

SYLLABUS FOR PH.D. COURSE WORK

PAPER 1: Research Methodology

Program: Ph.D	MM : 75
Period /Week Credit : 3 L:3 T: 0 P:0	Duration of Exam: 3 hrs

Learning Objectives: The objective of the coursework is to-

- Provide students with the fundamental knowledge of research methods and design used in.
- Facilitate students understanding for how using valid scientific methods of measurement and scaling can improve and create knowledge.
- Analyse and interpret methods of quantitative and qualitative data.
- Guide and mentor students in developing, completing, writing, and presenting a valid and ethical research report.

Detailed Curriculum

Module I – Foundations of Research	<ul style="list-style-type: none"> • Meaning and Nature of Research • Types of Research -Exploratory, Descriptive, & Causal research, Experimental • Formulation of research problem and hypotheses • Identification of variables • Review of existing literature • Research Design
Module II – Measurement and sampling	<ul style="list-style-type: none"> • Measurement scales- Nominal Scale, Ordinal Scale, Interval Scale, Ratio Scale, Criteria for good measurement, attitude measurement – Likert’s Scale, Semantic Differential Scale, Thurstone-equal appearing interval scale, Comparative Rating Scale, Non Comparative Rating Scale. • Ranking and Rating Scales • Sampling –types, frames, unit, sample size and sampling errors • Methods of Sampling- Random sampling and non-random sampling
Module III-Methods of Data Collection –	<ul style="list-style-type: none"> • Field study

Quantitative methods	<ul style="list-style-type: none"> • Experimental methods • Survey and web survey methods • Development of scales/questionnaire/schedules/tests • Formulation of questions and their testing • Reliability and validity
Module IV-Methods of Data Collection – Qualitative methods	<ul style="list-style-type: none"> • Observational methods • Focus Group discussions • Case Studies • Content analysis • Content and Narrative • Ethnography
Module V- Research Report	<ul style="list-style-type: none"> • Report writing • Intellectual property reporting • Structure of Thesis • References writing • Testing plagiarism • IPR Filing • Ethical issues in research

Internal assessment : 25 marks

External Assessment: Written Question Paper- 75 marks

Suggested Readings

- Aaker, David A; Kumar,V and George S. (1999) Marketing Research, Sixth Edition, John Wiley And Sons
- Bryman, Alan & Emma Bell (2007) Business Research Methods , 2ed, Oxford Press.
- Chadha, Narender K (2016) 5th Applied Psychometry. Sage : New Delhi
- Dipak Kumar Bhattacharyya (2006) Research Methodology Excel Books
- David VThiel (2001) Research methods for Engineers. Cambridge Press
- Kothari, C.R. (2005) Research Methodology New Age Publishers
- Michael P Marder (2004) Research Methods for Science. Oxford Press
- Murthy,S.N. and U.Bhojanna(2008) Business Research Methods Excel Books
- Neuman, W. Lawrence. 2000. Social research methods: qualitative and quantitative approaches. Boston: Allyn and Bacon.

Note: Latest references will be added by the teaching faculty during the class

PAPER –II :Quantitative Techniques

Program: Ph.D	MM : 75
Period/week L:2, T:0 P:2	Credits 3
Duration of Exams: 3 hrs	

Learning Objectives: The objective of the coursework is to-

- Introduce the basic statistics used in research.
- Understand the univariate and bivariate methods of statistical analysis in research.
- Comprehend multivariate methods involving correlation, regression and meta-analysis and its application in research.
- Use SPSS, MS Excel to analyse data, and interpret results obtained during analysis.

Module I: Univariate and inferential Statistical Techniques	<ul style="list-style-type: none"> • Central tendency and dispersion • Graphical representation of data • Hypothesis formulation and testing • Parametric & Non Parametric methods-t-test, F -test, Chi Square, Mann Whitney U test
Module II- Bivariate Methods	<ul style="list-style-type: none"> • Correlation analysis-Pearson, Spearman, Bi serial, point bi serial • Partial and multiple Correlation • Non-linear correlation • Tetrachoric and Phi • Regression Analysis: Linear
Module III- Multivariate Methods	<ul style="list-style-type: none"> • Factor analysis • Discriminant Analysis • Multiple and logistic regression • Conjoint analysis • Meta-Analysis
Module IV- Decision Analysis	<ul style="list-style-type: none"> • Decision Analysis-Introduction • Structural equation modelling • Time series analysis
Module V- Application of Computers	<ul style="list-style-type: none"> • Application of SPSS • MS Excel • Web Search

Internal assessment: 25 marks

External Assessment: Written Question Paper- 60 marks

Practical marks (15 marks): This will be mainly based on unit V plus practical assignment given during the class and will be evaluated by the teaching faculty.

