

Year & Sem:	Course Code: ME3608	Course Name: Operations Research	No. of Credits: 4	L 2	T&PS 2	P 0
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Introduction : Definition, role of operations research in decision-making, applications in industry. Concept on O.R. model building –Types & methods. **Programming (LP):** Programming definition, formulation, solution- graphical, simplex Gauss-Jordan reduction process in simplex methods, BIG-M methods computational, problems. **Deterministic Model:** Transportation model-balanced & unbalanced, north west rule, Vogel's Method, least cost or matrix minimal, Stepping stone method, MODI methods, degeneracy, assignment, traveling salesman, problems. **Advanced Topic Of LP:** Duality, PRIMAL-DUAL relations-its solution, shadow price, economic interpretation, dual-simplex, post-optimality & sensitivity analysis, problems. **Waiting Line Models:** Introduction, queue parameters, M/M/1 queue, performance of queuing systems, applications in industries, problems. **Project Line Models:** Network diagram, event, activity, defects in network, PERT & CPM, float in network, variance and probability of completion time, project cost- direct, indirect, total, optimal project cost by crashing of network, resources leveling in project, problems. **Simulation:** Introduction, design of simulation, models & experiments, model validation, process generation, time flow mechanism, Monte Carlo methods- its applications in industries, problems. **Decision Theory:** Decision process, SIMON model, types of decision making environment - certainty, risk, uncertainty, decision making with utilities, problems

References/Text Books:

1. Introduction to Operations Research, H.A.Taha, PHI, 9th edition, 2013.
2. Introduction to Operations Research Frederick K. Hiller, Bodhibrata Nag, Preetam Basu, Gerald J. Lieberman, TMH, 9th edition, 2011.
3. Operations Research by R Panneerselvam, PHI, 2nd edition, 2012.
4. Operations Research, Wagner, PHI Publications, 2 edition.
5. Operation Research, J.K.Sharma, MacMilan, 5th edition, 2013.
6. Linear Programming, SusyPhillipose, PHI
5. Operations Research, A.M.Natarajan, P.Balasubramani, A. Tamilarasi, Pearson Education
6. Operations Research: Methods & Problems, Maurice Saseini, Arthur Yasan & Lawrence Friedman
7. Operations Research, Dr. C.Nadhamuni Reddy & Sri Gopal Krishna, Kurnool Publishers

Lecture Plan: Unit-I & -II syllabus for MID-I, Unit-III & -IV syllabus for MID-II and Unit-V & -VI syllabus for MID-III examinations.

Video Lectures (Web Links):

- 1.
- 2.