SYLLABUS (CBCS) FOR T.Y.B.Com

(w. e. from June 2021)

Paper Code : STAT-3505 D
Paper : V Title of Paper : Business Statistics II
Credit : 3 credits No. of lectures : 48

A) Learning objectives:

1. To distinguish between random and non-random experiments.
2. To find probabilities of events.
3. To apply standard distribution to different situations.
4. To compute probabilities of discrete bivariate random variable.

B) Learning outcomes:

Students should be able to:

1. Learn the concept of probability
2. Understand standard discrete distributions with real life situations.
3. Learn Bivariate discrete random variable and probability distribution.

TOPICS/CONTENTS:

UNIT-1. Introduction to Probability (12 L)

Definitions of Permutation, Combination, Sample Space, Event, different types of events, Probability of an event, Conditional Probability, Independence of two events, Partition of sample space. Bayes Theorem (statement only). Examples and problems.

Unit 2 Uni-variate Discrete Probability Distribution (12 L)

Definitions of random variable, discrete random variable, probability distribution of discrete random variable, Probability mass function (p.m.f.), Cumulative distribution function, mean, variance and standard deviation. Properties of distribution function. Examples and problems.

Unit 3 Some Standard Discrete Probability Distributions (12 L)

1. Bernoulli: p.m.f., mean and variance. (statement only)
2. Binomial: p.m.f., mean, variance and additive property. (Statement only), real life situation.
3. Poisson: p.m.f., mean, variance and additive property. (Statement only), real life situation.

Examples and problems.

Unit 4 Bi-variate Discrete Probability Distribution (12 L)

Bivariate discrete random variable, Joint probability distribution of bivariate discrete random variable, marginal and conditional distribution and independence of two variables. Examples and problems.

Books Recommended:

1. Fundamentals of Mathematical Statistics: Gupta, Kapoor V.K.
2. Fundamentals of Statistics: S.C. Gupta
3. Business Statistics : Gupta Indra
4. Fundamentals of Statistics: D.N. Elhance
5. Statistical Methods: S.P.Gupta

SYLLABUS (CBCS) FOR T.Y.B. Com

(w. e. from June 2021)

Paper Code : STAT-3506 D
Paper : VI Title of Paper: Business Statistics III
Credit : 3 credits No. of lectures: 48

A) Learning Objectives:

1. To study different optimization techniques.
2. To study different charts.
3. To study simulation.
4. It provides a means of detecting error at inspection

B) Learning Outcome:

After successfully completing the course, a student should be able to demonstrate:

1. Understand the philosophy and basic concepts of quality improvement
2. Develop a report that describes the solving techniques, analyze the results and propose recommendations to the decision-making process.
3. Understand the mathematical tools that are needed to solve optimization problems.

Unit 1 Game Theory: (10 L)

Meaning, two-person zero-sum game, pure and mix strategies, Pay off tables, saddle points, minimax and maximin principles, Dominance principles. Examples and problems.

Unit 2 Statistical Decision Theory: (16 L)

Introduction, acts, states of nature, pay off, regret,
Decision Making Under Risk, Expected Opportunity Loss (EOL) Criterion and Expected Monetary Value (EMV) Criterion. Decision Making Under Uncertainty, Maximin Criterion, Maximax, Minimax Regret Criterion, Laplace Criterion, Hurvitz Criterion, Examples and problems.

Unit 3 Replacement Problem: (6 L)

Introduction, replacement of Item that deteriorates with time when valueof money remains same during the period.

Unit 4 Statistical Quality Control: (16 L)

Introduction, Chance and assignable Causes of variation, Uses of SQC, Control limits, specification limits, Tolerance limits Process and product control, Control charts for mean, range, P-Chart, C-Chart, Process, Capability study, Interpretation of capability index C_p and C_{pk}

Books Recommended:

1. Operations Research : Harmdy, Taha
2. Operations Research: Kantiswroop, Gupta
3. Business Mathematics : J. K. Sharma

4. Statistical Quality Control: Montgomery
5. Fundamentals of Mathematical Statistics: Gupta, Kapoor V.K.
6. Fundamentals of Statistics: S.C. Gupta