Indira Gandhi University, Meerpur (Rewari)

Scheme of Examination
Ph.D. Course Work (Management)
Under Choice Based Credit System (CBCS) w.e.f. 2020-21

Course Code	Title of the course	Theory Marks	Internal Marks	Practical Marks	External Marks	Total Marks	Credits
PHD MGT 101	Research Methodology	80	20	-	-	100	4
PHD MGT 102	Computer Applications	50	-	50	-	100	4
PHD MGT 103	Quantitative Methods	80	20	-	-	100	4
RPE-2020	Research and Publication Ethics	25	25	-	-	50	2
PHD MGT 105	Review of Literature and Seminar	-	-	-	-	50	2

Total Credits: 16

Note: 1. Internal assessment of 20/10 marks in each paper shall be based on two assignments and one seminar presented by each candidate and their participation in seminar.

Ph.D. Coursework (Management)
Research Methodology
PHD MGT 101

Maximum Marks: 100
Theory Marks: 80
Internal Marks: 20
Time: 3 Hrs.

Course Objective: to acquaint the research scholars with step by step process of research: identification of research problem, understanding research designs, data collection, data analysis and interpretation, preparation and presentation of report.

Course Outcome: The scholar will have a better understanding of research that will guide the researcher at every step of his/her research journey.

Note: *There shall be nine questions in all. Question No. 1 shall be compulsory, consisting of eight short answer type questions of two marks each covering the entire syllabus. For rest eight questions, two questions will be asked from each unit. Out of which the student shall be required to attempt one question from each unit. Each question shall carry 16 marks.*

Unit-I
Research: meaning and types of research, importance of research; research process; Review of literature, identification of research gap and defining the research problem, research questions, hypotheses formulation.
Research design: meaning and types of research design; exploratory research design; descriptive research design: cross-sectional and longitudinal research design; causal (experimental) research design.

Unit-II
Data sources: secondary data and primary data, qualitative and quantitative data; Data collection methods for qualitative and quantitative research; Designing questionnaire.
Scaling: Meaning and characteristics; primary scales: nominal, ordinal, interval and ratio scale; Scaling techniques: Comparative scales, Non comparative scales; Reliability, validity and generalizability of scale.

Unit-III
Sampling Design: The Concept of Sampling, process of sampling, Census versus Sample Surveys, Characteristics of a Good Sample, Basis of Sampling; Law of large number, Central Limit Theorem.
Sampling Techniques or Methods: Probability Sampling, Non-probability Sampling, Sample size determination; Sampling and non-sampling errors.

Unit-IV
Data preparation: data editing, coding, transcribing and data cleaning. Interpretation of Data; Presentation of Findings: Descriptive, graphic and tabular presentation.

Report Writing: Meaning and types of research report, research proposal, steps of report writing, Research report format, principles of report writing, bibliography and annexures, APA Style, Harvard and MLA Style of reference writing.

Suggested Readings:

1. Krishnaswamy, K. N., Sivakumar, A. I. and Kathirajan, M., *Management Research Methodology: Integration of Principles, Methods and Techniques*, Pearson, New Delhi.
2. Dooley, D., *Social Research Methods*, Prentice Hall, New Jersey.
3. Malhotra, N, Dash, S, *Marketing Research: An Applied Orientation*, Pearson, New Delhi.
4. Chawla, D., Sondhi, N., *Research Methodology: Concept and cases*, Vikas Publishing House, New Delhi.
5. Nargundkar, R., *Marketing Research: Text and Cases*, Tata McGraw Hill Education, New Delhi.
6. Beri, G.C., *Marketing Research*, Tata McGraw Hill Education, New Delhi.
7. Levin, R., Rubin, D.S., Rastogi, S., Siddiqui, M.H., *Statistics for Management*, Pearson Education India, New Delhi.
8. Kumar, R, *Research Methodology: A step-by step guide for beginners*, SAGE, New Delhi.
9. Field, Andy, *Discovering Statistics Using IBM SPSS Statistics*, SAGE Publications, New Delhi, India.
10. Hair, J.F., Black, B., Babin, B.J. and Anderson, R.E. "Multivariate Data Analysis", 7th Edition, Pearson, UK.

Ph.D. Coursework (Management)
Computer Applications
PHD MGT 102

Maximum Marks: 100
Theory Marks: 50
Practical Marks: 50
Time: 3 Hrs.

Course Objective: To appraise the scholars with some basic software packages available for data analysis and usage of data recording and analysis techniques on software packages.

Course Outcome: The scholars will get an insight of the usage of various software packages used for data analysis.

Note: *There shall be nine questions in all. Question No. 1 shall be compulsory, consisting of five short answer type questions of two marks each covering the entire syllabus. For rest eight questions, two questions will be asked from each unit. Out of which the student shall be required to attempt one question from each unit. Each question shall carry 10 marks.*

Unit-I
Excel: basics of spreadsheet, Financial, Mathematical and statistical functions, graphical presentation of data, advance functions in excel, Pivot table, what if analysis, Freeze pane, Data validation.

