

St. Joseph's College of Commerce (Autonomous)
#163, Brigade Road, Bangalore - 560 025

LESSON PLAN (MODULE WISE)

COURSE: MCOM (INTERNATIONAL BUSINESS)

SEMESTER: IV

CODE&SUBJECT: P415AR201: OPERATIONS RESEARCH FOR BUSINESS DECISIONS

Lecture Hours: 45

OBJECTIVE:

- To provide a good foundation in the mathematics of operations research and appreciation of its potential application for decision making in the business world.

| Sl. No | UNIT & OBJECTIVES | No. of Lecture Hours | Methodology/ Instructional Techniques | Evaluation/ Learning Confirmation |
|-----------------|---|----------------------|---|-----------------------------------|
| MODULE 1 | <u>INTRODUCTION TO OPERATIONS RESEARCH</u> <u>Objective:</u> To have an overview of Operations Research and various techniques of decision-making. | 2 | | |
| 1. | Meaning - Characteristics, Scope and limitations of Operations Research | 1 | Lecture using PPT and Classroom Discussions | Presentation |
| 2. | Applications of OR | 1 | Lecture using PPT and Classroom Discussions | Presentations |
| MODULE 2 | <u>LINEAR PROGRAMMING</u> <u>Objective:</u> To learn to formulate LPP, solve graphically and using Simplex Method. | 12 | | |
| 1. | Basic Concepts - Construction of LP model | 4 | Lecture using PPT and Classroom Discussions | Assignment |

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| 2. | Problems on Formulation & Graphical Method of Solution | 3 | Lecture and Solving Problems in Classroom | Solving Extra Problems Outside Classroom |
| 3. | Simplex Method - Slack , Surplus and artificial Variables .Maximization and Minimization Problems- Big M method | 4 | Lecture and Solving Problems in Classroom Videos | Test |
| 4 | Concept of Duality, Need for Integer and Non Linear Programming | 1 | Presentation | Question and Answer in the form of Quiz |
| MODULE 3 | <u>TRANSPORTATION AND ASSIGNMENT PROBLEM</u> <u>Objective:</u> To learn to solve problems on transportation and assignment problems using different methods and decision-making. | 12 | | |
| 1. | Meaning - Introduction to Transportation Models LPP formulation - Methods to Finding Out Initial Solution (NWCM, VAM & LCM) | 4 | Lecture using PPT and Classroom Discussions | Question and Answer in the form Quiz |
| 2. | Testing for Optimality- MODI Method- Loops in transportation table and its properties | 3 | Lecture and Solving Problems in Classroom | Test |
| 3 | Introduction-Methods of Solving Assignment Problem- Enumeration, Simplex and Transportation (Theory) | 1 | Lecture using PPT and Classroom Discussions | Question and Answer |
| 4 | Hungarian Method & Special Cases | 4 | Lecture and Solving Problems in Classroom | Assignment |
| MODULE 4 | <u>QUEUING THEORY AND SIMULATION</u> <u>Objective-</u> To make students understand the Queuing Models and Simulation Technique | 7 | | |

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| 1 | Introduction, Queuing models and elements | 1 | Lecture using PPT and Classroom Discussions | Question and Answer |
| 2 | Problems on single server model. Concept of multiserver models | 2 | Lecture and Solving Problems in Classroom | Test |
| 3 | Simulation Technique- Introduction, Random Numbers, Solving problems using Monte Carlo Simulation Technique | 4 | Lecture and Solving Problems in Classroom | Solving Extra Problems Outside Classroom |
| MODULE 5 | <u>GAME THEORY</u> <u>Objective:</u> To understand the concept of Game theory and solve problems using Dominance Property | 3 | | |
| 1. | Introduction, Application of game theory, Saddle Point | 1 | Presentation | Question and Answer |
| 2 | Solving problems using Dominance Property | 2 | Lecture and Solving Problems in Classroom | Solving Extra Problems Outside Classroom |
| MODULE 6 | <u>NETWORK ANALYSIS</u> <u>Objective:</u> To understand the importance of using Network Techniques, Drawing Network Paths and Decision-Making. | 9 | | |
| 1. | Introduction and Guidelines for Construction of Network Diagram | 2 | Lecture using PPT and Classroom Discussions | Quiz |
| 2. | Project Duration and Critical Path - Forward Pass - Backward Pass- Floats | 3 | Lecture and Solving Problems in Classroom | Solving Extra Problems Outside Classroom |
| 3. | Probabilistic Time Estimates | 3 | Lecture and Solving Problems in Classroom | Solving Extra Problems Outside Classroom |
| 4. | Difference Between PERT and CPM | 1 | Lecture and | Question and |

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| | | | Discussion in Classroom | Answer |
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DATES & NATURE OF CIA:

- 1] First Unit Test 10 marks - between November 28th -December 5th, 2017- Written Test/Online.
- 1] First CIA for 10 marks - Test Nov 15th - Dec 15th 2018
- 2] Mid Term Exams 20 marks - January 15th -19th, 2018
- 3] Second CIA for 10 marks - between February 10th-15th, 2018 - Assignment/Project.

Submitted By:
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