

Syllabus

Instructor

Marc Goetschalckx

ISyE Room 321

Tel. 404-894-2317

Fax 404-894-2301

Electronic mail: marc.goetschalckx@isye.gatech.edu

Word Wide Web: www.isye.gatech.edu/~mgoetsch

FTP site: [ftp.isye.gatech.edu/pub/mgoetsch](ftp://ftp.isye.gatech.edu/pub/mgoetsch)

Office Hours: Thursday 2:00-3:00 PM.

Graduate Teaching Assistant

TBA

Class Meetings

Lectures: Tuesday and Thursday 9:30 - 11:00 AM, IC Room TBA.

Laboratories: Tuesday 3:00 - 6:00 PM, IC Room TBA.

Text

Heragu, S., (1997). **Facilities Design**. PWS Publishing Company, Boston, Massachusetts.

Class Notes and Class Materials

Class notes and materials are available for downloading from the ISyE FTP site and from my home page.

For each chapter there are three files, one with the full text of the notes, one with an overview of the overheads (six overheads to a page), and one with a full size copy of the overheads. The first two files are in the Adobe Acrobat 3.0 format (PDF) and are suitable for printing to any postscript printer. They have the PDF extension. You can also print these files to any printer installed under Windows using the Adobe Acrobat reader. The Acrobat reader can be downloaded free of charge from the Adobe site www.adobe.com. The third file is a ZIP archive that needs to be expanded into a separate directory, where a number of Hypertext Markup Language (HTML) files will be created. The archive file has the ZIP extension. An evaluation version of the Winzip archiving utility can be downloaded free of charge from the

Winzip site www.winzip.com. The HTML files can be viewed with the Microsoft Internet Explorer web browser, which can be downloaded from the Microsoft site www.microsoft.com. Each presentation starts with the file *index.htm*. The files in PDF format are stored on the ISyE FTP server. The ZIP files related to the overheads are accessible from my home page. You can also view the presentation overheads online from my home page.

For example, the three files corresponding to this syllabus are called "*ISyE 4102 Syllabus.pdf*", "*ISyE 4102 Syllabus 6.pdf*", and "*ISyE 4102 Syllabus slides HTML.zip*". The table of contents of the class notes is given in the files "*Logistics Systems Design.pdf*", "*Logistics Systems Design 6.pdf*" and "*Logistics Systems Design slides HTML.zip*".

Printed class notes are available from the bookstore under the name "Logistics Systems Design". This document contains the most current version of the text and overheads as of December 15th, 1997.

References and Other Materials

Tompkins, J. A., J. A. White, et al. (2nd Edition 1995). **Facilities Planning**, John Wiles & Sons, New York, New York. There are many differences with the 1st Edition book, so only the 2nd Edition is suitable.

Tompkins, J. A. and J. Moore J., (1978). **Computer Aided Layout: A User's Guide**, IIE Monograph, Norcross, Georgia. One copy is available in the ISyE Undergraduate Computer Lab.

Francis, R. L., L. F. McGinnis, and J. A. White, Second Edition (1992). **Facility Layout and Location: An Analytical Approach**. Prentice Hall, Englewood Cliffs, New Jersey.

Sule, D. R., Second Edition (1994). **Manufacturing Facilities: Location, Planning and Design**. PWS Publishing Company, Boston, Massachusetts.

Konz, S., (2nd Edition 1994). **Facility Design: Manufacturing Engineering**. Publishing Horizons, Inc., Scottsdale, Arizona.

Web site of the Facilities Planning and Design (FAPAD) Division of the Institute of Industrial Engineers. www.iieorg.net.

Course Objectives

The objective of this course is to teach the student how to successfully complete an engineering design project in order to prepare the student for his senior design project and for later design projects in industry. The vehicle used is the design of facilities and operations in a manufacturing environment.

