



**EASTERN MEDITERRANEAN UNIVERSITY**  
**FACULTY OF ENGINEERING**  
**DEPARTMENT OF INDUSTRIAL ENGINEERING**  
**COURSE OUTLINE**  
**Spring 2021-22**



<b>COURSE CODE</b>	IENG/MANE332	<b>COURSE LEVEL</b>	3 <sup>rd</sup> Year
<b>COURSE TITLE</b>	Production Planning I	<b>COURSE TYPE</b>	Required
<b>CREDIT VALUE</b>	(4, 0, 1) 4	<b>ECTS</b>	6
<b>PRE-REQUISITE(S)</b>	IENG/MANE212, MATH322	<b>CO-REQUISITE(S)</b>	
	<b>Name(s)</b>	<b>E-mail</b>	<b>Office</b>
<b>LECTURER(S)</b>	Asst. Prof. Dr. Ali Baştaş	<a href="mailto:ali.bastas@emu.edu.tr">ali.bastas@emu.edu.tr</a>	IE-C104
<b>ASSISTANT(S)</b>	Suhad Rebhi Abdelqader Al - Nator	<a href="mailto:suhad.nator@emu.edu.tr">suhad.nator@emu.edu.tr</a>	IE-B201
	Farzad Zaare Tajabadi	<a href="mailto:farzad.zaare@emu.edu.tr">farzad.zaare@emu.edu.tr</a>	IE-B207

### CATALOG DESCRIPTION

Two sequel courses are designed together to provide the basics of production planning and control with the need of modern manufacturing organizations in mind. The topics covered in the first course are production and operations strategy, subjective and objective forecasting (i.e. Delphi method, trend-based methods, and methods for seasonal series), deterministic inventory planning and control (i.e. Economic Order Quantity model and its extensions to several environments), stochastic inventory planning and control, aggregate production planning, and master production scheduling.

### AIM & OBJECTIVES

At the end of this course, the student will:

- Identify key concepts of production management and production planning (SO Ref. – 4)
- Identify, analyse and apply operations performance and strategy concepts (SO Ref. – 4)
- Identify and analyse subjective and objective forecasting methods, including the Delphi method, trend-based methods, and methods for seasonal series (SO Ref. – 1, 4, 6)
- Identify, analyse and apply capacity management and aggregate production planning methods (SO Ref. – 1, 4, 6)
- Identify and analyse deterministic and stochastic inventory planning and control methods, including the Economic Order Quantity model and its extensions. (SO Ref. – 1, 4, 6)
- Identify the production planning and control systems (SO Ref. – 4)
- Analyse and apply the master production scheduling method (SO Ref. – 1, 4, 6)
- Identify the key supply chain management concepts (SO Ref. – 4)
- Complete a complex group project, applying the course content and working together as a team. (SO Ref. – 1, 3, 4, 5, 6, 7)

### COURSE LEARNING OUTCOMES (CLOs)

On successful completion of this course, students are expected to **develop knowledge and understanding** of:

- Key concepts of production management and production planning, operations performance and strategy concepts
- subjective and objective forecasting methods, including the Delphi method, trend-based methods, and methods for seasonal series
- Capacity management and aggregate production planning methods
- Deterministic and stochastic inventory planning and control methods, including the Economic Order Quantity model and its extensions.
- The production planning and control systems including the enterprise resource planning systems
- The master production scheduling method
- Key supply chain management concepts

On successful completion of this course, students are expected to **develop their skills in:**

- Formulating operations performance objectives and operations strategy
- Solving basic production planning problems such as sequencing problems
- Undertaking basic aggregate production planning and capacity management practices
- Solving basic inventory management problems
- Formulating aggregate production planning problems

- Generating and analysing master production schedules

On successful completion of this course, students are expected to **develop their appreciation of** and respect for **values and attitudes regarding the issues of:**

- Role of Industrial Engineering in Production Planning and Control
- Group dynamics, working in teams, respecting team work ethics and contributing to teamwork.

## TEXTBOOKS

- Slack, N. and Brandon-Jones, A. (2019). Operations Management. 9th Edition. Pearson.
- Chapman, S. (2006). The Fundamentals of Production Planning and Control. Pearson.

## SUPPLEMENTARY READING

- Sipper, D., Bulfin, R.L., Production planning, control and integration, McGray-Hill, New York, 1998.
- Kumar, A. S., and Suresh, N. (2009). Production and Operations Management. 2nd Edition. New Age International.

