USC University of Southern California

ISE 375-L and Facilities Design
Units: 3 - Fall 2019:

Lecture: Mon. & Wednesday, 12:00 pm-1:15 pm
Location: KAP 145

Lab sessions: Wednesday, 2:00 pm -2:50 pm
Location: SAL 126 (Conducted by TA)

Instructor: Dr. Shalini Gupta
Office: GER 207
Office Hours: Monday from 1:30 pm – 2:30 pm
Contact Info: shalinig@usc.edu

Teaching Assistant: TBD
Office: TBD
Office Hours: TBD
Contact Info: TBD

Course Description
Design of facilities for operations and distribution. Product, process flow, computerized layout planning, and facility location techniques that lead to making good decisions for facilities layouts.

Learning Objectives
Upon completion of this course the student is expected to have demonstrated his/her ability to know and properly use:

1. Understanding how product, process, and schedule impact the locating and designing different types of facilities.
2. Understanding how product flow, space and activities relationships impact facility design
3. Understand concepts for techniques of layout approaches used for facility design.
4. Understand how facility design for operations like warehouses, manufacturing and commercial facilities.
5. Become proficient in evaluating, selecting, preparing and presenting a facility design.

Pre-Requisites
ISE 460. You must have this pre-requisite to enroll in this class. You will be expected to apply methods from this course in your homework and projects.

Course Notes
blackboard.usc.edu

Required Readings and Supplementary Materials

Tompkins, Jim et. al. Facilities Planning 3rd edition. John Wiley & Sons, Inc. New York. 2003. (ISBN 0-471-38937-4)

Facility Layout and Location (An Analytical Approach) Richard L Francis and John A. White

References:

Facilities Planning: Principles, Technology, Guidelines Jeffrey E. Clark ©2008. Pearson Prentice Hall. ISBN: 978-0-13-114936-6

Total Facilities Management Brian Atkin and Adrian Brooks 3rd Edition. ©2009. Blackwell Publishing. ISBN: 978-1-4051-8659-9

Supply Chain Management, Sunil Chopra and Peter Meindl, Prentice Hall

Description and Assessment of Assignments
Course Material: All assigned sections of the texts, plus topics discussed in lecture by the instructor.

Exams: Each exam will cover the material presented up to and including the preceding homework assignment. Points will be assigned to each section of the exam. No re-takes will be allowed. No make-up exam will be given. The FINAL EXAM will cover material presented since the second midterm exam. Grading will be similar to the midterm exams. Any person caught cheating on an examination will be referred to judicial affairs.

Projects: The project is designed to exercise the skills which you develop over the course of the semester. The project will require you to collect data, model and animate the system, and perform analysis. Prior to working on a project, a proposal must be approved. Additional details will be provided during the course.

Homework: Problems sets will be assigned. Homework is not accepted late. If a paper shows an acceptable answer to each assigned exercise, the grade for the assignment is 10 points. An answer to a qualitative exercise is acceptable if it is relevant to the issue. An answer to a quantitative exercise is acceptable if it uses approximately the correct method. If any exercise is unacceptable, the paper will be returned with no points awarded.

Surprise Quizzes: Surprise Quizzes will be given. The score will be used to determine the semester points for the quizzes. Any person caught cheating on an examination or quiz will receive a zero score for that examination or quiz.

Laboratory: ISE 375L includes a strong element of exposure to software in facility layout and to the use of Excel to solve problems. Students learn professional level software. AutoCAD will be used for layout design and analysis. Lastly, students will develop their technical communication abilities through a course project, involving the design of a facility.

Grading Breakdown

Exams (1 and 2)	20 % Each
Exams (3)	30 %
Project	15 %
Homework	7 %
Quizzes/In-class Practice	6 %
Attendance	2 %
Total	100%

Grading Scale (Example)

Course final grades will be determined using the following scale

A	95-100
A-	90-94
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	59 and below

Grading Timeline

7 – 8 Days

Additional Policies

- The use of laptops, phones or similar devices during class is not allowed.
- Please Do Not bring food or drinks to the class (Water in plastic bottles is ok)
- All tests are closed book. Laptops are NOT allowed.

