GUJARAT UNIVERSITY

K. S. SCHOOL OF BUSINESS MANAGEMENT

[Five Years' (Full-time) Integrated Degree Course]

Semester-8 [M.Sc. (CA & IT)]

Subject Code: - KS_C_CC-483
Subject Name: - Quantitative Techniques
Course Credit: - 3

Objective:

As mentioned in the earlier semester, the objective of this course is to impart knowledge of scientific technique for solving complex decision making problem. In this semester the study of mathematical models are extended to present more analytical tools to deal with complex problem.

Unit No.	Course Content	Weight-age (%)

1	**Decision Theory**
	• The framework of decision making,
	• Decision making under Risk(Expected value criteria)
	• Decision making under uncertainty
	  ○ Maximin or Minimax criteria
	  ○ Laplace criteria
	  ○ Hurwicz criteria
	  ○ Savage criteria
	  ○ Expected Monetary Value (E.M.V.)
	  ○ Expected Profit with Perfect Information(E.V.P.I.)
		(20%)

2	**Inventory Control**
	• Introduction
	• Models of Inventory: (without proof)
	  ○ Purchase Model with Instantaneous Replenishment and without Shortages
	  ○ Manufacturing Model without Shortages
	  ○ Purchase Model with Instantaneous Replenishment and with Shortages (planned shortage only)
	  ○ Manufacturing Model with Shortages (planned shortage only)
	• Related examples
		(20%)

3	**Queuing Theory** General Structure of Queuing System: Arrival Process, Service System, Queue Structure, Operating Characteristics of Queuing System, Terminologies of Queuing System, Deterministic Queuing Models, Probabilistic Queuing Models: (M/M/1):(∞/FIFO) Model(without proof), Related examples	**(20%)**
4	**Simulation** Process of Simulation, Monte Carlo Simulation, Simulation of an Inventory System, Simulation of Queuing System, Advantages and Disadvantages of Simulation, related examples	**(20%)**
5	**Forecasting:** Forecasting Based on Regression model (Linear and multiple regression) Forecasting Based on Time series with linear trend and second degree parabola	**(20%)**

Recommended Lecture Scheme: Approximately 40 to 45 hours in a semester

Recommended Practical Scheme: Not Applicable

Assignment: Five assignments should be given.

Reference Books:

1. Quantitative Techniques in Management By N. D. Vohra
2. Operation Research By J. K. Sharma
3. Operation Research By Hamdy A. Taha
4. Operation Research By R. Panneerselvam