

BUSINESS STATISTICS

Course No: MGT 202

Nature of the Course: Compulsory

Course objective

The basic objective of this course is to acquaint the students with necessary mathematical tools and statistical techniques to be used in business decision making processes.

Full Marks: 100 Pass

Marks: 35 Lecture

hour: 150

Content

Unit 1: Introduction to Statistics

LH 5

Meaning, scope and limitation of statistics, Importance of statistics in Business and Management, Types and sources of data, Methods of collection of primary and secondary data, Precautions in using secondary data, Problems of data collection

Unit 2: Classification and Presentation of Data

LH 5

Data classification (need, meaning, objectives and types of classification)
Construction of frequency distribution and its principles Presentation of data: Tabular presentation
Diagrammatic presentation: Bar diagram, Pie diagram
Graphic presentation: Histogram, frequency polygon, Frequency Curve and Ogive (Illustrations related to Business and Management)

Unit 3: Measures of Central Tendency

LH 15

Mean: Simple and Weighted (Arithmetic Mean, Geometric Mean and harmonic Mean), median, partition values, mode, Properties of averages, choice and general limitation of an average

Unit 4: Measures of Dispersion

LH 15

Absolute and relative measures, Range, Quartile deviation, mean deviation, standard deviation, coefficient of variation, Lorenz curve

Unit 5: Skewness, Kurtosis and Moments

LH 15

Meaning, objective and measurement of Skewness, Karl Pearson's and Bowley's Method
Five Number Summary, Box-Whisker Plot
Kurtosis and its measurement by Percentile method
Meaning of moments, Central and Raw moments and their relationship
Measurement of Skewness and Kurtosis by moment method

Unit 6: Simple Correlation and Regression Analysis

LH 15

Karl Pearson's correlation coefficient including bi-variate frequency distribution, coefficient of determination, Probable Error, Spearman's Rank Correlation coefficient Concept of Linear and Non-linear regression
Simple linear regression equations including bi-variate frequency distribution,
Properties of regression coefficients.

Unit 7: Analysis of Time Series

LH 15

Meaning, need and components of time series.
Measurement of trend: Semi-average, moving average, method of least squares Measurement of seasonal variation: Method of simple average and Ratio to moving average

Unit 8: Index Numbers

LH 15

Meaning and types of Index Number
General rule and problems in construction of Index Number
Methods of constructing index numbers:
Simple and weighted (Aggregative and Price Relative Method)

Laspeyre's and Paasche's Index Number, Fisher's Ideal Index Number Time and Factor Reversal Tests
Cost of living index number (Consumer's price index number): Aggregative Expenditure Method and Family Budget Method, Base shifting and Deflating

Unit 9: Probability **LH 10**

Definition of probability, Addition and Multiplication theorem, Application of Combination in Probability, Conditional probability and Baye's Theorem

Unit 10: Sampling and Estimation **LH 5**

Meaning of sample and population, census versus sampling, Sampling Techniques,
Concept of Sampling distribution, standard error, Estimation, estimator Concept of types of estimates: Point and Interval

Unit 11: Quantitative Analysis **LH 15**

Introduction to quantitative analysis Application of management science:
Scientific approach to decision making, Decision making under the condition of uncertainty and risk, Expected Profit, Expected Profit with perfect information and Expected value of perfect information,
Linear Programming Problem:
Problem formulation with two decision variables, Graphical solution of Maximization and Minimization problems.

Unit 12: Determinant **LH 10**

Definition of determinant, Methods of finding the numerical values of determinant upto three order, Properties of determinant and its use to find the numerical values of determinants, Cramer's Rule to solve simultaneous equations up to three variables.

Unit 13: Matrix **LH 10**

Definition and types of matrix, Addition, subtraction and multiplication of matrices, Cofactors, Transpose, Adjoint and Inverse of a matrix, Inverse and Row Operations method to solve simultaneous equations upto three unknowns.
(Illustrations and applications in all chapters should be based on Business and Management situation as far as possible.)

Basic Books

Gupta, S.C., *Fundamentals of Statistics for Management*, Himalayan Publishing House, Bombay. Tulsian, P.C. & Pandey, Vishal, *Quantitative Techniques: Theory and Problems*, Pearson Education, India.

Reference Books

Shrestha, Sunity and Amatya, Sunil, *Business Statistics*, Buddha Academic Enterprises Pvt. Ltd., Kathmandu
Sharma, Pushkar Kumar and Silwal, Dhruba Prasad, *Business Statistics*, Taleju Prakashan, Kathmandu