ÇANKAYA UNIVERSITY
FACULTY OF ENGINEERING
Department of Industrial Engineering
IE 302
Facilities Design and Location
Spring 2024

TENTATIVE COURSE SYLLABUS

Course Code:	IE 302	Credit Hours :	(4 0 4) 6
Students:	Industrial Engineering	Semester :	Spring '24
Course Title:	Facilities Design and Location	Pre- requisites:	IE 202
Year:	3rd	Sections:	01, 02

Instructor: ***Assistant Prof. Dr. S. Shah Sultan M. QADRI***
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Catalog Data: Introduction to facilities planning; Definition of the facility location problem; Basic discrete and continuous location models and known solution techniques; Advanced location models and location- allocation models; Introduction to facilities design; Market analysis, forecasting and capacity determination; Defining requirements based on product, process and schedule design; Flow, space andrelationship planning: departmentalization; Personnel requirements; Introduction to materials handling system design and warehousing operations; Introduction to plant layout; Layout optimization techniques; Comparison of computerized layout techniques; Facilities systems; Facilities design project: preparing, presenting, implementing and maintaining.

Textbook: The course is based around the following textbook:

- James A. Tompkins, John A. White, Yavuz A. Bozer, J. M .A. Tanchoco, ``Facilities Planning'', 4th ed.,Wiley, (2010). ISBN 978-0470444047.

References: The following useful reference books are available in the University Library:

- A. Garcia-Diaz and J.M. Smith, "Facilities Planning and Design", Pearson International Edition,Prentice Hall, (2007). ISBN 978-0131481916
- D.R. Sule, "Manufacturing Facilities: Location, Planning and Design", 3rd ed., CRC Press, (2008).ISBN 978-1420044225
- Sunderesh Heragu, "Facilities Design", 3rd ed., PWS Publishing Company, (2008). ISBN 978-1420066265
- R.G. Askin and C. R. Standridge, "Modeling and Analysis of Manufacturing Systems", John Wiley &Sons, Inc., (1993). ISBN 978-0471514183
- R.L. Francis, F. McGinnis, J.A. White, "Facility Layout and Location: An analytical approach", 2nd ed.,Prentice Hall, (1998). ISBN 978-0132991490
- Mikell P. Groover, "Automation, Production Systems, and Computer-Integrated Manufacturing", 4thed., Prentice Hall, (2014). ISBN 978-0133499612

Course Outline: The following topics will be covered:

Weeks	Title
1	Introduction to facilities planning
2	Definition of the facility location problem
3	Basic discrete and continuous location models and known solution techniques
4	Advanced location models and location-allocation models
5	Advanced location models and location-allocation models
6	Introduction to facilities design, market analysis, forecasting and capacity determination
7	Defining requirements based on product, process and schedule design
8	Defining requirements based on product, process and schedule design
9	Flow and space planning, departmentalization
10	Personal requirements
11	Introduction to materials handling system design and warehousing operations
12	Introduction to plant layout and layout optimization techniques
13	Layout optimization techniques and comparison of computerized layout techniques
14	Facilities systems, facilities design project (preparing, presenting, implementing and maintaining)

Teaching Method:- The teaching methodology will be based on enabling the students to understand and apply the concepts and procedures in each topic mentioned in the above section. Due to unfortunate circumstances, the mode of education is not clear. So it will be announced later whether the classes will be online or face-to-face.

Recommendation: During the lectures, it would be difficult for the instructor to repeat the concepts that have been taught in the previous lectures. In order to better understand the lecture material and participate in the class discussion, students are recommended to read the previous lecture material before the class. In that way, students will find lectures more interesting and will get more benefit from discussions if they are well-prepared.

Tutorials: In addition to the regular lectures, there will be tutorial sessions conducted in the classroom/laboratory by the assistant, according to the perceived need. During these hours the assistant will do extra example problems and give tutorials on computer applications and show videos related to the lecture materials.

Home Work: Students should work on two separate sets of assigned questions in order to get prepared for midterm and final exams. Students should form groups of **at most 4 students** to perform homeworks.

Exams: All examinations will be based on lectures and tutorials. To pass these exams students will need to have studied the material well in advance in order to understand the concepts, procedures and techniques. To discourage last minute cramming, the instructor and the assistants will not answer any questions from students on the day of an examination. Descriptions of these examinations are as follows:

Midterm Exam: There will be one midterm examination that covers all the material up to the date ofthe examination.

Final Exam: The Final Examination will cover all the material studied throughout the semester andhas the same structure as in the midterm examination.

Make-up Exams: A make-up exam will only be offered to students who missed the **midterm or final exam** andprovided adequate documentation for the reason of their absence.

Attendance: Attendance at the lectures will be taken and it is of the student's benefit to attend all of the lecture hours. It is best if you fully attend every hour. If you miss even a single hour, you will find it hard to understand the following course material since the topics are interrelated.

Academic Dishonesty: Any act not suitable for a university student will not be tolerated and may lead to formal disciplinary action. Example of this are: getting someone else to take the examinations for you, misrepresentation of your own answer sheet as another's work, cheating, knowingly assisting other students to cheat, abusing the tolerance or breaking the discipline of the class.

Grading Policy: Although the student's overall grade will be based on the general assessment of the instructor, thefollowing percentages may give an idea about the relative importance of various assessment tools.

Attendance ***(Conditional)***	10 %
Homework (2)	20 %
Midterm Exam	30 %
Final Exam	40 %
TOTAL	100 points

Note that the instructor reserves the right to modify these percentages in case he finds it necessary.

NA Grading: Not attending **both the Final Exam and Midterm Exam without avalid excuse** might lead to an **"NA" grade.**

NOTE THAT EVERYTHING ON THIS SYLLABUS IS SUBJECT TO CHANGE. STUDENTS WILL BENOTED ABOUT SIGNIFICANT CHANGES.