

# TOROS ÜNİVERSİTESİ

Faculty Of Engineering  
Industrial Engineering (English)

## Course Information

MANUFACTURING PLANNING II					
Code	Semester	Theoretical	Practice	National Credit	ECTS Credit
		Hour / Week			
INE322	Spring	3	0	3	3

<b>Prerequisites and co-requisites</b>	INE321
<b>Language of instruction</b>	English
<b>Type</b>	Required
<b>Level of Course</b>	Bachelor's
<b>Lecturer</b>	Assit. Prof. Dr. Melik KOYUNCU
<b>Mode of Delivery</b>	Face to Face
<b>Suggested Subject</b>	NONE
<b>Professional practise ( internship )</b>	None
<b>Objectives of the Course</b>	Gaining the required knowledge and skills for inventory management, assembly line balancing, scheduling and supply chain management
<b>Contents of the Course</b>	The topics covered in this course include: Discrete demand models, Assembly line balancing, Scheduling

## Learning Outcomes of Course

#	Learning Outcomes
1	Student knows basic concepts of production systems.
2	Student gains the ability of thinking on the basic concepts of production systems.
3	Student knows the concepts about production systems in enterprises.
4	

## Course Syllabus

#	Subjects	Teaching Methods and Technics
1	AMPL	Lecturing
2	AMPL	Lecturing
3	Introduction to inventory (Definitions, characteristics of inventory, structure of inventory problems)	Lecturing
4	Independent demand - Deterministic models (Economical order quantity model, sensitivity, backorders and numerical examples), quantity discounts (all units discounting, incremental discounting, special sale prices, known price raises)	Lecturing
5	Economical Production Lot Model (single product model, backorder case, multi-product model, economical order interval system (single product, multi-product))	Lecturing
6	Discrete demand models (Algorithms (Wagner-Whitin, Silver-Meal, Least Unit Cost, Part Period Balancing) and comparisons)	Lecturing
7	Midterm	Exam
8	Constraints in inventory systems (ABC Analysis, Changes in inventory control methods, budget and storage constraints in inventory systems)	Lecturing
9	Independent demand - stochastic models (newsboy problem, safety stock, backorders, lost sales), effects of variations	Lecturing

	in demand and leadtime, service levels	
10	Assembly line balancing (mathematical model for single product, heuristic methods (ranked positional weight)	Lecturing
11	Scheduling (Classification of scheduling problems, single machine scheduling, parallel machine problems)	Lecturing
12	Scheduling (Flow shop Scheduling, job shop Scheduling)	Lecturing
13	Project Planning (CPM and PERT Methods, crashing project duration (balancing cost and time)	Lecturing
14	Project Planning (mathematical programming in project scheduling (resources leveling, capacity-constrained project scheduling))	Lecturing
15	Project Planning (mathematical programming in project scheduling (resources leveling, capacity-constrained project scheduling))	Lecturing
16	Final Exam	

## Course Syllabus

#	Material / Resources	Information About Resources	Reference / Recommended Resources
1	S. Nahmias, Production and Operations Analysis, McGraw-Hill, 5th edition.		

## Method of Assessment

#	Weight	Work Type	Work Title
1	40%	Mid-Term Exam	Mid-Term Exam
2	60%	Final Exam	Final Exam

## Relationship between Learning Outcomes of Course and Program Outcomes

#	Learning Outcomes	Program Outcomes	Method of Assessment
1	Student knows basic concepts of production systems.	1	1,2
2	Student gains the ability of thinking on the basic concepts of production systems.	9	1,2
3	Student knows the concepts about production systems in enterprises.	3	1,2
4			

PS. The numbers, which are shown in the column Method of Assessment, presents the methods shown in the previous table, titled as Method of Assessment.

## Work Load Details

#	Type of Work	Quantity	Time (Hour)	Work Load
1	Course Duration	14	3	42
2	Course Duration Except Class (Preliminary Study, Enhancement)	14	2	28
3	Presentation and Seminar Preparation	0	0	0
4	Web Research, Library and Archival Work	0	0	0
5	Document/Information Listing	0	0	0
6	Workshop	0	0	0
7	Preparation for Midterm Exam	1	5	5
8	Midterm Exam	1	3	3
9	Quiz	0	0	0
10	Homework	1	4	4
11	Midterm Project	0	0	0
12	Midterm Exercise	0	0	0
13	Final Project	0	0	0

14	Final Exercise	0	0	0
15	Preparation for Final Exam	1	5	5
16	Final Exam	1	3	3
				<b>90</b>