Swami Rama Himalayan University,
Swami Ram Nagar, Jolly Grant, Dehradun-248016

Subject Code: PHDRM100 **100 Marks**

Subject Name: Research Methodology Quantitative Techniques and Computer Applications

TIME: 3 HRS

Unit I

Problem Definition, Nature and purpose of scientific enquiry, Parameters of research, Definition of construct and variables, Introduction of Research, Research Process, Steps in Research Process.

Unit II

Research Design, Objectives & Hypothesis of Research, Concepts and Type of research design, Design of research of the basis of application–pure and applied, Design of research on the basis of Techniques/Methodology – Exploratory and, Descriptive, Descriptive Research – Qualitative and Quantitative, Quantitative – Field studies, Field experiments and laboratory experiments, Design of research on the basis of area of research – research in Social sciences – Surveys & Observation

Unit III

Design of questionnaire and Scaling Techniques, Sampling and Data collection, Population and samples, Techniques of sampling, Random, Stratified, Systematic, Multistage-sampling, Primary and secondary sources of data.. Sample size estimating.

Writing of Research paper, Synopsis, Thesis, Projects and Patents.

Ethics in research.

Unit IV

Data analysis: Introduction, classification and methods of Data Analysis.

Measures of Central Tendency: Mean, Median and Mode (Merits and Demerits).

Measures of Dispersion: Range, Inter-quartile, Quartile Deviation, Mean Deviation, Standard Deviation, Skewness

Correlation: Introduction- Types, different methods.

Regression-Introduction- Types, Least Square Method, Regression correlation

Statistical Hypotheses and Test of significance, Procedure for testing of hypothesis, Determining levels of significance, Type I and II errors, ANOVA: One way, two way, Chi square test and its application, Students 't' distribution, Non-parametric statistical techniques, Chi–square Test, Binomial Test, Runs Test.

Computational Tool- R and SPSS

Introduction to programming logic and R interface, Script files and the Editor Debugger, R Help System, Program Design and Development, Creating, editing and running procedures from the syntax file in SPSS, Creating and editing output files; Saving output files in WORD in SPSS.

Unit V

LATEX: Introduction, Document Structure, Fonts and Styles, Typesetting text, Tables, Figures, Equations, **Insertion:** Inserting References, bibliography, Symbols, Header and Footer, Graphs.

MS Excel: Introduction to spreadsheets, Basic text and cell formatting, Basic arithmetic calculation, Charts, Functions and Formulas, Data validation, Basics of a measurement and its interpretation, mean, standard deviation, variance, correlation coefficient, Data Analysis, Searching: match, search, Vlookup and Hlookup, Pivot tables

MS Word: Creating Word Documents, Inserting Pictures, Resize and reposition a picture, How to create an index, bibliography, mathematical equations

MS-PowerPoint: Creating slides, Applying transitions and sound effects, setting up slide shows, Animation.

Web Technologies: Searching scholarly information, primary and secondary databases. Searching techniques Google scholar and Scopus and research evaluation. Managerial bibliography-Use of Mandeley and Zotero.

REFERENCES

RESEARCH METHDOLOGY:

1. Cooper, "Business Research Methods", Tata McGraw Hill, New Delhi.
2. Fowler, F.J. Survey Research Methods. New Delhi, Sage, 1993
3. Goode, W.J and Hatt, P.K. Methods in Social Science Research. New Delhi, McGraw Hill, 1986
4. Leddy, Paul. D Practical Research: Planning Design. London, Clive Bingley. 1980
5. Sabine, Landau, Brian S. Everitt. "A handbook of statistical analyses using SPSS", 2004 by Chapman & Hall/CRC Press LLC.
6. Coffey, A., & Atkinson, P. (1996). Making sense of qualitative data. Thousand Oaks, CA: Sage.
7. Girden, E.R. (1996). Evaluating research articles from start to finish. Thousand Oaks, CA: Sage.
8. Mason, J. (1996). Qualitative reasoning. London; Thousand Oaks, CA: Sage.
9. Spoull, N.L. (1995). Handbook of research methods: a guide for practitioners and students in the social sciences. (2nd ed.). Metuchen, NJ: Scarecrow Press.
10. Tesch, R. (1990). Qualitative research: analysis types and software tools. New York: Falmer Press.
11. Gentleman, J.F., & Whitmore, G.A. (Eds.). (1994). Case studies in data analysis. New York: Springer-Verlag.
12. Mischler, E.G. (1986). Research interviewing: context and narrative. Cambridge, MA: Harvard University Press.

STATISTICS

1. Practical statistics for medical research by Douglas G. Altman
2. Biostatistics for Medical, Nursing and Pharmacy Students By Abhaya Indrayan and L. Satyanarayana
3. Medical Statistics: Principles and Methods by K. R Sundaram, S. N Dwivedi, and V. Sreenivas, 2015
4. Statistical Analysis: Microsoft Excel 2010, Book by Conrad Carlberg.
5. Statistics and Data with R: An Applied Approach Through Examples, Book by Jeremiah Y. Cohen and Yosef Cohen.
6. Introduction to Statistics with SPSS by Ben Baarda, De Goede Martijn, Corvan Dijkum.

COMPUTER APPLICATION:

1. Leon & Leon, Internet for Everyone, Leon Tech World
2. Ron Masfield, MS Office, Tech Publication