New Syllabus of Gujarat University for B. Com. **Semester - VI**

CC 310   STATISTICS – VI

Unit 1 : Testing of Hypothesis & Large Sample Test (25%)

Idea of Parameter and Statistic, Meaning of Statistical Hypothesis and its types, Standard error of statistics and its uses in testing of Hypothesis, Type-I and Type-II errors, Power of the test, Level of significance and Level of confidence, Critical region , One tailed test and two tailed test (Theoretical explanation only), Test of significance for mean, Test for difference between two means, Test for proportion of an Attribute, Test for difference of two proportions and sums related to standard error and above four tests only.

Unit 2 : Decision Theory (25%)

Meaning and importance of Decision theory, components of decision theory, different methods of taking decision, Maxi-Min Principle, Maxi-Max Principle, Laplace's Principle, Horwitz's Rule, EMV (Expected Monetary Value), EPPI and EVPI and sums related to above all.

Unit 3 : Game Theory (25%)

Meaning of game, two person zero sum game and its assumptions, Strategy and Pay-off matrix for two person zero sum game, saddle point, pure strategy, value of the game, mixed strategy, Dominance principle for solving the game without saddle point, reduction of m x n pay off matrix into 2 x 2 matrix using dominance principle and solving the game, simple sums of game theory problem with saddle point and without saddle point using dominance principle only.

Unit 4 : Matrix Algebra (25%)

Definition of matrix and different types of matrices, addition, subtraction and multiplication of matrices, determinant of square matrix (upto order of 3 x 3), Adjoint matrix, Inverse matrix of a square matrix (upto order 3 x 3), Solution of linear equations (Upto 3 Variables) with the help of inverse matrix and related examples.

Reference Books:

1. H.A.Taha, Operations. Research, Macmillan Publishing Co. Inc.
2. Vohra N.D, Quantitative Techniques in Management Tata McGraw Hill, New Delhi.
3. J.K.Sharma : O.R. Theory and Applications, Macmillan India Ltd.
4. Anderson, Sweeney, Williams, An Introduction to Management Science Quantitative Approch to Decision Making, Cengage Learning India Pvt. Ltd. New Delhi.
5. Barry Render, Ralph M. Stair , Michael E. Hanna, Quantitative Analysis for Management, Pearson Education(Singapore) Pte. Ltd.

New Syllabus of Gujarat University for B. Com. **Semester – VI**

CE 303 B   Advanced Statistics IX

HOURS: 3/WEEK   **CREDIT: 3**   **EXAM HRS: 3**

1.   Demand Analysis & Monopoly & Duopoly Problems: **[25%]**

Demand and supply function, Market equilibrium, effect of taxation and subsidy, marginal and average, revenue & cost function, Discussion of monopoly problems-classical duopoly problems (idea only), Simple examples of monopoly under perfect competition, Difference between monopoly & duopoly problems

2.   Partial Derivatives and its applications: **[25%]**

Definition of partial derivative involving two variables up to second order, Homogeneous functions, Statement of Euler's theorem (without proof) and its application to homogeneous function, Application of partial derivative to the problems related to constrained optimization problems, (Cost function and Utility function).

3.   Mathematics for Finance: **[25%]**

Types of Interest, Nominal and Effective rates of Interest, Simple, Compound and continuous discounting, Depreciation, simple examples only Various types of Annuities, Sinking fund and simple examples related to these topics.

4.   Curve Fitting: **[25%]**

Meaning and definition of least square principle, Fitting of linear, quadratic and exponential curves like (i) $y = ab^x$ (ii) $y = ae^{bx}$ (iii) $y = ax^b$ etc. and simple examples based on it.

Reference Books:

1.   J. K. Sharma, Mathematics for Business and Economics, Asian Books Private Ltd.

2.   S. C. Gupta, V. K. Kapoor, Fundamentals of Applied Statistics, Sultan Chand & sons, New Delhi.

3.   David R. Anderson, Dennis J. Sweeney, Thomas A. Williams, Statistics For Business and Economics, South-Western Cengage Learning India Pvt. Ltd. New Delhi.

4.   S.C. Gupta: "Fundamentals of Mathematica Statistics" S. Chand, New Delhi.

5.   R. G. D. Allen, Mathematical Analysis for Ecomomists, Macmillan, New,York.

New Syllabus of Gujarat University for B. Com. **Semester – VI**

CE 304 B   Statistics X

HOURS: 3/WEEK   **CREDIT: 3**   **EXAM HRS: 3**

Objective: Student supposed to apply their theoretical knowledge to identify, analyze and solve any real life problem.

- A live project work using either primary data or secondary data should be undertaken. (Survey based project is preferred). The topics for the project are decided by the internal faculty by keeping the view that student should get an exposure to the techniques of data collection methods, statistical analysis, presenting the data and to derive proper conclusions related to the topic assignee to them in the project.

- Students can work in team of two or more. At the end, student should make a presentation and the submission of their findings of the project undertaken in dissertation form.

- For the internal marks are assigned by the internal faculty to the students on their regular follow ups, progress report and interest in the topic. The faculty is responsible to justify the marks.

- The external marks are given on the basis of presentation of the project by the students against internal and external faculties (an average of the marks assigned by both the faculties should be considered). The project dissertation carries 60% of marks and presentation carries remaining 40% of marks.