MAHARSHI DAYANAND UNIVERSITY ROHTAK
(A State University established under Haryana Act No.XXV of 1975)
'A+' Grade University Accredited by NAAC

DEPARTMENT OF EDUCATION
SCHEME OF EXAMINATIONS FOR Ph.D. COURSE WORK
(EDUCATION)
W.E.F. 2020-21

Program Specific Outcomes:
The students would be able to

PSO1 Familiarize with concept of research, educational research, types and methods of educational research, identifying the research problems, various sources of review of related literature and hypothesis.

PSO2 Understand tools, techniques of collection of data, samples, population, types of sampling, writing of research report and evaluation of research report.

PSO3 Understand practical orientation involving selection of appropriate data analysis techniques, Statistical Measures of central tendency dispersion and relative positions.

PSO4 Understand uses of Non-Parametric test, Parametric test, normal probability curve and Factor Analysis.

PSO5 Understand fundamentals of computer, Net working, Internet, application software, multimedia, E-Book, Virtual library and concept of plagiarism

PSO6 write research report and research paper.

Programme Structure

The **Ph.D. Education Course Work** shall comprise of one Semester in which there shall be three compulsory theory papers.

1st Semester (Scheme of Examinations)

Sr. No.	Paper Code	Nomenclature of the Paper	Theory	Internal Assessment	Max Marks	Time	Credit
1	20EDPHD11C1	Paper-1 Research Methodology	80	20	100	3 Hrs	4
2	20EDPHD11C2	Paper-II Statistics inEducation	80	20	100	3 Hrs	4

3	20EDPHD11C3	Paper-III Computer Applications	80	20	100	3 Hrs	4
4	20MPCC1	Paper-IV Research and Publication Ethics	40	10	50	3	2

Grand Total= 350

INTERNAL ASSESSMENT

There shall be an internal assessment of 20 marks in each theory paper of 100 marks and 10 marks for the paper of marks 50.Internal assessment in each paper of 100 marks will be based on two assignments and one seminar presented by each candidate and their participation. 65 percent attendance is compulsory.

Syllabus of Ph.D. Course Work (Education)
2020-21

Paper Code (20EDPHD11C1)

PAPER-I: RESEARCH METHODOLOGY

Time: 3 Hours — Max. Marks: 100
Credits: 4 — Theory: 80
Internal Assessment: 20

Course Outcomes:

The students would be able to

CO1 Understand the concept of research, educational research and emerging trends in Educational Research. Define meaning, nature, scope, and purposes of Educational Research. Also Understand the use of different tools and techniques in educational research

CO2 Understand the types and methods of educational research, Illustrate meaning, criteria and sources for identifying the research problems. Describe the writing of research report and evaluation of research report

CO3 Understand describe the importance and various sources of review of related literature and hypothesis; explain the types, tools and techniques of collection of data; able to define concept of samples and population and steps and types of sampling

CO4 Use the library, Internet services and other sources of knowledge for educational research Purposes.

Note: Paper setters will set 9 questions in all, out of which students will be required to attempt 5 questions.

- Q. No. 1 will be compulsory and will carry 16 marks. It will comprise of 4 short answer type notes of 4marks each to be selected from the entire syllabus.
- Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. Long answer questions will carry 16 marks each.

COURSE CONTENTS

Unit-1 Formulation of Research Problem

- Sources of identifying the problem
- Review of Related Literature : purpose and significance for a researcher
- Hypothesis – Importance, Characteristics and Formulation of Hypothesis, Forms of Hypotheses
- Hypotheses in various types of Research

Methods of Educational Research and where to use these

- Philosophical Research
- Historical Research
- Descriptive Research
- Experimental Research

Unit-2 Nature and Scope of Educational Research

- Sources of Knowledge and Research
- Scientific Inquiry and Theory Development
- Nature and types of Educational Research
- Scope of Educational Research

Sampling

- The concept of Population
- Characteristics of a good Sample
- Methods of Sampling
- Choice of Sampling Method

Unit-3 Data Collection

- Characteristics of a Good Research Tool – Validity, Reliability, Usability
- Types of Tools and Techniques and their Uses:-
  i. Questionnaire
  ii. Interview
  iii. Rating Scale
  iv. Attitude Scale
  v. Tests- Intelligence, Aptitude, Creativity, Achievement
  vi. Projective Techniques
  vii. Observation
  viii. Socio-metric Techniques
  ix. Non-Projective Techniques

Unit-4

Qualitative Research

- Meaning, Characteristics and Themes of Qualitative Research
- Qualitative Research Strategies: Document or Content Analysis, Case Study, Ethnographic Studies
- Data Collection Techniques
- Data Analysis in Qualitative Research

Developing a research proposal Reporting Research

- The Beginning

- The Main Body

- The End

- How to Evaluate a Research Report?

