primary data collection
-Observation
-Interview
-Questionnaire
-Schedules
-Checklist
Collection of secondary data

UNIT 9 DATA CLASSIFICATION AND TABULATION

Introduction
Classification of Data
Basis of Classification
Frequency Distribution
Tabulation of Data
Objectives of Tabulation

UNIT 10: DATA PRESENTATION

Graphical Presentation of Data
Functions of a Graph
Advantages and Limitations of Diagrams (Graph)
General and Summary Tables
Types of Diagrams
One Dimensional Diagrams
Two Dimensional Diagrams
Three-Dimensional Diagrams

UNIT 11 PROCESSING AND ANALYSIS OF DATA

Processing Operations
Some Problems in Processing
Elements/Types of Analysis

Statistics in Research
Measures of Central Tendency
Measures of Dispersion
Measures of Asymmetry (Skewness)
Measures of Relationship

UNIT 12 FUNDAMENTALS IN INFERENTIAL RESEARCH

Research Hypothesis- Meaning, types and characteristics
Formulation of hypothesis
Concept of hypothesis testing
Measuring the power of hypothesis testing
Types of errors in hypothesis testing

UNIT 13: ICT APPLICATION IN RESEARCH

Role of computer in knowledge management
Open Education Resource and Research
Using word processing software- MS Word/Latex/others, data analysis, drawing graphs and diagrams through computer
Know how of power point presentation and MS-Excel

Unit 14 PHILOSOPHY AND ETHICS

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

Unit15 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 16 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, types
Violation of publication ethics, authorship and contributor ship

Identification of publication misconduct, complaints and appeals
Predatory publishers and journals

Suggested Readings

- Agrwal, Y. P., Statistical Methods, New Delhi: Sterling Publishers Pvt.Ltd.
- Anastasi, A., Psychological Testing (4th edition), New York: Mc Millan Pub Co.
- Ebel R. L. & Frisbei D. A., Essentials of Educational Measurment, New Delhi: Prentice Hall.
- Garrett, H. E., Statistics in psychology and education, Bomnay: Allied Pacific PvT. Ltd.
- Guilford, J. P., Fundamentall statistics in psychology and education, NewYork: Mc Graw Hill Book Co.
- Kerlinger F. N., Foundations of behavioral Research, New Delhi: Surjeet Publications.
- Kothari, C. R., Quantitative Techniques, New Delhi: New Age Publications.
- Koul, L., Methodology of Educational Research, New Delhi: Vikas Publication.
- Mangal S. K and Mangal Shubhra, Research Methods in Behavioral Sciences, New Delhi: PHI Learning Pvt.
- Singh, A. K., Tests, Measurement and Research Methods in Behavioural Sciences, Patna: Bharti Bhawan.
- भटनागर, आर.पी., *मनोमितिः सांख्यिकीय आधार*, मुरादाबाद।
- गुप्ता, एस.पी. एवं अलका गुप्ता, *व्यवहार परक विज्ञानों में सांख्यिकी विधियॉं*,, इलाहाबाद : शारदा पुस्तक भवन।
- गुप्ता, एस.पी. एवं अलका गुप्ता, *अधुनिक मापन एवं मूल्यांकन*, इलाहाबाद : शारदा पुस्तक भवन।
- गैरिट, हेनरी ई., *शिक्षा और मनोविज्ञान में सांख्यिकीय*, लुधियानाः कल्याणी पब्लिशर्स।
- मुहम्मद सुलेमान, *मनोविज्ञान, समाजशास्त्र तथा शिक्षा में शोध विधियॉं*, पटनाः जेनरज बुक एजेन्सी।
- सिंह अरूण कुमार, *मनोविज्ञान, समाजशास्त्र तथा शिक्षा में शोध विधियॉं*, दिल्लीः मोती लाल बनारसी दास।

Course Contents

Paper II PCWCS- 02: Innovative Practices and Skill Development in Research

Unit- 1 Types of Educational Research-I

(i) Descriptive Research: Survey, Ex-Post facto, Case Study

(ii) Historical Research: Sources of Data, Internal and External Criticism

Unit- 2 Types of Educational Research-II

(i) Experimental Research: Experimental Designs, Internal and External Validity and Threats

(ii) Longitudinal and Cross Sectional Approaches in Educational Research:

Unit-3 Data Collection and Interpretation

(i) Qualitative analysis of data

(ii) Quantitative analysis of data

(iii) Content Analysis

(iv) Advance Technologies in Data Analysis

Unit-4 Mixed method of Educational Research

(i) Pragmatism and mixed method of Educational Research

(ii) Types of mixed research designs and sampling

(iii) Data analysis in mixed method designs

(iv) Writing mixed method research report

Unit-5 Research across the Boundaries

(i) Concept and significance of Interdisciplinary, multidisciplinary and trans disciplinary in research process

(ii) Research as an interdisciplinary process

(iii) Research as a multidisciplinary process

(iv) Research as a trans disciplinary process

(v) Meta analysis and triangulation in research

Unit-6 Reviews & Writing Skills in Research

(i) Role of library in Research process

(ii) Techniques of Research Paper Review

(iii) Techniques of Article Review

(iv) Techniques of Book Review

(v) Basic Principles of Writing Research Paper
(vi) Basic Principles of Abstract Writing
(vii) Know How of Seminar, Conference, Convention, Symposium. Workshop & Brain Storming Session

Unit-7 Research Report Writing and Dissemination

(i) Basic technicalities of Report Writing
(ii) Structure of Synopsis & Doctoral Dissertation (Thesis)
(iii) Documentation, styles of documentation, use of Footnotes or Endnote
(iv) Citation styles; Style guides with compels (Chicago, APA, MLA)
(v) How to write References and Bibliography
(vi) Synopsis: Meaning, Significance and Components
(vii) Research Proposals of Minor & Major Projects

