

IE 452
Mathematical Modeling and Applications
Sprin'22

Instructor : Dr. Ömer Kirca **email:** kirca@metu.edu.tr **office:** IE217
Assistant :

Prerequisite :

- IE251, IE252 and IE323 (or equivalent)
- Competency in Math. Programming software such as GAMS, CPLEX, Ilog ...

Topics :

1. Introduction
2. Review of LP and IP Solution Methods
3. Network Flow Models
4. TSP and VRP models
5. Production Planning Models
 - . Static PP
 - .- Dynamic PP and Lot sizing
 - . Scheduling Problems
6. Location Models

Requirements :

- . Midterm 30%
- . Final 40%
- . Homeworks (3) 30%
- Attendance is required and will be monitored.

Text :

Mainly lecture notes, paper and parts of certain text books.

All the correspondence and material will be conveyed through ODTÜClass.

References:

- Winston W.L., *Operations Research-Applications and Algorithms*, 4th ed. Duxbury Press Cal., 2004. (or latest edition)
- Hillier F.S., Lieberman G.J., *Introduction to Operations Research*, 9th ed., McGraw-Hill, 2010 (or latest edition)
- Pochet Y. and Wolsey, L.A. *Production Planning by Mixed Integer Programming*. Springer, 2006