Preliminary schedule with examinations and due dates:

Week	Date	Topic	Text Chapters
0	26-Aug.	Course Administration, Introduction	Ch- 1 T
1	28-Aug.	Introduction	Ch- 1 T
	2-Sep.	**Labor Day**	
2	4-Sep.	Product, Process and Schedule Design	Ch- 2 T
	9-Sep.	Product, Process and Schedule Design	Ch- 2 T
3	11-Sep.	Product, Process and Schedule Design	Ch- 2 T
	16-Sep.	Flow, Space, and Activity Relationships	Ch- 3 T
4	18-Sep.	Flow, Space, and Activity Relationships	Ch- 3 T
	23-Sep.	Binary Algorithm and additional Algorithms	Suppl.
5	25-Sep.	**Examination I**	
	30-Sep.	Binary Algorithm and additional Algorithms	Suppl.
6	2-Oct.	Layout Design Algorithms Part - 1	Ch- 6 T+ Supp.
	7-Oct.	Layout Design Algorithms Part -2	Ch- 6 T+ Supp.
7	9-Oct.	Layout Design Algorithms Part -2	Ch- 6 T+ Supp.
	14-Oct.	Layout Design Algorithms Part -3	Ch- 6 T+ Supp.
8	16-Oct.	Layout Design Algorithms Part -4	Ch- 6 T+ Supp.
	21-Oct.	Machine, Storage and Warehouse Layout Models	Suppl.
9	23-Oct.	Network Location Problems	Ch-10 T
	28-Oct.	Network Location Problems	Ch-10 T
10	30-Oct.	**Examination II**	
	4-Nov.	Single Facility Location Problems	Ch- 4 FL&L + Suppl.
11	6-Nov.	Minimax Layout and Location Problems	Ch- 9 FL&L + Suppl.
	11-Nov.	Location Allocation Models	Ch- 5.6 FL&L+ Suppl.
12	13-Nov.	Discrete Plant Location and Covering Problems	Ch- 10 FL&L+ Suppl.
	18-Nov.	Discrete Plant Location and Covering Problems	Ch- 10 FL&L+ Suppl.
13	20-Nov.	Quadratic Assignment Location Problems	Ch-10.3 T+ Suppl.
	25-Nov.	Quadratic Assignment Location Problems	Ch-10.3 T+ Suppl.
14	**27-Nov.**	**Thanksgiving Holiday**	
	2-Dec.	Project Presentations	
15	4-Dec.	Project Presentations	

Statement on Academic Conduct and Support Systems

Academic Conduct:
Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Part B, Section 11, "Behavior Violating University Standards" https://policy.usc.edu/scampus-part-b/. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, http://policy.usc.edu/scientific-misconduct.

Support Systems:
Student Counseling Services (SCS) - (213) 740-7711 – 24/7 on call
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. https://engemannshc.usc.edu/counseling/

National Suicide Prevention Lifeline - 1-800-273-8255
Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. http://www.suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 - 24/7 on call
Free and confidential therapy services, workshops, and training for situations related to gender-based harm. https://engemannshc.usc.edu/rsvp/

Sexual Assault Resource Center
For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: http://sarc.usc.edu/

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086
Works with faculty, staff, visitors, applicants, and students around issues of protected class. https://equity.usc.edu/

Bias Assessment Response and Support
Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. https://studentaffairs.usc.edu/bias-assessment-response-support/

The Office of Disability Services and Programs

Provides certification for students with disabilities and helps arrange relevant accommodations. http://dsp.usc.edu

Student Support and Advocacy – (213) 821-4710
Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic.
https://studentaffairs.usc.edu/ssa/

Diversity at USC
Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. https://diversity.usc.edu/

USC Emergency Information
Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible,
http://emergency.usc.edu

USC Department of Public Safety – 213-740-4321 (UPC) and 323-442-1000 (HSC) for 24-hour emergency assistance or to report a crime.
Provides overall safety to USC community. http://dps.usc.edu