Selected Readings

- Ary. D., Lucy C. Jaeobs and A, Razavich (1972) Introduction to Research in Education, New York: Holt, Rinehart and Winston Inc
- Best, John W and Kahn, James V (2001), Research in Education, New Delhi: Prentice Hall of India.
- Buch, M.B (1991) Surveys Research in Education, New Delhi, NCERT
- Coffey, A and At Kinson, P (1996), Making Sense of Qualitative Research: Complementary Research Strategies, Thousand Oaks, CA: Sage
- Desai H.G. (1979) Style manual for dissertation thesis, Rajkot Saurashtar University.
- Denzin, N.K. and Lincoln, Y.S. (1994) Introduction: Entering the Field of Qualitative Research in N.K. Denzin and Y.S. Lincoln (Eds), Handbook of Qualitative Research Thousand Oaks, CA: Sage, 1-17
- Edward, A.L (1957) Techniques of Attitude Scale Construction, New York: Appleton Century Crofts Inc
- Festinger, U & Katz, Research Method in Behavioural Science, New York Bold Dryen
- Finchjanel (1986) Research and Policy the use of qualitative methods in Social Education Research Falmer Press
- Fox, David J (1969) The Research Process in Education, New York: Holt, Rinchart and Winston Inc
- Good, Center V (1966) Essentials of Educational Research: Methodology and Design, New York: Applenton Century Crafts Inc

- Kerlinger, Fred N (1978) Foundation of Behavioural Research, New Delhi: Surneet Publication
- Koul, Lokesh (2007) Methodology of Educational Research, Vikas Publishing House Pvt Ltd., Third Revised Edition
- Turabian, K. L (1973), A Manual for Writers of Term Papers, Theses and Dissertation, Chicago, University of Chicago Press.

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Paper Code (20EDPHD11C2)

PAPER-II: STATISTICS IN EDUCATION

Time: 3 Hours | Max. Marks: 100
Credits: 4 | Theory: 80
Internal Assessment: 20

Course Outcomes:

The students would be able to

CO1 Differentiate different types of data i.e. Quantitative data & Qualitative data, types of Statistical Measures and practical orientation involving selection of appropriate data analysis techniques.

CO2 Understand explain and illustrate the concept & application of measures of central tendency dispersion and relative positions, computation & uses of Non-Parametric test i.e. Chi-square Test & Sign Test and Parametric test i.e. Z-Test & T-Test.

CO3 Understand illustrate the meaning & significance of normal probability curve.

CO4 Understand explain the concept of Factor Analysis.

Note: Paper setters will set 9 questions in all, out of which students will be required to attempt 5 questions.

- Q. No. 1 will be compulsory and will carry 16 marks. It will comprise of 4 short answer type notes of 4 marks each to be selected from the entire syllabus.
- Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. Long answer questions will carry 16 marks each.

COURSE CONTENTS

Unit-I: Analysis of Data

- Types of Data
- Quantitative Data
  i) Tabulation of Quantitative Data
  ii) Analysis of Quantitative Data
    - Graphical Representation
    - Measures of Central Tendency
    - Measures of Variability
    - Measures of Relationship

  iii) Qualitative Data
    - Analysis of Qualitative Data
    - Criticism of Historical Data
    - Content Analysis
    - Inductive Analysis

Unit-2: Statistical Testing of Hypothesis-I

- Classification of Statistical Test: Parametric and Non-Parametric Tests
  i) Parametric Test
    - Sampling Distribution of Means
      a) Large Samples
      b) Confidence Interval
      c) Levels of Significance
      d) Small Samples
      e) Degree of Freedom

  ii) Application of Parametric Test
      a) Application of Z-Test b)Application of T-Test

Unit-3: Statistical Testing of Hypothesis-II

- Application of F-test (One Way and Two Way ANOVA)
- Non-Parametric Tests and Application of Chi-Square Test
- Non-Parametric Tests
  a) When to use Parametric and Non-Parametric Tests b)Chi-square
    -Use of Chi-square as a Test of 'Goodness of Fit'
    -Use of Chi-square
  c) Contingency Coefficient
  d) Sign Test
  e) Median Test

Unit-4:

- The Normal Curve and its Application
- Analysis of Covariance (One Way ANCOVA) Concept, Assumption and Uses
- Factor Analysis: Extraction of Centroid Factors and Orthogonal Rotation

Selected Readings

- Edwards, A.L.(1967) Statistical Methods for the Behavioural Sciences, New York: Holt, Rinehart and Winston
- Garrett, H.E (1979): Statistics in Psychology and Education, 9th Indian Reprint Bond bay, Vakils, Feffer and Simon.
- Guilford, J.P (1973) Fundamental Statistics in Psychology and Education, New York, McGraw Hill Book Company.
- Lindquist, E.F (1970) Statistical Analysis in Educational Research, New Delhi, Oxford and IBH
- Siegel, Sidney (1956), Non-Parametric Statistics for the Behavioural Sciences, International Student Edition, New York, McGraw Hill.
- Walker, H.M and J. Lev (1965) Statistical Inference, Calcutta, Oxford and IBH Publishing House.

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Paper Code (20EDPHD11C3)

PAPER-III: COMPUTER APPLICATIONS

Time: 3 Hours | Max. Marks: 100
Credits: 4 | Theory: 80
Internal Assessment: 20

Course Outcomes:

The students would be able to

CO1 The students would be aware about fundamentals of computer hardware and software, Understand the basics & types of computer.

