

## **Research Methodology and Statistical Methods**

*Course Title: Research Methodology and Statistical Methods*

*Course No.: MSC 501*

*Nature of the Course: Core*

*Full Marks: 100*

*Duration of the Course: 100 lecture hours*

*Pass Marks: 40*

*Duration of the Class: 60 minutes*

### **Course Objectives**

The course aims to familiarize students with basic concepts of research methodology in management exposing them to relevant concepts and techniques of qualitative and quantitative research methods required for managerial decision making and report writing. Students will develop an understanding of research issues and processes through statistical analysis of both qualitative and quantitative methods.

### **Course Description**

This course consists of two components: (i) an introduction to basic methodological concepts of social science research, and (ii) basic statistical tools and techniques providing the context required for business research and decision making. The course will include concepts and techniques of social science research, types of research, research design and methodology in the research process, data measurement, data analysis using statistical tools and techniques like probability, distribution, sampling, estimation, testing of hypothesis, correlation and regression, and research report writing.

### **Group “A”: Research Methodology**

#### **Course Contents**

##### **Unit 1: Introduction to Research LH 5**

Definition and nature of research-, concept, features and process of scientific research-, Basic and applied research; Quantitative and qualitative paradigms of research; Features of social science research; Difficulties of applying scientific methods to social science research; Management research - concept, types, methodology, and value of decision making; Ethical issues in management research.

##### **Unit 2: Preliminary Stages of Research LH 5**

Literature review - sources of the literature, phases in the review, format of review presentation; Problem definition-, Theoretical framework - theory, propositions, concepts, constructs, and variables-, Deductive and inductive reasoning-, Research questions-, Hypothesis formulation, types and formats of hypothesis, features and criteria of good hypothesis.

##### **Unit 3: Research Design LH 5**

Concept; Classification of designs - exploratory, historical, descriptive, case study, developmental, correlation, causal comparative, survey, experimental, and quasi-experimental research; Qualitative research - concept, features, assumptions, and research design; Pilot study; Sources of error in research design.

**Unit 4: Measurement and Scaling LH 5**

Concept and importance of measurement; Data types - nominal, ordinal, interval, and ratio; Attitude measurement - concept and techniques of measurement; Construction of attitude scales; Different formats of scale construction; Attitude rating and ranking scales-, Criteria of good measurement-, Reliability and validity of measurement.

**Unit 5: Sampling LH 5**

Concept; Sampling design; Sampling process; Types of sampling - probability and non-probability; Sample size; Sampling vs non-sampling errors; Methods of minimizing such errors.

**Unit 6: Data Collection LH 8**

Classification of primary and secondary data; Quantitative data collection; Sources and use of secondary data; Sources of primary data; Questionnaire - contents, design, and administration; Pre-testing; Research interview - personal and telephone, interview problems; Principles of interviewing; Qualitative data collection - focus group, depth interview, participative method-, Observation - participant and non-participant-, Designing and conducting and observational study,- Use of • \_ Internet for data collection; Factors affecting choice of collection methods. Unit

**Unit 7: Data Analysis LH 8**

Preparing and presenting data - editing, coding, classification and tabulating; Summarizing data - tables, graphs and charts; Statistical analysis - descriptive analysis, inferential analysis, parametric and non- parametric analysis-, Analysis of qualitative data - content, thematic and narrative analysis.

**Unit 8: Topic Selection and Research Proposal LH 5**

Topic selection - sources, factors to be considered for topics selection; Purposes of research proposal; Types - solicited and unsolicited-, Structuring the research proposal - contents and formats-, Proposals for funded research; Criteria of evaluating the research proposal.

**Unit 9: Research Report LH 4**

Presentation of a research report; Types of report; Formats and components of research report - preliminaries, body of the report, supplementary section; Styles of report writing; Styles and uses of citations and references.

**Group "B": Statistical Methods****Unit 1: Probability LH 10**

Concept and importance of probability. Types of events. Approaches to probability. Theorems of probability: conditional probability, Baye's theorem and mathematical expectation.

**Unit 2: Theoretical Frequency Distribution LH 5**

Concept of theoretical distribution: binomial, poison and normal distribution. Fitting binomial and poison distribution.

### **Unit 3: Sampling LH 5**

Meaning and objective of sampling. Types of universe. Concept of sampling techniques and census method. Sampling distribution. Standard error and its utility in testing of hypothesis.

### **Unit 4: Estimation LH 5**

Estimation and Estimators, criteria of good estimator. Types of estimates, point and interval estimate. Relationship among the errors, risk and the sample size. Estimation of sample size.

### **Unit 5: Testing of Hypothesis LH 15**

Meaning of hypothesis. Types of errors in testing 'of hypothesis. Level of significance. Critical region. One tailed and two tailed tests. Parametric and non-parametric tests. Parametric test for variable and attribute. Large sample test. Test of significance of mean, proportion, difference of mean:, and proportions. Small sample test: Student's-test - Test of significance of mean and difference of means, paired test, test of significance of an observed sample Correlation coefficient. Variance-ratio test: F-test Analysis of variance: one way and two way classification. Non-parametric test: Chi-square test for goodness of fit and independence. Chi-square test for the population variance.

### **Unit 6: Correlation and Regression Analysis LH 10**

Multiple and partial correlation. Coefficient of multiple determination, Multiple regression equation. Test of regression coefficient of Multiple; regression model. Standard error of estimate for multiple regression. Auto cor. elation: Durbin-Watson test statistic. Multicollinearity.

### **Basic References**

Cooper, Donald R. and Schindler, P.S. (2003). **Business Research Methods** (8th Edition). New Delhi: Tata McGraw-Hill.

Kerlinger, F.N> (1978). **Foundation of behaviour Research**. New Delhi Surjeet publication.

Levin, R.I. and Davi S.R. (1991). **Statistics for Management**. New Delhi Prentice Hall of India.

Wolff, H.K. and Pant, P R. (2002). **Social Science Research and Thesis Writing. (3rd Edition)**. Kathmandu: Buddha Academic Enterprises Zikmund, W.G. (1994). **Business Research Methods (4h Edition)**. Thomson SouthdWestem, New York: The Dryden Press.

### **Supplementary Readings**

Chandan, J. (2001). **Statistics for Business and Economics**. New Delhi Vikash Publishing House Pvt. Ltd.

Gupta, S.C. (2002). **Foundation of Statistics**. Mumbai:, Himalayan Publishing House.

- Micheal, V.P. (2000). **Research Methodology in Management**. Mumbai: Himalayan Publishing House.
- Pokharel, B. (2003). **Research Methodology in Management**. New Hira Books Enterprises. Kathmandu:
- Saravanel, P. (2001). **Research Methodology**. Allahabad: Kitab Mahal Sauders, M, Lewis, P. and Thornhill, A. (2003). **Research Methods for Business Students**. New Delhi: Pearson Education.
- Sharma, P.K. and Chaudhary, A.K. (2064). **Statistical Methods**. Kathmandu: Khanal Publication Pvt. Ltd.
- Shrestha, S. and Silwal, D.P. (2063). *Statistical Methods in Management*. Kathmandu: Taleju Prakashan.
- Silwal, D.P. (2062). *Research Methods in Management*. Kathmandu: Taleju Prakashan.
- Sthapit, A.B, Gautam, H. Joshi, P.R. and Dongol, P. (2009). *Statistical Methods*. Kathmandu: Buddha Academic Enterprises.
- Ysdav, R., Dhakai, B., Tamang, G, Panta, K. and Shrestha, H. (ND). *Statistical Methods*. Kathmandu: Asmita Publishing House.