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

LESSON PLAN (MODULE WISE)

COURSE: B.COM
SEMESTER: III
CODE&SUBJECT: UG15AO009 OPERATIONS RESEARCH

Lecture Hours: 60

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	**INTRODUCTION TO OPERATIONS RESEARCH** **Objective:**To have an overview of Operations Research and various techniques of decision-making.	**4**		
1.	Meaning – Nature and Scope of Operations Research	1	Lecture using PPT and Classroom Discussions	Written Test
2.	OR Models – Nature- Limitations of OR	2	Lecture using PPT and Classroom Discussions	Written Test
3.	Applications of OR	1	Lecture using PPT and Classroom Discussions	Written Test
MODULE 2	**INTRODUCTION TO LINEAR PROGRAMMING** **Objective:**To learn to formulate equations and solve graphically using linear programming technique.	**12**		

1.	Basic Concepts – Construction of LP model	2	Lecture using PPT and Classroom Discussions	Assignment
2.	Problems on Formulation- Graphical Method of Solution	5	Lecture and Solving Problems in Classroom	Solving Extra Problems Outside Classroom
3.	Maximization and Minimization Problems (Simple Problems)	5	Lecture and Solving Problems in Classroom	Assignment
MODULE 3	**SIMPLEX METHOD** **Objective:**To learn to solve linear programming problems through iteration process and understand the importance of introducing different variables.	**14**		
1.	Introduction - Standard LP Form and Basic Solutions	1	Lecture using PPT and Classroom Discussions	Question and Answer in the form of Quiz
2.	Slack – Surplus – Unrestrictive Variables	1	Lecture using PPT and Classroom Discussions	Question and Answer in the form of Quiz
3.	Simplex Algorithm – Artificial Solution	6	Lecture and Solving Problems in Classroom	Assignment
4.	Big-M method	4	Lecture and Solving Problems in Classroom	Assignment
5.	Minimization of LPP – Duality	2	Lecture and Solving Problems in Classroom	Solving Extra Problems Outside Classroom
MODULE 4	**TRANSPORTATION PROBLEM** Objective: To learn to solve problems on transportation using different methods and decision-making.	**14**		

1.	Meaning – Introduction to Transportation Models -- Trans- shipment Problems (concept only)	1	Lecture using PPT and Classroom Discussions	Question and Answer in the form Quiz
2.	LPP formulation - Methods to Finding Out Initial Solution (NWCM, VAM & LCM)	6	Lecture and Solving Problems in Classroom	Solving Extra Problems Outside Classroom
3.	Economic Interpretation of Ui's and Vj's	1	Classroom Discussions	Question and Answer
4.	Testing for Optimality- MODI Method– Loops in transportation table and its properties	6	Lecture and Solving Problems in Classroom	Question and Answer
MODULE 5	**ASSIGNMENT PROBLEM** **Objective:**To learn to solve linear programming problems through the technique of Assignment Problems using Hungarian Method and decision-making.	**8**		
1.	Introduction-Mathematical Statement of the Problem	1	Lecture using PPT and Classroom Discussions	Question and Answer
2.	Methods of Solving Assignment ProblemEnumeration- Simplex and Transportation (Theory)	1	Lecture using PPT and Classroom Discussion	Question and Answer
3.	Hungarian Method	6	Lecture and Solving Problems in Classroom	Assignment
MODULE 6	**NETWORK ANALYSIS** **Objective:**To understand the importance of using Network Techniques, Drawing Network Paths and Decision-Making.	**8**		
1.	Introduction and Guidelines for Construction of Network Diagram	1	Lecture using PPT and Classroom Discussions	Quiz
2.	Deterministic Time Estimates- Developing	2	Lecture and	Solving Extra

			Case Study problems	Problems Outside Classroom
	a Project Network			
3.	Project Duration and Critical Path – Forward Pass – Backward Pass- Floats	3	Lecture and Solving Problems in Classroom	Solving Extra Problems Outside Classroom
4.	Probabilistic Time Estimates	1	Lecture and Solving Problems in Classroom	Solving Extra Problems Outside Classroom
5.	Difference Between PERT and CPM	1	Lecture and Discussion in Classroom	Question and Answer

DATES & NATURE OF CIA:

1] First Unit Test 10 marks - between November 28th - December 5th, 2016 – Written Test/Online.

2] Mid Term Exams 20 marks – January 16th -18th, 2017.

3] Second CIA for 10 marks – between February 10th-15th, 2017 – Assignment/Project.

Submitted By:
Sneha S. Rai
Assistant Professor