IE 304: Production and Service Systems Planning and Design
Spring 2022

Instructor: U. Mahir Yıldırım
E-mail: mahir.yildirim@sabanciuniv.edu
Office Hours: by appointment and via Zoom

Lectures: Tuesday 11:40-13:30 in FMAN 1099
Thursday: 16:40-17:30 Online

Zoom links:
IE 304 - Tuesday - Lecture Zoom Meeting (Spring 2022)
IE 304 - Thursday - Lecture Zoom Meeting (Spring 2022)

Passcodes: umySU22

Recitations (Online):
Please note the schedule changes of B1 and B2 sections

Beyza Öztürk (beyzaozturk@sabanciuniv.edu)

Zoom links:
A1 Tuesday 13:40-14:30 – IE 304 - Recitation A1 - Zoom Meeting (Spring 2022)
B1 Tuesday 16:40-17:30 – IE 304 - Recitation B1 - Zoom Meeting (Spring 2022)

Zeren Alpoğuz (zerenalpoguz@sabanciuniv.edu)

Zoom links:
A2 Tuesday 13.40-14.30 – IE 304 - Recitation A2 - Zoom Meeting (Spring 2022)
B2 Tuesday 17.40-18.30 – IE 304 - Recitation B2 - Zoom Meeting (Spring 2022)

Course Description: This course introduces students with the design and operation of manufacturing and service facilities. We present a conceptual description and classification of modern production environments and address major issues faced during the planning and control of their operation. We focus on the decomposition of the overall production planning and control problem to a number of subproblems, and the development of quantiative techniques and analytical tools for addressing the arising subproblems. The topics include (but are not limited to) assembly lines, sequencing and scheduling, flexible manufacturing systems, group technology and cellular manufacturing, and facilities planning and design. Although the focus is on manufacturing systems, the application of the methodologies for service systems is covered as well. The students are expected to have a solid background in operations research.

Course delivery: Classes are planned to be given in classrooms. Those who prefer so can follow the courses remotely online. Recitations are to be held online. All lectures and recitations will be recorded and uploaded to SUCourse+. We expect you to observe social distancing and wear masks appropriately when in class. Online students can ask their questions in the Zoom chat box.
Suggested Text Book


Grading
Midterm 1 30% (April 5, 2022, in class)
Midterm 2 30% (May 17, 2022, in class)
Final Exam 40%

Important Rules:

1. You have to have a valid reason for not taking an exam. If a proof such as a medical report is not brought to me before or within the first three days of the exams you will NOT be given a make-up exam and will be assumed to score 0 in the exam you have missed. The make-up exams may need be scheduled after the final exam and be comprehensive.

2. Be respectful to your TA’s! The professor will deal with the objection hours.

Tentative Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Tuesday 11:40-13:30</th>
<th>Thursday 16:40-17:30</th>
<th>Topic</th>
<th>Recitations</th>
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<td>03.03.2022</td>
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<td>10.03.2022</td>
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<td>Assembly Lines</td>
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<td>15.03.2022</td>
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<td>24.03.2022</td>
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<td>07.04.2022</td>
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<td>14.04.2022</td>
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<td>FMS, Group Technology</td>
<td>Recitation 8</td>
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<td>07.06.2022</td>
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<td>Facility Layout</td>
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Topics to be covered and the corresponding references:

1. Introduction                               Askin& Standridge -Ch1
2. Assembly Lines                             Askin& Standridge -Ch2
3. Single Machine Scheduling                 Askin& Standridge -Ch4
4. Flow Shop and Job Shop Scheduling         Askin& Standridge -Ch4
5. Flexible Manufacturing Systems             Askin& Standridge -Ch5
6. Group Technology and Cellular Manufacturing Askin& Standridge -Ch6, Heragu-Ch6
7. Facility Layout                            Askin& Standridge -Ch7, Heragu-Ch1-4