## COURSE CONTENT & WEEKLY SCHEDULE

Week	Topics	Assessment Methods, %
WK1	Course Policy & Introduction to Operations and Production Systems	Quizzes 20%, MT Exam 20%, Final Exam 30%, Term Project 30%
WK2	Operations Performance & Strategy	
WK3	Introduction to Production Planning and Control	
WK4-5	Forecasting	
WK6-7	Aggregate Production Planning (APP)	
MTW1-2	Midterm Exams	
WK8	Supply Chain Management	
WK9-10	Inventory Planning and Control	
WK11-12	Planning and Control Systems including Master Production Scheduling	
WK13	Project Presentations	
FW1-2	Final Exams	

## CONTRIBUTION OF THE COURSE TO MEETING THE REQUIREMENTS OF CRITERION 5

Mathematics and Basic Sciences: 1

Engineering Topic: 2 (contains significant design)

Other: 1

## RELATIONSHIP OF COURSE TO STUDENT OUTCOMES

Student Outcomes	Level of Contribution		
	NO	Moderate	High
1. an ability to identify, formulate, and solve complex problems by applying principles of engineering, science, and mathematics	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. an ability to communicate effectively with a range of audiences	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## GRADING CRITERIA

**Exams:** All examinations will be based on lectures, tutorials, assigned readings, project study and other related work.

To pass these exams students will need to have studied the material well in advance in order to understand the materials, concepts, procedures and techniques. All EMU, academic integrity, ethics and disciplinary procedures apply to all assessment activities of this course. Descriptions of these assessments are as following:

**Quizzes:** There will be 4 quizzes, dates of which will be announced.

**Midterm Exam:** There will be one midterm examination that covers all the material up to the date of the examination. It will be scheduled for a day in the designated mid-term exams week.

**Final Exam:** The final exam includes all the course materials. Like the midterm exam, the final exam will be scheduled for a day in the designated final exams week.

**Term Project:** Students should form groups of 5 students (exactly, otherwise you should submit a valid excuse in written form). The project tasks will be advised via. separate documentation. A penalty for late submissions will be applied if the project report is not submitted on the due date or the submission will not be accepted.

**Make-up Exam:** Make-up examination will only be offered to those students who missed the final or midterm exam and provided valid documentation (medical report etc.) for their absence within three days at the latest after the examination date.

## METHOD OF ASSESSMENT

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

Quizzes: 20%

Term Project: 30%

Midterm Exam: 20%

Final Exam: 30%

Letter grade equivalents of numerical performances will be announced by the Registrar's Office after the last day for the submission of letter grades.

**NG (Nil-grade) Policy:** The following conditions MAY result in the student getting an NG grade from this course:

1. Not attending the Final Exam without a valid excuse.
2. Not attending the Midterm Exam without a valid excuse.
3. Cheating and/or plagiarism during the exams, quizzes and/or the lab and project assignments.

## RELATIONSHIP WITH OTHER COURSES

It is the first course in a series of production planning and control courses. It will also prepare the students for facilities planning and design and the graduation project courses (IENG441 Facilities Planning and Design & IENG492 Manufacturing and Service Systems Design).

## LEARNING / TEACHING METHOD

The teaching/learning method adopted this semester will be in-class lectures, unless otherwise stated, as per the course of the COVID-19 pandemic. Tutorials will also be delivered, providing additional solved examples and other supplementary information as applicable. All relevant course materials will be provided via the course page implemented on MS Teams. The students will be provided with updates during the lectures and through posts on the course page on MS Teams. The students are expected to regularly monitor the course page on MS Teams, and the LMS.

## DETAILED WEEKLY COURSE PLAN

Production Planning - I Spring 2021/22 Term Plan					
Week	Week Commencing	Slides	Module	Textbook Ref.*	Complete
WK1	28-Feb	L01	Course Policy & Introduction to Operations and Prod.Systems	Chapter 1	
WK2	07-Mar	L02	Operations Performance & Strategy	Chapters 2 & 3	
WK3	14-Mar	L03	Introduction to Production Planning and Control	Chapter 10	
WK4	21-Mar	L04	Forecasting - I	Chapter 2	Quiz 1
WK5	28-Mar	L05	Forecasting - II	Chapter 2	
WK6	04-Apr	L06	Aggregate Production Planning (APP)	Chapter 11	
WK7	11-Apr	L06	Aggregate Production Planning (APP)	Chapter 11	Quiz 2
MTW	18-Apr	Midterm Exams			
MTW	25-Apr				
WK8	02-May	L07	Supply Chain Management	Chapter 12	
WK9	09-May	L08	Inventory Planning and Control	Chapter 13	
WK10	16-May	L08	Inventory Planning and Control	Chapter 13	Quiz 3
WK11	23-May	L09	Planning and Control Systems incl. Master Production Scheduling	Chapter 14	
WK12	30-May	L09	Planning and Control Systems incl. Master Production Scheduling	Chapter 14	
WK13	06-Jun		Project Presentations		Quiz 4
FW	13-Jun	Final Exams			
FW	20-Jun				

Textbooks
Slack, N. and Brandon-Jones, A. (2019). Operations Management. 9th Edition. Pearson.
Chapman, S. (2006). The Fundamentals of Production Planning and Control. Pearson.

## ACADEMIC HONESTY, PLAGIARISM & CHEATING

This is intentionally failing to give credit to sources used in writing regardless of whether they are published or unpublished. Plagiarism (which also includes any kind of cheating in exams) is a disciplinary offence and will be dealt with accordingly. According to university, by laws cheating and plagiarism are serious offences punishable with disciplinary action ranging from simple failure from the exam or project/report, to more serious action (suspension from the university for up to one semester). Disciplinary action is written in student records and may appear in student transcripts. 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.