

Lesson Plan

Name of Faculty : Diksha Sharma

Semester: 7th

Subject: Operation Research

Code: ME- 405-F

Lesson Plan Duration 15 weeks

Week	Lecture	Topic covered
1 st	1	Unit- I Introduction: Definition, role of operations research in decision-making, applications in industry
	2	Concept on O.R. model building –Types & methods
	3	Linear Programming (LP): Programming definition, formulation
	4	Tutorial Discussion
2 nd	5	solution- graphical methods on LPP
	6	simplex Gauss-Jordan reduction process in simplex methods
	7	Simplex Methods on maximization and Minimization
	8	Tutorial Discussion
3 rd	9	BIG-M methods computational, problems
	10	Dual Simplex Method
	11	Dual Primal Method
	12	Tutorial Discussion
4 th	13	Revision of Unit –I
	14	Test of Unit I
	15	Unit –II Deterministic Model: Transportation model-balanced
5 th	16	Tutorial Discussion
	17	Deterministic Model: Transportation model-unbalanced
	18	north west rule
	19	least cost or matrix minimal
	20	Tutorial Discussion
	21	Vogel's Method,
	22	MODI methods, degeneracy
6 th	23	Stepperg stone method
	24	Tutorial Discussion
	25	Assignment Problem
	26	traveling salesman problems
	27	Revision of Duality, PRIMAL-DUAL relations-its solution
	28	Tutorial Discussion
8 th	29	shadow price, economic interpretation
	30	post-optimality

	31	sensitivity analysis problems
	32	Tutorial Discussion
9 th	33	Revision of Unit II
	34	Test
	35	Unit –III Waiting Line Models: Introduction, queue parameters, M/M/1 queue
	36	Tutorial Discussion
10 th	37	performance of queuing systems, applications in industries, problems
	38	Project Line Models: Network diagram, event, activity, defects in network
	39	PERT & CPM, float in network
	40	Tutorial Discussion
11 th	41	variance and probability of completion time
	42	project cost- direct, indirect, total
	43	optimal project cost by crashing of network
	44	Tutorial Discussion
12 th	45	resources leveling in project problems
	46	Revision of Unit III
	47	Unit-IV Simulation: Introduction, design of simulation, models & experiments,
	48	Tutorial Discussion
13 th	49	model validation, process generation, time flow mechanism
	50	Monte Carlo methods- its applications in industries problems
	51	Decision Theory: Decision process, SIMON model
	52	Tutorial Discussion
14 th	53	SIMON model types of decision making environment- certainty, risk, uncertainty
	54	decision making with utilities problems
	55	Revision of Unit IV
	56	Tutorial Discussion
15 th	57	Test of unit III
	58	Test of unit IV
	59	Revision of Unit I, II
	60	Tutorial Discussion