

IE 401

Production and Service Systems Operations

Course Syllabus

Fall 2021-2022-v2

Version 3, updated October 7th, 2021

Instructor

Dr. Murat Kaya FENS G020, (216) 483 9622, mkaya@sabanciuniv.edu

Office Hours: Mondays 10:00-11:00, online at <https://sabanciuniv.zoom.us/j/98642695119>

Course Schedule

Mon, 11:40-13:30; Tue, 14:40-15:30 Room: FASS G062

Online lectures: <https://sabanciuniv.zoom.us/j/98642695119>

Teaching Assistants and Learning Assistants and Recitation Sections

TA / LA	email	Zoom link	Recitation Section
Çağrı Doğuş İyican	cagriiyican@	https://sabanciuniv.zoom.us/j/5128851007	A1
Zeynep Alara	zeynepalara@	https://us02web.zoom.us/j/2958536881?pwd=YzEvYkxjYTZsTkxzemRtbjE3WkU0Zz09	A3
Soner Aydın	soner.aydin@	https://sabanciuniv.zoom.us/j/6794399889	B1
Hüseyin Ender Sarı	sari@	https://sabanciuniv.zoom.us/my/endersari	A2, B2

Learning Outcomes

On completion of the course, students should be able to

- Describe the major steps in the manufacturing planning and control (MPC) hierarchy (including APP, MPS and MRP), and their relationships
- Develop demand forecasting models using time series methods
- Apply the fundamental inventory management models (including the EOQ, newsvendor, (Q,R) and (s,S) models) to relevant problems
- Relate industrial engineering and operations research methods obtained in previous courses to production planning and control domain
- Formulate and solve production planning problems

Textbooks

1) One of the following two versions of the same book:

- Nahmias S. and Lennon Olsen, T., Production and Operations Analysis, 7th edition, Waveland Press.

- Nahmias, S., Production and Operations Analysis, 5th or 6th edition, McGraw-Hill.
- 2) For some topics: Vollmann, T. E., Berry, W. L., Whybark, D. C., Jacobs, F. R., Manufacturing Planning and Control for Supply Chain Management, 5th or 6th edition, McGraw-Hill.

Useful References

- Silver, E. A., Pyke, D. F., Peterson, R., Inventory Management and Production Planning and Scheduling, 3rd edition, Wiley, 1998.
- Stevenson, W. J., Production/Operations Management, 8th edition, McGraw-Hill, 2005.

Grading

Quizzes	10%
Top Hat Responses	10%
Midterm Exam -1	23%
Midterm Exam -2	23%
Final Exam (comprehensive)	34%

- For each student, the lowest graded quiz and the lowest 10% graded Top Hat responses will be dropped from consideration. There is no other make-up opportunity for quizzes and Top Hat questions.
- Grading-related objections should be discussed with the TAs before bringing the issue to the instructor.
- The letter grade achieved in this course will be determined according to the weights outlined above; not according to what letter grade the student might need.
- The instructor does not discuss letter-grading-related issues with students; hence, students shall not even bother to ask, especially at the end of the semester.
- Students are not given any extra opportunity (such as an extra project etc.) to increase their letter grade as this would be unfair to others.

Top Hat Software

- During lectures, the instructor will ask quick questions (true/false, multiple choice etc.) using the Top Hat software. The students, either physically in class or following online, will need to respond to these quickly.
- The students shall familiarize themselves about the Top Hat software (www.tophat.com) if they have not used it previously. The Top Hat app should be installed to student smartphones/ tablets or it can be accessed via laptop's web browser. The join code required to enroll in IE 401 Top Hat page is 679887.
- Students need to register to Top Hat using their SU email address, true name and surname.

Course Policies

- Students must follow the recitation section to which they are enrolled.
- All exams will be held in class (that is, not online) and will be closed-notes.
- Attendance records will be taken in most lectures. These have no direct course grade value. Attendance is NOT mandatory but is highly recommended.
- Partial (not complete) lecture slide sets will be posted to SUCourse+.

- Students cannot share any course-related material (documents, recordings etc.) with third parties.
- The instructor may have to make modifications in the syllabus due to unforeseen reasons. Students are responsible for such modifications that will be announced in lectures and/or in SUCourse+.

Make-up Exam Policy

- There will be a single make-up exam to replace any one of the midterm exams or the final exam.
- The make-up exam will be conducted after the final exam.
- A student who wants to enter a make-up exam needs to document the reason to miss the exam (such as sickness or official appointment) and inform the instructor immediately before/after missing the exam.
- The make-up exam will be comprehensive (Includes all topics)
- The make-up exam cannot be taken to replace an already-taken exam.

Course Subjects

	Nahmias	VBWJ
Production & Operations Management Overview	1	
Forecasting	2	
Inventory Control Subject to Known Demand	4	
Inventory Control Subject to Uncertain Demand	5	
Aggregate Production Planning (APP)	3	
Master Production Scheduling (MPS)		6
Material Requirements Planning (MRP)		7,14
Lot Sizing		
Further Topics		
Just-in-Time (JIT) Approach		