ISyE 4803-SHA (CRN 28399), Facility Layout and Warehousing, Spring 2026, Syllabus

Instructor: Dr. Gunter Sharp **Office:** Groseclose 447 (near elevator)
Phone: 678.462.1351 **Office hrs.:** TBD
virtual, upon request
E-mail: gsharp@isye.gatech.edu **Class:** TR 11:00 – 12:15, ISyE Main 126
Web site: https://gatech.instructure.com/courses/508574 *Please allow time for site updates.*
TA:

References: There is no required text; but the Tompkins book is strongly recommended.
Tompkins, J.A., J.A. White, et al, *Facilities Planning*, 4th Ed., John Wiley & Sons, 2010.
https://gatech.instructure.com/courses/430450/wiki
(If you buy a text, this one is recommended.
E-editions from Wiley start at $168, others and used editions may cost less.)
Kulwiec, Raymond A., *Materials Handling Handbook*, 2nd Ed., John Wiley & Sons, 1985.
Bartholdi, J.J., III, and S.T. Hackman, *Warehouse and Distribution Science*, 2014, free for students at:
http://www2.isye.gatech.edu/~jjb/wh/book/editions/wh-sci-0.96.pdf (See Canvas Module 000)
Sharp, G.P., "Warehouse Management," in Salvendy, Gabriel (Ed.), *Handbook of Industrial Engineering*, John Wiley & Sons, 2000 (free for students, on Canvas, Module 000).
Sharp, G.P., "Warehousing", in Taylor, G.D., *Handbook on Engineering Logistics*, CRC Press, 2008
(free for students, on Canvas, Module 000).

Objectives: This course covers concepts and techniques of planning, design, and operation within a facility, with special emphasis on flows of people and materials, and storage/retrieval operations. We will be flexible and operate according to just-in-time principles with respect to reading and homework assignments. The major topics are:

0. Framing the question: What is the nature of the problem?
   This will include some new material resulting from the Covid-19 crisis
1. Processing requirements analysis. What are the changes from the "before" situation?
2. Activity relationships, which areas should be adjacent/close, apart
3. From-to charts, quantitative measure of trips between department pairs
4. Traditional layout planning, simple graphics software
5. Computer-aided layout planning, smart software
6. Criteria for layout evaluation
7. Multi-criterion approaches for layout evaluation, linear multi-attribute utility function
8. Technologies/topologies for material flow systems in manufacturing/distribution
9. Analytic techniques for various topologies (material flow systems)
10. Technologies/topologies for storage systems
11. Analytic techniques for various topologies (storage systems)
12. Distribution center operations, material and information transformations
13. Ergonomic aids, NIOSH guidelines and evaluation techniques
14. Economic analysis for capital-intensive projects

Professional behavior: Students are expected to act professionally during class and with respect to keeping up with class material. Please turn off mobile phones before class; do not bring food into class; if you bring something to drink, pop any beverage tabs before entering the room. If you arrive late or must leave early, do so quietly and inconspicuously. Please avoid talking to others in class.

Grades: Grades will be determined by exams (three) and HW/projects (eight):
Exams = 40% Group Homework and Projects = 60%

Exams: There will be two mid-term exams, each worth 10%, and a final exam worth 20%.

Group Homework and Projects: You will have about 7 to 10 calendar days to complete the work on each assignment. Some of the shorter assignments are for individual work.

Honor Code: The Georgia Tech Honor Code will be strictly enforced in this class.
The instructional staff takes precautions to prevent violations, including the following:
multiple versions of exams, photocopying of exams before returning to students.

Software for Preparing Drawings: If you are not familiar with software for preparing layout drawings, you should learn how to use one: Visio (recommended), AutoCAD, or similar. The software must allow for measurement according to a scale. MS Paint, MS PowerPoint, etc., typically are not suitable because they lack this feature.
A class session will be devoted to Visio.

Formatting Spreadsheets, Document Filenames: Students should know how properly to prepare spreadsheets for submission in project documents: control display accuracy, control page view, control printing, control column widths, center column headings. Filenames should reflect course number, student family name(s), assignment number.

Epidemics: Please keep up-to-date on campus guidelines. If you are affected, please let us know, and we will accommodate you with respect to homework and exams. Some videos from previous years will be available.

Communications: The high volume of spam and the filters to avoid spam are making e-mail communication more difficult. If you send an e-mail message, be sure to include: **ISyE4803** in the **Subject** field, your **GT user ID** (e.g., ab34) and your **last name**, even if you are not sending the message from that account. Please note that it may take a day to respond to an e-mail message.
Questions that are answered by the syllabus, and questions about when grades will be posted, might be ignored..
The instructional staff will make every effort to post grades in a timely manner, usually within a week.
a. **Discussions** on Canvas, for questions of a general nature. These will be organized by topic.
b. **Instructor**: Gunter Sharp, gsharp@isye.gatech.edu, use campus email, avoid Canvas email.
George Tower, Room 1115..

Schedule: If an epidemic causes a switch to remote learning, the exams will be structured as take-home assignments.

HW Due date Exam date	HW Assignment type, Exam	Value	Comments
Fri 15 Jan	01-Survey	2	Individual work
Fri 22 Jan	02-Volumetrics, space utilization, shared storage	4	Team work
Fri 29 Jan	03-Drawing exercise	4	Individual work
Fri 12 Feb	04-Facility layout, traditional methods	10	Team work
Wed 17 Feb	**Midterm Exam 1**	10	Individual work
Mon 1 Mar	05-AS/RS configuration	10	Team work
Fri 12 Mar	06-Mini-project (optional)	10	Team work
Fri 19 Mar	07-Multi-criterion evaluation	6	Team work
Wed 31 Mar	**Midterm Exam 2**	10	Individual work
Wed 14 Apr	08-Empty carriers, vehicle analysis	8	Team work
Fri 23 Apr	09-Fringe benefits analysis, labor staffing	6	Team work
???	**Final Exam**	10-20	Individual work

Final Exam:

If you work the short version, it will count 10 points, the same as Exam 1 and Exam 2.

If you work the long version, it will count 20 points.

The maximum points for students will either be:

80 if HW06 was skipped, and the short version of Exam 3 is chosen;

90 if HW06 was skipped, and the long version of Exam 3 is chosen.

If HW06 was worked, these values would change to 90 and 100, respectively.

The final average will be normalized.

Some exceptions might occur for individuals who registered late.