

TED University
Department of Industrial Engineering
IE 464 – Distribution Logistics
Fall 2016

Course Description

Distribution network design. Single-echelon single-item and multi-echelon multi-item location problems. Short haul and long haul transportation problems. Traveling salesperson and vehicle routing problems, implementation areas.

Credits

(3+0+0) 3 TEDU Credits, 5 ECTS Credits

Pre-requisites

None.

Course Objectives

This course aims to teach modeling and solution of distribution logistics problems. The course covers mathematical models in designing logistics networks, planning long haul freight transportation, traveling salesperson problem, and vehicle routing problem. In this course, several case studies that link theory to practice are also discussed.

Learning Outcomes

Upon successful completion of this course, a student will be able to

1. Design a logistics network specifying the location of main entities with notions of optimality.
2. Generate mathematical models to optimize the cost of flows on a distribution network.
3. Develop optimal shipment consolidation and dispatching plans.
4. Solve traveling salesperson and vehicle routing problems with realistic constraints.
5. Interpret and criticize distribution network practices adopted for complex contemporary problems of manufacturing and service systems.
6. Recognize the need of and engage in life-long learning.

Instructor

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Assistant

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Required Text Book

Ghiani G., Laporte G., Musmanno R., Introduction to Logistics Systems Management (2nd edition)

Supplementary Text Book

Ballou R. H., Business Logistics/Supply Chain Management (5th edition)

Course Schedule

Monday (A116/A316L)	09:00 – 10:50
Tuesday (A116/A316L)	13:00 – 13:50

Office Hours: By appointment

Course Management System

Moodle (<http://moodle.tedu.edu.tr/>) All announcements and course related materials will be posted on Moodle course page.

Planned Learning Activities and Teaching Methods

Telling / Explaining
Discussion / Debate
Questioning
Reading
Case Study / Scenario Analysis
Simulation / Games

Grading

Active Learning Exercises:	8%
Homework/Reading Assignments:	22%
Term Project:	15%
Midterm Exam:	25%
Final Exam:	30%

Computer Usage

You are required to use an optimization solver (ex. MS Excel, LINDO, OPL, GAMS, MATLAB optimization toolbox) for homework and term project.

Late Submission and Make-up Policy

If you miss the midterm exam due to an acceptable excuse, you are entitled to receive a make-up exam; however you must contact the instructor and receive a formal permission as soon as possible and no later than one week after the exam. For homework assignments and term project, late submissions will not be accepted.

Estimated Student Workload

Lectures	42 hrs
Readings	30 hrs
Homework	20 hrs
Term Project	20 hrs
Midterm Exam	15 hrs
Final Exam	20 hrs
Total estimated workload is 147 hours.	

Misconduct in class and exams

All cell phones must be brought to silent mode in class.

"All of the following are considered plagiarism: turning in someone else's work as your own, copying words or ideas from someone else without giving credit, failing to put a quotation in quotation marks, giving incorrect information about the source of a quotation, changing words but copying the sentence structure of a source without giving credit, copying so many words or ideas from a source that it makes up the majority of your work, whether you give credit or not" (www.plagiarism.org)

Plagiarism is a very serious offense and will be penalized accordingly by the university disciplinary committee. The best way to avoid accidentally plagiarizing is to work on your own before you ask for the help of other resources.

Cheating has a very broad description which can be summarized as "acting dishonestly". Some of the things that can be considered as cheating are the following: copying answers on exams, quizzes and assignments, using prohibited material on exams, lying to gain any type of advantage in class, providing false, modified or forged data in a report, plagiarizing, modifying graded material to be re-graded, causing harm to colleagues by distributing false information about an exam, homework or lab.

Cheating is a very serious offense and will be penalized accordingly by the university disciplinary committee.

Tentative Course Outline

A tentative course outline is given below. Any changes and updates will be announced on the course web page.

Week	Topic	Chapter
1	Introducing Logistics	1
2	Classification of Location Problems Qualitative Methods in Location Problems Single-Commodity Single-Echelon Location Problems	3
3	Single-Commodity Single-Echelon Location Problems (cont'd)	3
4	Single-Commodity Single-Echelon Location Problems (cont'd) Single-Commodity Two-Echelon Location Problems Multi-Commodity Two-Echelon Location Problems	3
5	Location Covering Problems	3
6	Classification of Transportation Problems Freight Traffic Assignment Problem	6
7	Freight Traffic Assignment Problem (cont'd)	6
8	Service Network Design Problems	6
9	<i>Midterm (November 21, Monday, during lecture hours)</i> Service Network Design Problems (cont'd)	6
10	Vehicle Allocation Problems Dynamic Driver Assignment Problem Fleet Composition	6
11	Shipment Consolidation Asymmetric Traveling Salesman Problem	6
12	Symmetric Traveling Salesman Problem Node Routing Problem with Capacity and Length Constraints	6
13	Node Routing Problem with Capacity and Length Constraints (cont'd) Node Routing and Scheduling Problem with Time Windows Arc Routing Problems	6
14	Arc Routing Problems (cont'd)	6