Unit-8 Policy Research

(i) Educational Research and Policy making
(ii) Policy Oriented Research : Trends, developmental, experimental and evaluative studies
(iii) Implications of Policy Research
Preparation of Research Proposal and Writing of Research Report

Unit-9 Fundamentals of Measurement & Evaluation

(i) Variables: Meaning and its types
(ii) Data: Meaning, Types,
(iii) Organization and Representation of date
(iv) Scales of Measurement and Errors of Measurement

Unit-10 Characteristics of a Good Research Tool

(i) Characteristics of good Research Tool and Selection of an Appropriate Tool for Research
(ii) Objectivity, Reliability
(iii) Validity
(iv) Norms (Interpretability)

Unit-11 Research Publications

(i) Introduction to advance research terminology related to journals (impact factor, peer review, refereed index,)

(ii) Articles, Presentation of paper in seminars/conferences, Publishing research papers in reputed journal.

(iii) Mechanics of Styles: Punctuation, Spelling, Capitalization, Italics, Numbers, Abbreviations

Unit-12 Construction of Research Tools

(i) Planning and Item Writing

(ii) Item Analysis

(iii) Establishing Reliability, Validity and Norms

(iv) Preparation of Manual

Unit- 13 Basic Statistics in Educational Research.

(i) Parametric and Non-Parametric Statistics

(ii) Measures of Central tendency and dispersion

(iii) t- Test & F- Test

(iv) $\chi 2$. (chi - square) Test

(v) Median -Test & U- Test (Mann- Whitney)

Unit-14 Advanced Statistical Methods

(i) Analysis of Variance,

(ii) Analysis of Covariance

(iii) Analysis of Factor Analysis

(iv) Path Analysis

(v) Meta Analysis

Unit-15 Correlation and its Methods

(i) Analysis of Correlation

(ii) Partial Correlation,

(iii) Coefficient of Correlation: Bi Serial, Point Bi Serial, Phi- Coefficient, Tetra-Choric.

Unit-16 Regression and Prediction

(i) Analysis of Regression

(ii) Multiple Regression

(iii) Multivariate Regression, Factor Analysis, Structural Equation Modeling

Suggested Readings

- Bird, A., *Philosophy of Science. Routledge*.
- MacIntyre, A lasdair, *A Short History of Ethics. London*.
- P. Chaddah, *Ethics in Competitive Research: Do not get scooped; do not get plagiarized*
- National Academy of Sciences, National Academy of Engineering and Institute of Medicine. On Being a Scientist:, *A Guide to Responsible Conduct in Research, National Academies Press.*
- Resniek, D.B., *What is ethics in Research & why is it importan, National Institute of Environmental* Health Sciences, 1-10. http://www.niehs.nih.gov/Research/resources/bioethics/whatis/index.cfm
- Beall. J., *Predatory publishers are corrupting open access*, Nature, http://doi.org/ 10.1038/ 489179a
- Indian National Science Academy (INSA), *Ethics in Science Education, Research and Governance,*. http://www.insaindia. res.in/pdf/Ethics

Instruction and Assessment

i. The Pre- Ph.D. Course work will have above structure. The course work will consist of Two Theory Papers, Practicum and a field/Lab/Library work. The course work shall be of total 12 credits while Paper-I shall be of 06 credits, Paper-II 06 credits respectively with Practicum and field/Lab/Library work shall be of non credit. Each theory Paper will be of 70 marks & field/Lab/Library work shall be assessed by three grades i.e. A for Excellent, B for Good and C for Satisfactory. As such the entire Pre- Ph.D. course work shall comprise 12 credits of 200 marks in total with grade awarded for fieldwork.

ii. The calendar of events of the Pre- Ph.D. Course work programme shall be prepared by the concerned school of studies of the University each year.

iii. The information and communication technology will be extensively used as a mode of delivery system in the Pre- Ph.D. Course work programme. The concerned school of studies of the University will develop appropriate mechanism for curriculum transaction, Necessary facilities i.e. faculty, Guest faculty, Physical infrastructure, library and e-library facilities etc. shall be made available.

iv. No candidate shall be allowed to appear in the terminal examination of the Pre-Ph.D. Course work programme unless he/she puts in 80% attendance in the theory classes and submits all the assignments and field/Lab/Library work report.

v. **Assessment**

(I) **Internal Assessment : 30% Weightage**

(a) Mid Term Test/Assignment (subject wise): **15 Marks**

(b) Evaluation on the basis of Practicum/Quiz/GD/Seminar/ Conference/Discipline etc (subject wise): **15 Marks**

(II) **Terminal Exam (External Assessment)**: **70% Weightage**

The candidate has to secure at least 50% marks in each internal and external assessment separately and 55% marks in aggregate in order to be eligible to continue in the Ph.D. programme.

(III) Field/Lab/Library Work (Non-Credit) – Grade Based

Grade	Performance
A	Excellent
B	Good
C	Satisfactory

The sessional / term-end examination marks and grade for field work have to be mentioned separately on the marks sheet.

vi. Every candidate shall be declared successful in Pre- Ph.D. Course work if he/she passed in every theory paper, internal assessment, practicum and field/Lab/Library work.

vii. If a candidate of the Pre- Ph.D. Course work programme failed or failed to appear in any one or more papers of the term-end examination / internal assessment or in field/Lab/Library work, he/she may appear in the subsequent term-end examination* / internal assessment of the concerned semester for that paper/ those papers/ field/Lab/Library work. This facility shall be available up to a maximum period of two semesters (01 year) from the date of admission in the Pre- Ph.D. Course Work.