

CHAUDHARY DEVI LAL UNIVERSITY, SIRSA

(Established by the State Legislature Act 9 of 2003)

Department of Education



Syllabus and Scheme of Examination

for

Ph. D Course Work

(Effective from Session 2020-21)

Course Code	Course Title	Lecture Hours/Week	Tutorial Hour/Week	Practical Hour/Week	Total Hours/Week	Credits
PH-EDU-101	Research Methodology	4	-	-	4	4
PH-EDU-102	Data Analysis in Education	4	-	-	4	4
Generic Elective Course (Any one paper of the following)						
PH-EDU-103	Teacher Education	4	-	-	4	4
PH-EDU-104	Educational Technology	4	-	-	4	4
Common for all Ph.D. Research Scholars						
RPE-04	Research and Publication Ethics	2	-	-	2	2

RESEARCH METHODOLOGY

(PH-EDU-101)

Course Credits: 4

Total Marks: 100

External: 70

Internal: 30

Time Allowed: 3 Hours

The examiner is required to set nine questions in all. The first question will be compulsory consisting of short questions (2 marks each) covering the entire syllabus. In addition, eight more questions will be set comprising two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No. 1. Except Q.No. 1, all questions shall carry equal marks.

Objectives:

- To describe the nature, purpose, scope, areas, and types of research in education.
- To explain the characteristics of quantitative, qualitative and mixed research.
- To select and explain the method appropriate for a research study.
- To conduct a literature search and develop a research proposal.
- To explain a sampling design appropriate for a research study.
- To explain tool, design and procedure for collection of data
- To explain the importance of documentation and dissemination of researches in education.

Unit I- Research in Education: Conceptual Issues.

- Educational Research: types of educational research (basic & applied research" and action research) and their characteristics
- Research paradigms in education: quantitative, qualitative and mixed.
- Planning the research study: Identification and conceptualization of research problem, sources of research problems, research questions in qualitative and quantitative research;
- Review of the literature-purpose and resources; conducting the literature search: using databases and internet, internet search tools and quality of internet resources;
- Research question and Formulation of hypotheses.
- Preparation of a research proposal: framework of the research proposal and strategies for writing the research proposals.

UNIT-II

- Experimental Research: Nature of experimental research, variables in experimental research-independent, dependent and confounding variables; ways to manipulate an independent variable, purpose and methods of control of confounding variables
- Experimental research designs and Quasi-experimental designs
- Ex-post facto research
- Qualitative research: meaning, steps and characteristics

- Qualitative research approaches-phenomenology, ethno-methodology, narrative research, naturalistic enquiry: case studies and grounded theory.
- Historical research-meaning, significance, steps, primary information, external and internal criticism of the source.

Unit-III

- Survey studies, descriptive studies, co-relational studies, developmental studies, comparative studies, casual-comparative and correlation research; necessary conditions for causation
- Classification by Time: Cross-sectional, Longitudinal (Trend and Panel studies), and Retrospective; and classification by research objectives-Descriptive, Predictive and Explanatory
- Mixed Research: meaning, fundamentals principles, strengths limitations
- population and sample.
- Sampling: types of sampling, sampling error '

Unit-IV

- Methods of Data Collection: questionnaire, interview, schedule and observation; checklist, tests, inventories and scales: types and uses
- Standardization of test: construction and standardization of a test: item content. item format, difficulty level, discriminating index, item analysis, reliability, validity and norms.
- Research Report: how to write research report, research paper and how to evaluate the research report; Referencing Style and Plagiarism
- Ethical issues in research.

Suggested Readings:

- Bhandarkar, P.L. and Wilkinson,T.S. (2010). Methodology and Techniques of Social Research. Himalaya Publishing House, New Delhi'
- Bogdan, R.C., & Biklen, S.K. (2014). Qualitative researchfor education: an introduction to theory and methods.New Delhi: PHI Learning Pvt' Ltd'
- Creswell, J.W. (2007). Qualitative Inquiry and Research Design: Choosing Among Five Approaches. London: SAGE Publication.
- Gay, L.R. (1990). Educational Research-competenciesfor Analysis and Application (3rd Ed.), Macmillan Publishing Company, New York.
- Kaul, L. (1984). Methodology of Educational Research. New Delhi: Vikas Publication
- Kerlinger, F.N. (1973). Foundation of Behavioural Research. New York: I-lolt Rinehart & Winston
- Pathak, R. P. (20 15). Methodologyof educational research. New Delhi: Atlantic Publications
- Best J.W. and Kahn, J. V. (2006). Research in Eclucalion,9th Ed' New Delhi: Pearson Education Inc.
- Sharma, J.N.(2011). Research Methodology. New Delhi: Deep & Deep Publications Pvt. Ltd.
- Sharma, S.R (2008). Methods of educational research. New Delhi; Anmol Publications.