CO2 Understand and able to use of different types of application software i.e. MS-word, MS-Excel etc.

CO3 Understand the meaning, Scope, tools and use of multimedia.

CO4 Develop Understanding about Net working, Internet, E-Book and Virtual library.

CO5 Understand analyze the concept of plagiarism.

Note: Paper setters will set 9 questions in all, out of which students will be required to attempt 5 questions.

- Q. No. 1 will be compulsory and will carry 16 marks. It will comprise of 4 short answer type notes of 4 marks each to be selected from the entire syllabus.
- Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. Long answer questions will carry 16 marks each.

COURSE CONTENTS

Unit-I: Computer Basics

- History of Computers: Types of Computer, Flow Diagram of Computer and its components
- Operating system: Meaning, Need Types and Functions
- Artificial Intelligence and Education.

Unit-II: Net working and Internet

- Computer Networking and Education, Internet, Internet tools, E-mail, Evaluating Internet Resources
- Browser (Basics)

- Visiting Web sites

Unit-III: Application Oriented Information

- MS- Word-Introduction of word processor, creating & saving documents.
- MS-Excel-Introduction to excel, need of spreadsheet, creating, opening & saving workbook, editing worksheet, using links, applying different views, Types of functions.
- MS-Power Point – Introduction of slides, speaker notes, media clips, graphs, Picture, web pages, adding different kind of slides, working with PowerPoint, inserting text objects, formatting Text.

Unit-IV: Educational Multimedia

- Multimedia-Meaning, Scope, Tools and Use of Multimedia in Education
- E-books and virtual library
- What is Plagiarism and how to avoid it?

Selected Readings

- Cox, J. And Urban, P. "Quick Course in Microsoft Office. Galgotia Publications, NewDelhi, 1990.
- Jain, Satish: "Introduction to Computer Science and basic Programming." BPB Publications,New Delhi, 1990.
- Rajaraman, V., "Fundamental of Computers", Prentice Hall of India, New Delhi, 1996.
- Saxena, S., "A First Coursein Computers", Vikas Publishing House Pvt. Ltd., New Delhi, 1998.
- Sinha, P.K. "Computer Fundamentals: BPB Publications, New Delhi, 1990. Taneenbaum, A.S. "Computer Networks", Prentice Hall of India, New Delhi,1998.

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Paper Code : 20CCPH11C1

PAPER-IV RESEARCH & PUBLICATION ETHICS *

Time: 3 Hours | Max. Marks: 50
Credit: 2 | Theory: 40
Internal Assessment: 10

Note: The examiner has to set a total of nine questions (two from each unit and one compulsory question consisting of short answer from all units. The candidate has to attempt one question each from each unit along the compulsory question (5 x 8 = 40 marks)

Course Objectives:

1. To study the philosophy of ethics
2. To study the scientific conduct of research
3. To study the publication ethics
4. To know about various journal citation databases
5. To know the importance of quality publications

Course Outcomes:

By completion of course the student is able to

1. Ethics in conduct of scientific research
2. Know the scientific misconducts
3. How to avoid plagiarism and what are the penalties of plagiarism
4. Know the quality of research publications
5. Write research and review articles.

Unit - I

PHILOSOPHY AND ETHICS

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

SCIENTIFIC CONDUCT

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

Unit - II

PUBLICATION ETHICS

1. Publication ethics: definition, introduction and importance
2. Best practices / standards setting initiatives and guidelines: COPE, WAME, etc.
3. Conflicts of interest
4. Publication misconduct: definition, concept, problems that lead to unethical behavior and vice versa, types
5. Violation of publication ethics, authorship and contributorship
6. Identification of publication misconduct, complaints and appeals
7. Predatory publishers and journals
8.

Unit - III

DATABASES AND RESEARCH METRICS

(A) Databases

1. Indexing databases
2. Citation databases: Web of Science, Scopus, etc.

(B) Research Metrics

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

Unit - IV

Practice

OPEN ACCESS PUBLISHING

1. Open access publications and initiatives
2. SHERPA/RoMEO online resource to check publisher copyright & self-archiving policies
3. Software tool to identify predatory publications developed by SPPU
4. Journal finder/journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggested, etc.

PUBLICATION MISCONDUCT

(A) Group Discussions

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

(B) Software tools (2 hrs.) :Use of plagiarism software like Tumitin, Urkund and other open source software tools

References:

1. Bird, A. (2006). Philosophy of Science, Routledge
2. P. Chaddah (2018) Ethics in Competitive Research: Do not get scooped; do not get plagiarised.
3. Indian National Science Academy (INSA), Ethics in Science Education, Research and Governance (2019).
4. Beall, J (2012), Predatory publishers are corrupting open access. Nature, 489(7415),179.
5. National Academy of Sciences, National Academy of Engineering and Institute of Medicine (2009). On being a Scientist: A guide to Responsible Conduct in Research, Third Edition, national Academic press.

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