



Session: 2020–2021

## MERI College of Engineering and Technology (MERI - CET)

### Lesson Plan

Name of the Faculty : Ms. Nidhi

Discipline : Mechanical Engineering

Semester : 7<sup>th</sup>

Subject : Operation Research (ME- 405-F)

Lesson Plan Duration : (from Aug., 2020 to Nov., 2020)

\*\* Work Load (Lecture) per week (in hours): Lectures-02

Week	Theory	
	Lecture Day	Topic (including assignment/test)
1 <sup>st</sup> (01/08/20)	1 <sup>st</sup>	<b>Introduction to OR</b> O.R. model building –Types & methods
	2 <sup>nd</sup>	Applications in industry. Concept on O.R. model building –Types & methods.
2 <sup>nd</sup> (08/08/20)	1 <sup>st</sup>	<b>Linear Programming (LP):</b> Programming definition, formulation
	2 <sup>nd</sup>	solution- graphical
3 <sup>rd</sup> (15/08/20)	1 <sup>st</sup>	Simplex Gauss-Jordan reduction process in simplex method. <b>ASSIGNMENT-1</b>
	2 <sup>nd</sup>	BIG-M methods computational, problems.
4 <sup>th</sup> (22/08/20)	1 <sup>st</sup>	<b>Deterministic Model</b> Transportation model-balanced & unbalanced
	2 <sup>nd</sup>	North west rule, Vogel’s Method, least cost or matrix minimal



Session: 2019–2020

## MERI College of Engineering and Technology (MERI - CET)

5 <sup>th</sup> (29/08/20)	1 <sup>st</sup>	Stepperg stone method <b>ASSIGNMENT-4</b>
	2 <sup>nd</sup>	Duality, PRIMAL-DUAL relations-its solution, shadow price, economic interpretation, dual-simplex
6 <sup>th</sup> (05/09/20)	1 <sup>st</sup>	Post-optimality& sensitivity analysis, problems.
	2 <sup>nd</sup>	<b>Waiting Line Models</b> Introduction, queue parameters, M/M/1 queue, performance of queuing systems, applications in industries, problems
7 <sup>th</sup> (12/09/20 )	1 <sup>st</sup>	<b>Project Line Models</b> Network diagram, event, activity, defects in network, PERT
	2 <sup>nd</sup>	CPM, float in network, variance and probability of completion time, project cost- direct, indirect, total
8 <sup>th</sup> (19/09/20)	1 <sup>st</sup>	Optimal project cost by crashing of network, resources leveling in project, problems. <b>ASSIGNMENT-5</b>
	2 <sup>nd</sup>	<b>Simulation</b> Introduction, design of simulation, models & experiments,
9 <sup>th</sup> (26/09/20)	1 <sup>st</sup>	Process generation, time flow mechanism, Monte Carlo methods- its applications in industries, problems.
	2 <sup>nd</sup>	<b>Decision Theory</b> Decision process, SIMON model types of decision making environment- certainty, risk, uncertainty, decision making with utilities, problems.