There are five basic skills required in each engineering design project and in order to pass the course the student must show mastery of each of those skills:

- 1) Basic understanding of the methodologies and practices used in the design field, in this case facilities design.
- 2) Cooperation with team members and management of team efforts.
- 3) Presentation and influencing skills to defend your design and to get it accepted.
- 4) Acceptance of and adaptation to changing and imprecise design tasks and use of common (engineering) sense.
- 5) Acquisition of additional information from a variety of sources, such as trade and academic journals, the printed press, and the Internet.

The following is an extract of the address by Fred W. Garry, Vice-President of Corporate Engineering and Manufacturing, General Electric Company, to the Engineering Deans Institute Meeting (March 27, 1985).

"At the bachelor's level we don't expect an expert level of knowledge, but we would expect that the graduate would be generally aware of the state-of-the-art practices in their discipline specialty and familiar with its jargon and basic concepts.

Today's graduates should be capable of communication clearly and realizing that in the complex industrial world they will usually be members of a team and that influencing skills are important for both team and individual career success.

Today's graduates must be comfortable with change, believe that it is the way of life and that they must continue to learn throughout their careers."

Grading

Laboratory, homework, and reports count for 35 %.

The midterm exam counts for 30 % and the final exam for 35 %.

Comments and Rules

Teams

Homework, reports, and presentations, and class discussions are due in teams of a maximum of four persons. One grade will be given per team. Teams can change on a homework by homework basis. Homework and reports are discussed and corrected during the lab periods. The team can select the team member who will present a particular solution. For any presentation, at least a title page must be handed in. The persons listed on the title page of the report or presentation will receive a grade for that report or presentation. It is the responsibility of the team to assure that each team member has contributed approximately equally to a report or presentation. Late homeworks and reports will neither be accepted nor

graded. The team is responsible for assuring that at least one member of the team attends every class for getting all information, materials, and scheduling arrangements for the team member that attended the class.

Reports

Reports should be typewritten, double-spaced, on one side of 8.5 by 11 inch paper and *within* the length limit. All computer printouts and other material must be cut to the same 8.5 by 11-inch size. The reports should be of professional quality. Drawings should satisfy engineering standards; i.e. all elements must be properly dimensioned. Drawings can be created by computer or by hand using a ruler and compass, but lines or circles drawn without ruler or compass are not acceptable.

Presentation should be of professional quality. Audio-visual aids should be limited to overhead transparencies. The team member presenting the solution should be prepared to defend the team's solution and to answer questions. A clear and concise presentation of the solution and insight into the problem are of prime importance, and strict time limits will be imposed. Fifty percent of the grade will be on the content of the presentation; the other half will be on the format of the presentation.

Class Attendance

Class attendance is not mandatory, but highly recommended. The team is responsible for assuring that at least one member of the team attends every class for getting all the information, materials, and scheduling arrangements for the team. Students should display a sign with their first and last names. Software to create such signs is available in the ISyE Undergraduate Computer Lab.

Graduating Students

Students graduating at the end of this quarter should contact the instructor immediately.

Course Outline

Date	Lecture Topic	Reading
05+07-Jan	Introduction to Facilities Design	Ch. H-1+2, Ch. G-1+11
12+14-Jan	Facilities Design Data Requirements	Ch. H-3, Ch. G-11
19+21-Jan	Process and Schedule Design, Layout Types	Ch. H-3, Ch. G-12
26+28-Jan	Material Handling and Storage Equipment	Ch. H-11-12, Ch. G-13+14
02+04-Feb	General Layout Methodology	Ch. H-4, Ch. G-15
LAB 04-Feb MIDTERM		
9+11-Feb	Computer Aided Layout (Spiral, Layopt, ...)	Ch. H-6, Ch. G-16
16+18 Feb	Computer Aided Layout (Planopt, Blocplan)	Ch. H-6, Ch. G-16
23+25 Feb	Theoretical methods in facilities Design	Ch. H-5+7, Ch. G-17
02+04-Mar	Discrete Warehouse Layout and Location	Ch. H-12, Ch. G-18-19
9+11-Mar	Warehouse Operations and Order Picking	Ch. G-20
15-Mar	FINAL EXAM WEEK	

ISyE 4102 Syllabus Winter 1999.doc, Version 10.1, XXX 0, 0000.