Data Analysis in Education

(PH-EDU-102)

Course Credits: 4

Total Marks: 100

External: 70

Internal: 30

Time Allowed: 3 Hours

The examiner is required to set nine questions in all. The first question will be compulsory consisting of short questions (2 marks each) covering the entire syllabus. In addition, eight more questions will be set comprising two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No. 1. Except Q.No. 1, all questions shall carry equal marks.

Unit I:

- Meaning and importance of statistics
- Descriptive and inferential statistics
- Organization, Analysis and Interpretation of Data
- Concept and purpose of Standard Scores, t-score and stanine scale
- Nature and Types of data, Scales of Measurement
- Measures of central tendency: meaning and uses
- Measures of variability: meaning and uses
- Graphical and Diagrammatic presentation of data
- Measures of Relative Positions: Percentile Ranks and Percentile point

UnitII:

- Normal Probability Curve (NPC) and its applications in Research: Skewness and Kurtosis
- Measures of relationships: meaning and uses
- Prediction and Linear and Multiple Regression
- Testing of Hypothesis: Null hypothesis, one tailed and two tailed test, level of significance, degree of freedom, standard error, confidence interval, type-I error and type-II error.
- Multi-variate Analysis Factor Analysis: Overall acquaintance, only basic features

Unit- III

- Parametric statistics:
t-test, ANOVA, ANCOVA & MANOVA; meaning, assumptions and applications.
- Non-parametric statistics:
chi-square, median test, Sign test, Mann Whitney U test and Kruskal Walls test;
meaning, assumptions & applications.
- Qualitative Data Analysis: Characteristics, principals and process
- Steps of Qualitative Data Analysis
- Types of Qualitative Data Analysis: Content analysis, Inductive analysis and criticism of historical data, phenomenological analysis

Unit: IV

- Computer in Educational Research:
 - Operating system, Use of Microsoft office
 - Processing data analysis, graphical presentation and preparation of documents.
 - Creating and printing a presentation, Editing and formatting worksheets, performing basic calculations, working with charts and figures
- Browsing internet for research related literature.
- Use of SPSS software in quantitative data analysis.
- Software for qualitative data analysis.

Suggested Readings:

- Creswell, J.W. (2007). Qualitative Inquiry and Research Design: Choosing Among Five Approaches. London: SAGE Publication
- Mangal, S.K. (2008). Statistics in Education and Psychology. New Delhi: Prentice-Hall of India Private Limited
- Garret, H.E(1975) Statistics in Psychology and Education, Vakils, Feffer and Simons Ltd, Bombay, India Print.
- Guilford, J.P. (1956): Fundamental Statistics in Psychology and Education, Kogkusha, Tokyo.
- Mc Call, R.B (1970): Fundamentals Statistics for Psychology: New York: Harcourt, Brace & World Inc.
- Robert, J.S (2000) : GGUM 2000 User's Guide: Versian L.O (on line) Available http://www.education.umd.edu/EDMS_tutorials/index.html.
- Sax, Gilbert (1968): Empirical Foundations of Educational Research, Englewood Cliffs, J.J.
- Siegal, Sidney (1956): Non parametric Statistics, Tokyo: McGraw Hill Kog Kusha Ltd.
- SPSS Inc (1996) SPSS: Statistical package for social sciences, Chocago : Author.
- Wingersky, M.S; Barten, M.A & Lord, F.M (1982): LOGIST User's Guide, Princeton, N.J.E Educational Testing Service.
- RUMM 2020: Rasch Undimentioned Measurement Model (RUMM 2020) For analyzing assessment and attitude questionnaire data available: <http://www.rummlab.com>.

Teacher Education

(PH-EDU-103)

Course Credits: 4

Total Marks: 100

External: 70

Internal: 30

Time Allowed: 3 Hours

The examiner is required to set nine questions in all. The first question will be compulsory consisting of short questions (2 marks each) covering the entire syllabus. In addition, eight more questions will be set comprising two questions from each unit. The students shall be required to attempt live questions in all selecting one question from each unit in addition to compulsory Question No. 1. Except Q.No. 1, all questions shall carry equal marks.

Unit-I

- Concept, nature, and scope of teacher education.
- Aims and objectives of teacher education at elementary, secondary and higher education level.
- Historical perspectives of teacher education.
- Policy perspective, recommendation of various commissions and committees and NPE, 1986, NCF-2005, NCFTE-2010
- Institutions and agencies of teacher education MoE, UGC, NCTE, NCERT and SCERT and other state level agencies of teacher education

Unit-II

- Organisation of Pre-service and in-service teacher education-Need and relevance.
- In-service teacher education–Training Approaches - Task analysis compound approach, system approach, constructivist approach, Reflective teaching.
- System Reform–Major shift in Teacher Education programme (Pre-service education – In-service).
- Transactional Strategies: Lecture cum discussion, Team teaching, Study of various reports and policies regarding teacher education, Power Point presentations, library assignments, reading of related articles on education, etc.
- Use of Technology and Media in teacher education.