Suggested readings:

1. Aczel Amir D (2003) Complete Business Statistics, 6thed. New Delhi: Tata McGraw Hill
2. Chadha, N.K. (1990) Statistical methods for Behavioural and Social Sciences. New Delhi: Reliance
3. Montgomery, Douglas C. (2007), 5/e, Design and Analysis of Experiments, (Wiley India)
4. Montgomery, Douglas C. &Runger, George C. (2007), 3/e, Applied Statistics & Probability for Engineers (Wiley India)
5. Rajaram, R :Basic Computer Science and Communication Engineering

Note: Latest references will be added by the teaching faculty during the class

PAPER –III :SUBJECT BASED RESEARCH METHODOLOGY

Program: Ph.D	MM : 75
Period/week L:3, T:0 P:0	Credits 3
Duration of Exams: 3 hrs	

Internal assessment: 25 marks

External Assessment: Written Question Paper- 75 marks

To be taken by individual supervisors according to the subject and research area of their respective scholars.

PAPER IV: Research and Publication Ethics

Program: Ph.D	MM : 75
Period /Week L:3 T: 0 P:0	Credit : 2
Duration of Exam: 3 hrs	

Learning Objectives: The objective of the coursework is to-

- Provide students with the fundamental knowledge of basics of philosophy of science and ethics, research integrity, publication ethics.
- Hands-on sessions are designed to identify research misconduct and predatory publications.
- Indexing and citation databases, open access publications, research metrics (citations, h-index, Impact Factor etc).
- Guide and mentor students in presenting plagiarism tools for a valid and ethical research report.

Detailed Curriculum and Course structure

PHILOSOPHY AND ETHICS	○ Introduction to philosophy: definition, nature and scope, concept, branches.
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	<ul style="list-style-type: none"> ○ Ethics: definition, moral philosophy, nature of moral judgments and reactions.
SCIENTIFIC CONDUCT	<ol style="list-style-type: none"> 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
RPE 03: PUBLICATION ETHICS	<ol style="list-style-type: none"> 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 contributor ship 6. Identification of publication misconduct, complaints and appeals 7. Predatory publishers and journals <p>PRACTICE</p>
OPEN ACCESS PUBLISHING	<ol style="list-style-type: none"> 1. Open access publications and initiatives. 2. SHERPA/ROMEIO 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 Suggester, etc.
PUBLICATION MISCONDUCT	<p>A. Group Discussions Subject specific ethical issues, FFP, authorship Conflicts of interest Complaints and appeals: examples and fraud from India and abroad.</p> <p>B. Software tools Use of plagiarism software like Turnitin,</p>

	Urkund and other open source software tools
DATABASES AND RESEARCH METRICS	<p>A. Databases</p> <ol style="list-style-type: none"> 1. Indexing databases 2. Citation databases: Web of Science, Scopus, etc. <p>B. Research Metrics</p> <ol style="list-style-type: none"> 1. Impact Factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score. 2. Metrics: h-index, g index, i10 index, altmetrics.

Internal assessment: 25 marks

External Assessment: Written Question Paper- 75 marks

Suggested Readings

- The Ethics of Teaching and Scientific Research By Miro Todorovich; Paul Kurtz; Sidney Hook.
- Research Ethics: A Psychological Approach By Barbara H. Stanley; Joan E. Sieber; Gary B. Melton
- Research Methods in Applied Settings: An Integrated Approach to Design and Analysis By Jeffrey A. Gliner; George A. Morgan Lawrence Erlbaum Associates, 2000
- Ethics and Values in Industrial-Organizational Psychology By Joel Lefkowitz Lawrence Erlbaum Associates, 2003.

Note: Latest references will be added by the teaching faculty during the class