Course Structure For Operational Research

in

B.A. Programme

		Duration hours	Maximum Marks
1.	Linear Programming	3	100
2.	Inventory and Marketing Management	3	100
3.	Mathematical Programming	3	100
4.	Queueing and Reliability Theory	3	100
5.	Network Analysis and Theory of Sequencing	3	100
6.	(a) Forecasting	3	50
	(b) Case Studies		50

Note : Each paper will have four lecture periods.

1. Linear Programming

Introduction to Operational Research and Overview of O.R. modeling. Linear independence and dependence. Convex sets. Extreme points. Hyperplanes & Polyhedral sets. Solution of a System of Linear Equations, Concept of Basis, Basic Feasible Solutions.

Introduction to Linear Programming problem. Problem formulations. Graphical Solution. Theory of Simplex Method. Two Phase Simplex Method. M-Charne's Simplex Method. Duality in Linear Programming, Economic Interpretation of Duality. Transportation problem. Assignment Problem.

Suggested Readings:

1. G. Hadley: Linear Programming, Narosa, 1987 (2002 reprint available).
2. Hamdy A. Taha: Operations Research-An Introduction, Prentice Hall, 8th Edition, 2007.
3. F.S. Hillier, G.J. Lieberman : Introduction to Operations Research- Concepts and Cases, 9th Edition, Tata McGraw Hill, 2010.

2. Inventory Systems and Marketing Management

Inventory Systems:

Concepts and problems in Inventory system, Classification of Inventory systems, Different costs in Inventory system and method of their estimation. Detreministic inventory models with and without lead time and with and without shortages. Inventory models with all units Quality Discounts. Single period stochastic inventory models. Production scheduling problems.

Marketing Management:

Concept of marketing and its role in organization. Marketing decisions, scientific marketing analysis. Uses and limitations of mathematical models in marketing, Classification of market structure in competitive conditions. Demand elasticity, joint optimization of price, quality and promotional efforts. Pricing decisions. Media allocation for advertisement. Brand switching analysis.

Suggested Readings:

1. G. Hadley, T. M. Whitin: Analysis of Inventory Systems, D. B. Taraporevala and Sons, Published by arrangement with Prentice Hall Inc., 1979.
2. Zipkin: Foundations of Inventory Management, Mc-Graw Hill Inc., 2000.
3. Donald Waters: Inventory Control, John Wiley, 2003.