SPRING 2012
ISEN 601 – Location Logistics of Industrial Facilities

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Course Description and Objective

A modern industrial society is characterized by the ability to produce and consume vast quantities of goods and services. With literally an infinite choice of possibilities of how to move and store goods in a logistical system, the logistics engineer must be able to comprehend the needs of the system (objectives, constraints) and be able to design an efficient set of rules for managing it. An important set of decisions in this context is concerned with the number and the location of facilities such as manufacturing plants and distribution centers, and assignment of customer or demand points to these facilities optimally to minimize associated system costs or maximize service levels. The optimization models and tools to be introduced in this course are fundamental in logistics network design and form the basis for addressing a wide variety of situations in the logistical strategic and tactical decision making contexts. Thus, the objective of the course is to acquaint the student with the field of location logistics, the problems encountered therein, and the methods of analysis used to solve these problems.

Textbook

R.L. Francis, L.F. McGinnis and J.A. White, *Facility Layout and Location: An Analytical Approach,* 2nd Edition, Prentice-Hall, Inc., Englewood Cliffs, N.J. 1992.

References

M.S. Daskin, *Network and Discrete Location: Models, Algorithms and Applications*, John Wiley and Sons, New York, NY. 1995.

R.F. Love, J.G. Morris and G.O. Wesolowsky, *Facilities Location: Models and Methods*, North-Holland, New York, NY. 1988.

Prerequisites ISEN 620 (or equivalent background)

Tentative Outline

1. Introduction to Logistics - Components, Objectives, Issues
2. Planar Single-Facility Location Models (Minisum($\ell_p:\ 1 \le p \le 2$), Minimax($\ell_p:\ p = 1, 2$))
3. Planar Multi-Facility Location Models (Minisum($\ell_p:\ 1 \le p \le 2$))
4. Planar Location-Allocation Problem (1-Dim. DP, Heuristics)
5. Location Models on Tree Networks (1–median, 1–center, Covering, n–Center)
6. Location Models on General Networks (Covering, n-Center, n-Median)
7. Discrete Location Models (Uncapacitated, Capacitated)
8. Layout Design–Quadratic Assignment Problem (Heuristics)

Office Hours

My official office hours are 10:30-11:30 TTh. However, you can stop by anytime when I am in the office. Alternatively, if you want to make sure that I am in the office, you can make an appointment by phone or e-mail. I encourage each one of you to ask any questions you might have on the material during the lecture or right after the class. It is very much to your benefit to get these points cleared as soon as they occur. You are also strongly encouraged to come and see me in the office whenever you have problems.

Grading

You will be given three exams (20% each), a term project (20%) and quizzes (20% - based on covered material, study problems and reading assignments) If a test or quiz is missed, you must have a written authorized excuse.

Students with Disabilities

The ADA is a federal antidiscrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Service for Students with Disabilities in Cain Hall, Room B118, or call 845 1637. For additional information visit `http://disability.tamu.edu`

Scholastic Dishonesty

Violations to academic integrity will not be tolerated and will be handled according to the university rules. Definitions of academic misconduct can be found at `http://aggiehonor.tamu.edu/RulesAndProcedures/HonorSystemRules.aspx` and Rules and Procedures can be found at `http://aggiehonor.tamu.edu/RulesAndProcedures/`