Unit-II
Introduction to SPSS: Understanding SPSS environment, Defining variables in Variable View, merging and importing files, Identifying outliers and data cleaning, Data transformation, Data Analysis: Univariate, bivariate and multivariate data analysis, Frequency distribution, Descriptive statistics, Parametric and non-parametric tests, post-hoc tests, Reliability analysis, Correlation and Regression, Factor analysis, Cluster analysis, Discriminant analysis, MDS.

Unit-III
E-views: Basics and functions, Application of E-views in OLS regression, Assumption of OLS regression: Stationarity, Multicollinearity, Heteroscedasticity, AR, MA, ARMA, ARIMA, Granger Causality Model, VAR, VECM, Panel Data Regression, Fixed effect and random effect.

Unit-IV
Introduction of reference writing Application of MS word and Mendeley and Zotero
Overview of R
Introduction of Latex, Jamovi and Python.

Suggested Readings:

1. Field, Andy, *Discovering Statistics using SPSS*, Sage Publications, London.
2. Nargundkar, R., *Marketing Research*, Tata McGraw Hill, New Delhi.
3. Sheriden, J. C., Lyndall, S., and Peta, D., *SPSS for Windows- Analysis without Anguish*, Wiley India.
4. Darren, G., Paul, M., *SPSS for Windows Step by Step: A Simple Guide*, Pearson.
5. Cooper, D., and Schindler, P., Business *Research Methods,* Tata McGraw Hill New Delhi.

6. I Gusti Ngurah Agung (2011), *Panel Data Analysis using E-Views*, John Wiley & Sons.
7. I. Gusti Ngurah Agung (2011) *Cross Section and Experimental Data Analysis Using E-Views*, John Wiley & Sons.
8. Mills, William R. (2010) *Microsoft Office Excel 2007 a Beginner's Guide: A Training Book for MICROSOFT EXCEL 2007*, Author House.
9. Walkenbach, John (2013) *Excel 2013 Bible*, John Wiley & Sons.
10. Gujarati, D. (2012) *Basic Econometrics*, Tata McGraw Hill.

Ph.D. Coursework (Management)
Quantitative Methods
PHD MGT 103

Maximum Marks: 100
Theory Marks: 80
Internal Marks: 20
Time: 3 Hrs.

Course Objective: To acquaint the scholars with basic and advance statistical techniques those are applied on data for analysis and the application of such techniques in hypothesis testing and interpretation of results.

Course Outcome: The scholars will develop an understanding of statistical techniques and tests used for data analysis. It will help the scholar in preparing, analyzing, interpreting and presenting the results of research.

Note: *There shall be nine questions in all. Question No. 1 shall be compulsory, consisting of eight short answer type questions of two marks each covering the entire syllabus. For rest eight questions, two questions will be asked from each unit. Out of which the student shall be required to attempt one question from each unit. Each question shall carry 16 marks.*

Unit-I
Descriptive statistics: Measures of central tendency & dispersion and their application; Correlation and Regression: its types and their application in Research; Normal and Sampling Distribution.

Unit-II
Hypothesis testing: Large sample test and Small sample test
Parametric tests: Independent sample t-test, paired t-test, one way ANOVA and two way ANOVA
Non-parametric tests: The Run test of randomness, tests of two matched samples, Wilcoxon test, Mann-Whitney U-test, Kruskal-Wallis test, Friedman's Test

Unit-III
Chi-square test and its applications
Multivariate Analysis—Factor analysis, Discriminant analysis, Cluster analysis, ANCOVA and MANOVA, Repeat Measure ANOVA; Confirmatory Factor Analysis, Structured Equation Modelling

Unit-IV
Basics of Econometrics: OLS regression and its assumption, Stationarity, Multicollinearity, Heteroscedasticity and Auto-correlation.
AR, MA, ARMA and ARIMA modelling, Granger Causality Test, VAR and VECM, Panel data analysis: Fixed effects and Random effects, Introduction to ARCH and GARCH.

Suggested Readings:
1. Aczel, A.D., Sounderpandian, J., Saravanan, P and Joshi, R., *Complete Business Statistics*, McGraw Hill, New Delhi.
2. Field, Andy, *Discovering Statistics using SPSS*, Sage Publications, London.

3. Koutsoyiannis, A., *Theory of Econometrics*, Palgrave Publication.
4. Malhotra Naresh K., *Marketing Research: An Applied Orientation*, Pearson Education India, New Delhi.
5. Cooper, D., and Schindler, P., Business *Research Methods,* Tata McGraw Hill New Delhi.
6. Gujarati, D. N. and Sangeetha, *Basic Econometrics,* Tata McGraw Hill, New Delhi.
7. Levin, R., Rubin, D.S., Rastogi, S., Siddiqui, M.H., *Statistics for Management*, Pearson Education India, New Delhi.
8. Hooda, R.P., *Statistics for Business and Economics*, Vikas Publishing House, New Delhi.
9. Gupta, S.P. & Gupta M.P. *Business Statistics*, Sultan Chand & Sons, Delhi.
10. Anderson, *Quantitative Methods in Business*, Thomson Learning, Bombay.
11. Chandan, J.S. *An Introduction to Statistical Methods*, Vikas Publishing House, New Delhi.
12. Bhardwaj, R.S, *Business Statistics*, Excel Books, New Delhi.

