



**K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU - 560109**  
**DEPARTMENT OF MECHANICAL ENGINEERING**  
**SESSION: 2021-2022 (EVEN SEMESTER)**  
**LESSON PLAN**

**NAME OF THE STAFF** : Dr. P N Jyothi  
**COURSE CODE/TITLE** : 17ME81/ OPERATIONS RESEARCH  
**SEMESTER/YEAR** : VIII / VI

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date	Execution Date
<b>MODULE 1</b>							
1	Introduction: Evolution of OR, Definitions of OR, Scope of OR, Applications of OR,	L	PPT	01	01	19/4/21	19/4/21
2	Phases in OR study. Characteristics and limitations of OR	L	PPT	01	02	19/4/21	19/4/21
3	Models used in OR	L	PPT	01	03	20/4/21	20/4/21
4	Linear Programming Problem (LPP), Generalized LPP- Formulation of L.P.P.	L	BB	01	04	20/4/21	20/4/21
5	Problems on LPP formulation	L	BB	03	07	21; 24; 26/4/21	21/4/21; 24/4/21
6	Problems on LPP formulation	L	BB	02	09	26; 27/4/21	27/4/21(2)
7	Problems on LPP formulation	L	BB	02	11	27; 28/4/21	28/4/21; 30/4/21
8	Solutions to LPP by graphical method (Two Variables)	L	BB	02	13	30/4/21 (2)	4/5/21(2)
9	Problems on LPP by graphical method (Two Variables)	L	BB	02	15	4/5/21 (2)	5/5/21; 30/5/21
10	Problems on LPP by graphical method (Two Variables)	L	BB	02	17	5/5/21; 8/5/21	8/5/21(2)
<b>MODULE 3</b>							
11	Transportation Problem: Formulation of transportation problem & types; Initial basic feasible solution using North-West Corner rule, Vogel's Approximation method.	L	BB	02	19	10/5/21 (2)	10/5/21 (2)
12	Problems on finding initial feasible solution	L	BB	02	21	11/5/21 (2)	11/5/21 (2)
13	Problems on finding initial feasible solution	L	BB	02	23	12; 17/5/21	17/5/21(2)
14	Optimality in Transportation problem by Modified Distribution (MODI) method.	L	BB	02	25	17; 18/5/21	18/5/21(2)


15	Problems on finding Optimum solution by MODI method	L	BB	02	27	18/5/24	19/6/24
16	Problems on finding Optimum solution by MODI method	L	BB	02	29	22/5/24 (2)	24/5/24 (2)
17	Solving Unbalanced T.P & Solving Maximization T.P	L	BB	02	31	24/5/24 (2)	25/5/24 (2)
18	Degeneracy in transportation problems, application of transportation problem	L	BB	02	33	25/5/24 (2)	31/5/24 (2)
19	Assignment Model formulation	L	BB	02	35	26/5/24 5/6/24	5/6 & 7/6/24
20	Solving Assignment problems by Hungarian Method	L	BB	02	37	7/6/24 (2)	7/6/24 (2)
<b>MODULE 4</b>							
21	Network analysis: Introduction, Construction of networks, Fulkerson's rule for numbering the nodes, AON and AOA diagrams.	L	BB	01	38	23/6/24	8/6/24
22	Problems on drawing a network	L	BB	02	40	24/6/24 (2)	14/6/24
23	Critical path method to find the expected completion time of a project	L	BB	02	42	22/6/24 (2)	15/6/24
24	Determination of floats in networks,	L	BB	02	44	5/7/24 (2)	6/6/24
25	Problems on CPM	L	BB	02	46	6/7/24 (2)	19/6/24
26	PERT networks, determining the probability of completing a project, predicting the completion time of project; Cost analysis in networks.	L	BB	02	48	7/7/24	21/6/24
27	Problems on PERT	L	BB	02	50	12/7/24 (2)	22/6/24 (2)
28	Crashing of networks- Problems	L	BB	03	53	13/7/24 (2)	23/6/24, 24/6/24 (2)
29	Queuing Theory: Queuing systems and their characteristics, Pure-birth and Pure-death models (only equations).	L	BB	01	54	14/7/24	26/6/24 1/7/24
30	Kendall & Lee's notation of Queuing, empirical queuing models - Numerical on M/M/1 and M/M/C Queuing models	L	BB	01	55	17/7/24	27/7/24
<b>MODULE 5</b>							
31	Game Theory: Definition, Pure Strategy problems, Saddle point, Max-Min and Min-Max criteria	L	BB	02	57	17/7/24	3/7/24
32	Problems on finding Saddle point	L	BB	02	59	19/7/24	3/7/24
33	Principle of Dominance, Solution of games with Saddle point-Problems	L	BB	02	61	20/7/24	5/7/24 (2)
34	Mixed Strategy problems. Solution of 2X2 games by Arithmetic method, Solution of 2Xn m and mX2 games by graphical method. Formulation of games	L	BB	02	63	27/7/24	6/7/24 (2) 8/7/24 (2)
35	Problems on finding Value of game using graphical method	L	BB	02	65	28/7/24	9/7/24 (2)

36	Sequencing: Basic assumptions, Johnson's algorithm, sequencing 'n' jobs on single machine using priority rules	L	BB	02	67	2/8/21(2)	10/7/21
37	sequencing using Johnson's rule-'n' jobs on 2 machines	L	BB	02	69	3/8/21(2)	10/7/21
38	Sequencing problems on 'n' jobs on 3 machines, 'n' jobs on 'm' machines	L	BB	02	71	4/8/21(2)	12/7/21
39	Sequencing of 2 jobs on 'm' machines using graphical method.	L	BB	02	73	7/8/21 (2)	12/8/21 13/7/21
40	Sequencing Problems on 2 jobs on M machines	L	BB	02	75	11/8/21	13/7/21
<b>MODULE 2</b>							
41	Module 2: LPP: Simplex method, Canonical and Standard form of LP problem, slack, surplus and artificial variables..	L	BB	02	77	13/8/21	14/7/21(2)
42	Solutions to LPP by Simplex method	L	BB	01	78	13/8/21	14/7/21
43	Solutions to LPP by Simplex method,	L	BB	01	79	18/8/21	12/7/21
44	Problems by Big-M Method	L	BB	01	80	19/8/21	19/7/21
45	Problems by Big-M Method	L	BB	01	81	19/8/21	19/7/21
46	Two Phase Simplex Method	L	BB	01	82	20/8/21	20/7/21
47	Two Phase Simplex Method	L	BB	01	83	20/8/21	20/7/21
48	Concept of Duality, writing Dual of given LPP. Solutions to L.P.P by Dual Simplex Method	L	BB	01	84	19/8/21	21/7/21
49	Problems on Dual LPP	L	BB	01	85	19/8/21	
50	Degeneracy in LPP.	L	BB	01	86	19/8/21	
<b>REVISION</b>							
51							
52							
53							
54							

Total No. of Lecture Hours = 86

Total No. of Tutorial Hours = -

Total No. of Revision Hours = -

  
Course In charge

  
Head of the Department

  
Principal