IE 304 Production and Service Systems Planning and Design

Fall 2020-2021

Instructor	Lecture	Day/Time	Office Hours	Zoom ID
Bülent Çatay		T 13:40 - 15:30	T 16:00 - 17:00	342 586 8236
TA	**Recitation**	**Day/Time**	**Office Hours**	**Online Link**
Zeren Alpoğuz	A1/A2	T 15:40 - 16:30	W 11:00 - 12:00	hqy-kyic-itj
Amin Ahmadi Digehsara	B1/B2	T 16:40 - 17:30	F 14:00 - 15:00	efe-akre-vnu
Can Boyacıoğlu	C	T 17:40 - 18:30	R 14:00 - 15:00	zex-goqc-uye
Raci Berk İslim			F 09:00 - 10:00	682 368 2154
Nima Moradi			R 11:00 - 12:00	745 3129 8823

Objectives:

This course is intended to introduce the students to the design and operation of manufacturing and service facilities. A conceptual description and classification of modern production environments will be presented and major issues during the planning and control of their operation will be addressed. We will focus on the decomposition of the overall production planning and control problem to a number of subproblems and the development of quantitative techniques and analytical tools for addressing the arising subproblems. The topics include (but are not limited to) assembly and transfer lines, sequencing and scheduling, flexible manufacturing systems, group technology and cellular manufacturing, and facilities planning and design.

Although the focus is on manufacturing systems, emphasis will be given to introduce the application of methodologies covered for manufacturing systems to service systems as well. The students are expected to have a solid background operations research.

Recommended Textbook:

Modeling and Analysis of Manufacturing Systems. R.G. Askin and C.R. Standridge, John Wiley, 1993. [TS155.6 .A75 1993]

Facilities Design, 3rd edition. S. Heragu. CRC Press, 2008. [TS177 .H47 2008]

Additional References:

Principles of Sequencing and Scheduling. K.R. Baker and D. Trietsch, Wiley, 2009.

Facility Layout and Location: An Analytical Approach. R.L. Francis, L.F. McGinnis, and J.A. White, Prentice Hall, 1992.

Production and Operations Analysis. S. Nahmias, Irwin/McGraw-Hill.

Grading Policy:

AvgGrade = 30% Pop-up Quizzes + 70% Announced Quizzes

In order to receive a passing letter grade you are required to achieve an AvgGrade of "40". Otherwise, your letter grade will be "F".

You are expected to work on the quizzes individually. You may be randomly requested to take an oral exam online following the quiz.

No make-up will be offered for any particular quiz. **Two make-up quizzes** (comprehensive, i.e. including all the topics) will be offered at the end of the semester to those who have missed any quiz. So, you are allowed to miss **at most two (2)** quizzes. If you miss more than two, the grades for the remaining quizzes will be "0" regardless of your excuse.

Tentative Course Outline

Week 1	Introduction, Manufacturing Systems and Models	Askin-Ch1
Week 2-3	Assembly Lines	Askin-Ch2
Week 4-7	Shop Scheduling	Askin-Ch4
Week 8-9	Flexible Manufacturing Systems	Askin-Ch5
Week 10-11	Group Technology and Cellular Manufacturing	Askin-Ch6, Heragu-Ch8
Week 12-14	Facilities Planning	Askin-Ch7, Heragu-Ch1-4

Disclaimer:

The instructor reserves the right, when necessary, to alter the grading policy, change exam dates, and modify the syllabus and course content. Modifications will be announced in class and at the SUCourse website. Students are responsible for the announced changes.

Academic Integrity:

Students in this course are expected to honor the academic integrity principles according to the SU rules and procedures. Non-compliance to academic integrity principles through plagiarism, using or accomplishing another person's work, and/or submitting previously used work will be penalized severely.