Ph.D. Coursework (Management)
Research and Publication Ethics
RPE-2020

Maximum Marks: 50
External Marks: 25
Internal Marks: 25

Course Objective:

1. To understand the philosophy of science and ethics, research integrity and publication ethics.
2. To identify research misconduct and predatory publications.
3. To understand indexing and citation databases, open access publications, research metrics (citations, h-index, Impact Factor, etc.)
4. To understand the usage of various plagiarism tools.

Course Outcomes:

At the end of the course, the student will have awareness about the publication ethics and publication misconducts.

Note: Unit 1, 2, 3 are to be covered via Theory mode and Unit 4, 5, 6 are to be covered via practice mode.

OVERVIEW

This course has total 6 units focusing on 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.) and plagiarism tools will be introduced in this course.

Pedagogy:

Class room teaching, Guest Lectures, group discussions and practical sessions. Total teaching hours shall be 30 hours.

Evaluation

Continuous assessment will be done through tutorials, assignments, quizzes and group discussions. Weightage will be given for active participation. Final written examination will be conducted at the end of the course.

SYLLABUS IN DETAIL

Theory

RPE 01: PHILOSOPHY AND ETHICS (3hrs.)

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

RPE 02: SCIENTIFIC CONDUCT (5hrs.)

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

RPE 03: PUBLICATIUON ETHICS (7hrs.)

1. Publication ethics: definition, introduction and importance
2. Best practices / standard 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 and publication ethics, authorship and contributor ship
6. Identification of publication misconduct, complaints and appeals
7. Predatory publishers and journals

Practice

RPE 04: OPEN ACCESS PUBLISHING (4hrs.)

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

RPE 05: PUBLICATION MISCONDUCT (4hrs.)

A. Group Discussions (2hrs.)
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 (1hrs.)
1. Use of plagiarism software like Turnitin, Urkund and other open source software tools
RPE 06: DATABASE AND RESEARCH METRICS (7hrs.)

A. Database (4hrs.)
1. Indexing databases
2. Citation databases: Web of Sciences, Scopus, etc.

B. Research Metrics (3hrs.)
1. Impact factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score
2. Metrics: h-index, g index, i 10 index, altmetrics
Suggested Reading

1. Nicolas H. Steneck. Introduction to the Responsible Conduct of Research. Office of Research Integrity, 2007. Available at: http://ori.hhs.gov/sites/default/files/rcrintro.pdf

2.   The student's Guide to Research Ethics by Paul Oliver Open University Press, 2003.
3.   Responsible Conduct of Research by Adil E. Shamoo; David B. Resnik Oxford University Press, 2003.
4.   Ethics in Science Education, Research and Governance Edited by Kambadur Muralidhar, Amit Ghosh Ashok Kumar Singhvi. Indian National Science Academy, 2019. ISBN: 978-81-939482-1-7. http:www.insaindia.res.in/pdf/Ethics_Book.pdf
5.   Anderson B.H., Dursaton, and Poole M.: Thesis and assignment writing, Wiley Eastern 1997.
6.   Bijorn Gustavii: How to write and illustrate scientific papers? Cambridge University Press.
7.   Bordens K.S. and Abbott, B.b.: Research Design and Methods, Mc Graw Hill, 2008.
8.   Graziano, A. M., and Raulin, M. L.: Research Methods – A process of Inquiry, Sixth Edition, Pearson, 2007.
9.   Bird, A. (2006). Philosophy of Science. Routledge.
10. MacIntyre, Alasdair (1967) A Short History of Ethics. London.
11. P. Chaddah, (2018) Ethics in Competitive Research: Do not get scooped; do not get plagiarized, ISBN: 978-9387480865.
12. 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 Academies Press.
13. Resnik, D.B. (2011). What is ethics in research & why is it important. National Institute of Environmental Health Sciences, 1-10. Retrieved from https://www.niehs.nih.gov/research/resources/bioethics/whatis/index.cfm
14. Beall, J. (2012). Predatory publishers are corrupting open access. Nature, 489(7415), 179-179, https://doi.org/10.1038/489179a

Ph.D. Coursework (Management)
Review of Literature and Seminar
PHD MGT 105

Maximum Marks: 50

Students shall review minimum 30 research papers in the field of their interest and those research papers must be published in journals listed in ABDC/Scopus/UGC Care list. The evaluation shall be done as under:

Evaluation:

Evaluation will be done as per 'Ordinance for admission and award of degree of Doctor of Philosophy (Ph.D.) in various faculties w.e.f. 2020-21' and as per the university guidelines.