**Purbanchal University**

**BBS Second Year**

**Course Title : Business Statistics and Operation Management**

**Area of Study : Core**

**LH : 150**

**Course objective**:

The basic objective of this course is to acquaint the students with necessary statistical techniques to be used in business decision making processes and give fundamental knowledge in the area of operation management.

**Course Contents**

**UNIT I: Introduction to Statistics** **LH 10**

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 II: Classification and Presentation of Data** **LH 10**

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 III: 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 IV: Measures of Dispersion** **LH 20**

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

Meaning, objective and measurement of Skewness, Karl Pearson’s and Bowley’s Method; Kurtosis and its measurement by Percentile method; Meaning of moments, Central and Raw moments and their relationship

**UNIT V: Simple Correlation and Regression Analysis** **LH 20**

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 VI: 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 VII: Sampling and Estimation** **LH 10**

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 VIII: Quantitative Analysis** **LH 20**

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 IX: Introduction to Operation Management**  **LH 5**

Operations management: meaning, definitions, scope and objectives; interaction of operations management with other functional areas;

**UNIT X: Facility Location and Process** **LH 10**

Facilities planning: plant location, factors determining plant location; Plant layout: process layout and product layout,

**UNIT XI: Quality Control and Control Charts**  **LH 15**

Quality control: Concept of quality, quality planning; Statistical quality control: control charts, (X chart and R chart Only); Management of quality in organizations: quality circles, TQM (Concept only)

**Reference 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.
* Shrestha, S. & Amatya, S., **Business Statistics**, Buddha Academic Enterprises Pvt. Ltd., Kathmandu
* Sharma, P. K. & Silwal, D. P., **Business Statistics**, Taleju Prakashan, Kathmandu
* William J. Stevenson, **Operations Management**, Tata McGraw Hill, India
* Lee Krajewski, Larry Ritzman, Manoj Malhotra, **Operations Management, Process and value Chains**, Pearson Practice Hall, India