

Course Code	Course Name
CK114	Quantitative Methods

Module 1: Progression and Index Numbers:

Unit 1: Progressions: Arithmetic Progression (A.P) and Geometric Progression (G.P), Permutation and combination

Unit 2: Index number- Meaning and uses of index numbers- construction of index numbers, Aggregative index numbers, Average of Relatives Index Numbers, Simple & weighted; Value Index, Consumer Price Index Number.

Learning Outcome:

- Students will be able to solve problems on progressions and calculate various index numbers

Module 2: Statistics

Unit 1: Statistics: Relevance, Introduction and definition-Phases of statistical study-Scope and limitations-Application of statistics in various areas-Types, sources and collection of data-Presentation of data- charts and graphs-frequency distribution.

Unit 2: Descriptive statistics: Measures of Central Tendency: Mean, Median and Mode- Measures of Dispersion: Range, Quartile deviation, Mean deviation, Standard Deviation-Variance and Coefficient of variation - Skewness and Kurtosis

Learning Outcome:

- Students will be able to calculate and apply measures of location and measures of dispersion - grouped and ungrouped data cases

Module 3: Correlation & Regression Analysis

Unit 1: Correlation, Types of Correlation- Scatter diagram- Karl Pearson's Co-efficient of Correlation-Spearman's Rank Correlation Co-efficient- Correlation and causation- Probable error.

Unit 2: Regression Analysis - Lines of Regression, Regression Equations and regression co- efficient, Relationship between correlation and regression coefficients, Standard error of estimate-Application of correlation and regression in business data analysis

Learning Outcome:

- Students will be able to compute and interpret the results of Regression and Correlation Analysis, for forecasting.

Module 4: Probability & Theoretical distribution

Concept of probability –meaning and definition-approaches to probability-Theorems of probability-addition theorem-multiplication theorem (Statement only)- conditional probability-inverse probability-Bayes's theorem. Binomial distribution-basic assumptions and characteristics-fitting of binomial distribution-Poisson distribution –characteristics-fitting of Poisson distribution-Normal distribution-features and properties-standard normal curve.

Module 5: Testing of hypothesis

Population and Sample- Sampling Methods-Testing of hypothesis-Procedure-error in testing-two tail tests and one tail tests-Confidence level-nonparametric tests (Chi-square test only). Parametric tests -Z test- test of significance of large samples-test for two sample means-small sample mean tests-Students t test-Analysis of variance-F-test-one-way ANOVA and two-way ANOVA tests (Theory only).

Learning Outcome:

- Students will understand the steps followed in a hypothesis testing and will be able to perform chi-square test

Readings

1. Vohra. N.D, Business Mathematics and Statistics. McGraw Hill Education (India) Pvt Ltd.
2. Singh, J.K, Business Mathematics, Himalaya Publishing House.
3. S.P. Gupta, Statistical Methods, Sultan Chand & Sons, Educational Publishers, New Delhi.
4. Sharma, J.K, Business Statistics, Pearson Education.
5. Sharma, J.K, Business Mathematics, New Delhi, Amazon Asia-Pacific Holdings Private Limited Books Pvt Ltd.