

IL BBA – 202: OPERATIONS RESEARCH & QUANTITATIVE TECHNIQUES

Unit 1 Overview of Operations Research (OR)

1.1 Origin of OR

1.2 OR Models and Modeling

1.3 Application and Scope of OR

1.4 Linear Programming Problem (LPP)

- Introduction and General Mathematical Formulation of LPP
- Assumptions of LPP
- Formulation of LPP – application of LPP Bachelor of Business Administration (BBA) Syllabus
- Graphical Solution
- Dual formulation of LPP

Unit 2. Transportation Problems (TP)

2.1 General Mathematical Formulation of TP

2.2 IBFS using North West Corner Rule (NWCR), Least Cost Method (LCM) and Vogel's Approximation Method (VAM)

2.3 Optimum solution using Modified Distribution (MODI) method

2.4 Solutions of TP under special cases of degeneracy, multiple, unbalanced, restricted and maximization.

2.5 Network Models and Methods

- Introduction to network, network diagram, concepts of event and Activity, critical path
- PERT
- CPM
- Forward pass, Backward pass
- Calculating EST, EFT, LST, LFT, Float of an activity and event

Unit 3 Assignment Problems (AP)

3.1 General Mathematical Formulation of AP

3.2 Hungarian Method of solving AP

3.3. Solutions of AP under special cases of unbalanced, maximization & restricted

Unit 4 Game Theory

- 4.1 Introduction of Game Theory and some basic terms
- 4.2 Pure and Mixed strategy games
- 4.3 Two-Persons Zero-Sum Games
- 4.4 The 4.4 Maximin – Minimax Principle
- 4.5 Games without saddle point (Mixed strategies)
- 4.6 Reduce game by Dominance
- 4.7 AP under special cases of unbalanced, maximization & restricted

SUGGESTED READING

- An Introduction to Management Science: Quantitative Approach to Decision Making by Anderson, Sweeney & Williams- Cengage (Erstwhile Thomson) Publications
- Practical Management Science by Winston & Albright- Cengage Erstwhile Thomson) Publications
- Introduction to Operations Research by Hillier & Lieberman – Tata McGraw Hill Publication
- Introduction to Operations Research by H. A. Taha- PHI Publications
- OR Techniques for Management by V. K. Kapoor – Sultan Chand & Sons
- OR Theory & Practice by J. K. Sharma – McMillan Publications
- Operations Research by Prem kumar Gupta & D. S. Hira - S. Chand Publications
- Quantitative Analysis for Management by Render, Stair, Hanna & Badri – Pearson Publications
- Quantitative Techniques in Management by N. D. Vohra – Tata McGraw Hill Publication