Unit-III:

- Agencies for In-service teacher education programme at elementary, secondary and higher education level
- Objective, procedure, & outcomes of:
 - Orientation and refresher courses
 - Seminar and conference
 - Workshop and symposium
 - Panel discussion
- Issues and Challenges in teacher education - Quality assurance in teacher education.
- Recent trends in teacher education.

Unit-IV

- Concept of innovation in teacher education programme

- Incentive & award for innovative practice
- Micro –teaching & its steps
- Simulated skill training
- Practice teaching vs. internship
- Evaluation Strategies: Unit tests, project assignments and group-discussions.
- Objective & criteria of evaluation of teacher education programmes
- Critical evaluation of teacher education programmes

Suggested Readings:

- Allen, Dwight & Ryan , Kevin (1969): Microteaching Mass Addison –Wesley
- Buch, M.B. And Palasane, M.M.(1968) Reading In In-Service Education ,Sardar PatelUniversity,Vallabh Vidya Nagar .
- Jagaria,N.K. & Singh, Ajit (1984) Core Teaching Skill – Micro-Teaching Approach ,NewDelhi ,NCERT
- Khan ,M.S.(1983) Teacher Education In India & Abroad .New Delhi Ashish PublishingHouse.
- Mukherji ,S.N.(1968) Education Of Teachers In India , New Delhi : S.Chand & Co.
- Panda ,B.N.(2004) Teacher Education ,APH, New Delhi
- Passi ,B.K.(1972) Becoming A Better Teacher
- Siddiqui ,M.Akhtar (1991) Inservice Teacher Education ,Ashish Publishing House,New Delhi .
- Singh L.C. (1990): Teacher Education In India –A Source Book ,New Delhi ,NCERT.
- Singh ,R.P.(1993) The Challenges Of Tomorrow –A Profile Of Further Teacher Education , New Delhi Sterling Publisher Private Ltd.

Educational Technology

(PH-EDU-104)

Course Credits: 4

Total Marks: 100

External: 70

Internal: 30

Time Allowed: 3 Hours

The examiner is required to set nine questions in all. The first question will be compulsory consisting of short questions (2 marks each) covering the entire syllabus. In addition, eight more questions will be set comprising two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No. 1. Except Q.No. 1, all questions shall carry equal marks.

Unit -I

- Educational Technology Concept, Origin, Types, Components, Need and Importance of Educational Technology in Teacher Education
- Multimedia Approach, Concept, Characteristics, Types, Advantages and Limitations
- Modalities of Teaching- Teaching as different from: Indoctrination, Instruction, Conditioning and Training

Unit-II

- Communication & Teaching; Components of communication process; Barriers of communication, Principles of Effective Communication, Different Communication Channels
- Designing of instructional strategies such as lecture, team teaching, discussion, seminar and tutorials.
- Modification of teaching behavior: Micro teaching Flander's Interaction Analysis, Simulation.

Unit-III

- Programmed Instruction: Origin, Principles and characteristics
- Styles of Programming:
 - Linear
 - Branching Mathematics,
 - Computers Assisted Instruction (CAI)
 - Development of Programmed Instructional Material
 - Organising teaching and learning at different level: Memory, understanding and Reflective

Unit-IV

- Models of Teaching Different Models of Teaching like - Concept Attainment Model, Inquiry Training Model, Non directive Teaching, Classroom Meeting, Mastery Learning Model, Direct Instruction, Role Playing, Group Investigation
- Researches in Educational Technology.
- Future priorities in Educational Technology
- Emerging trends in Educational Technology
- Resource Centres for Educational Technology

Suggested Readings:

- Abbott, C. (2001). ICT: Changing Education. UK: Psychology Press.
- Bhushan, A. & Ahuja, M. (1992) Educational Technology, Meerut, Vikas Publication.
- Chauhan S.S.: A Text Book of Programmed Instruction. (2nd Ed.). New Delhi/Bangalore, Sterling Publishers Pvt. Ltd.
- C.S. Shukla: Essential of Educational Technology and Management, Dhanpatrai Pub. Company Pvt. Ltd. New Delhi
- Das, R.C. (1993) Educational Technology: A Basic Text, New Delhi, Sterling Publishers.
- Flanders, Ned A. (1978) Analyzing Teaching Behaviour, London, Addison Wasley
- Joyce, B. Weil, M. & Showers, B. (1985): Models of Teaching, Prentice Hall of india, Pvt. Ltd.
- Khan, N. (2004). Educational Technology. New Delhi: Rajat Publications. 80
- Kumar, K.L. (2008): Educational Technology, New Age International Pvt. Ltd. Publishers, New Delhi (Second Revised Edition).
- Madan Lal, Essentials of Educational Technology, Anmol Publications.
- Mambi, Adam J. (2010). ICT Law Book: A Source Book for Information and Communication Technologies. Tanzania: Mkukina Nyota Publishers Ltd.
- Mangal, S.K., & Mangal, Uma (2010). Essentials of Educational Technology. New Delhi: PHI Learning Pvt. Ltd.

**Common for All PhD research scholars
RPE-04 (Research and Publication Ethics)**

Credits: 2
Time: 3 Hrs.

Marks: 50
Theory: 30
IA: 20

Note for the paper setter: The question paper will consist of nine questions in all. The first question will be compulsory and will consist of five short questions of 2 marks each covering the whole syllabus. In addition, eight more questions will be set unit-wise comprising of two questions from each of the four units. The candidates are required to attempt four more questions selecting at least one question from each unit.

Course Objectives:

1. Provide students with the fundamental knowledge of research methods and design used in.
2. Facilitate students understanding for how using valid scientific methods of measurement and scaling can improve and create knowledge
3. Analyse and interpret methods of quantitative and qualitative data
4. Guide and mentor students in developing, completing, writing, and presenting a valid and ethical research report
5. To know about the University Grants Commission (UGC) has launched a Consortium of Academic and Research Ethics (CARE) to “identify, continuously monitor and maintain” UGC-CARE Reference List of Quality Journals across disciplines

Course Outcomes:

1. Students will be familiar with the fundamental knowledge of basics of philosophy of science and ethics, research integrity, publication ethics.
2. Students will know about predatory journals/pseudo journals and fabrication of data
3. Understand the Subject specific ethical issues, FFP, authorship, Conflicts of interest, Complaints and appeals: examples and fraud from India and abroad
4. Understand the major and authentic databases of reputed journals like Web of Science, Scopus, PubMed, ICI
5. Understand the importance of SCI impact factor, SNIP, SJR, IPP, h-index, g index, i10 index

UNIT-I

Introduction to philosophy: definition, nature and scope, concept, branches, Ethics: definition, moral philosophy, nature of moral judgements and reactions, Ethics with respect to science and research, Intellectual honesty and research integrity, Scientific misconduct: Falsification, Fabrication, and Plagiarism (FFP), Redundant publication: duplicate and overlapping publications, salami slicing, Selective reporting and misrepresentation of data

UNIT-II

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 behavior and vice versa, types, Violation of publication ethics, authorship and contributorship, Identification of publication misconduct, complaints and appeals, Predatory publishers and journals, Open access

publications and initiatives, SHERPA/ROMEO online resource to check publisher copyright & self-archiving policies.

UNIT-III

Software tool to identify predatory publications developed by SPPU, Journal finder/ Journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Suggester, etc., Subject specific ethical issues, FFP, authorship, Conflicts of interest, Complaints and appeals: examples and fraud from India and abroad, Use of plagiarism software like Turnitin, Urkund and other open source software tools

UNIT-IV

Indexing databases; Citation databases: Web of Science, Scopus, Pubmed, ICI etc., Impact Factor of journal as per Journal Citation Reports. SNIP, SJR, IPP: Cite Score, Metrics: h-index, g index, i10 index, altmetrics.

References:

1. Bird, A. (2006). Philosophy of Science. Routledge.
2. MacIntyre, Alasdair (1967) A Short History of Ethics. London.
3. P. Chaddah, (2018) Ethics in Competitive Research: Do not get scooped; do not get plagiarized, ISBN:978-9387480865
4. National Academy of Sciences, National Academy of Engineering and Institute of Medicine. (2009). On Being Scientist: A Guide to Responsible Conduct in Research: Third Edition. National Academies Press.
5. Resnik, D. B. (2011). What is ethics in research & why is it Important. National Institute of Environmental Health Sciences, 1-10. Retrieved from
6. <https://www.niehs.nih.gov/research/resources/bioethics/whatis/index.cfm> Beall, J. (2012). Predatory publishers are corrupting open access. Nature, 489(7415), 179-179. <https://doi.org/10.1038/489179a>
7. Indian National Science Academy (INSA), Ethics in Science Education, Research and Governance (2019). ISBN:978-81-939482-1-7. <http://www.insaindia.res.in/pdf/EthicsBook.pdf>