OSTİM TECHNICAL UNIVERSITY
ENGINEERING FACULTY

IENG 308 – PRODUCTION PLANNING AND CONTROL 2
COURSE CURRICULUM FORM
2022-2023

IENG 308 – Production Planning and Control II							
Course Name	**Course Code**	**Period**	**Hour**	**Application Time**	**Lab Time**	**Credit**	**ECTS**
Production Planning and Control II	IENG 308	5	4	0	0	4	5

Precondition	No
Language of the Course	English
Type of the Course	Compulsory
Course Level	Bachelor Degree
Method of Teaching	Face to face, Online
Course Learning and Teaching Techniques	Lecture, Question and Answer, Application

The Aim of Course

It is to teach and apply the methodology of making material and capacity planning within the framework of the main production plan, arranging the works within the framework of the prepared planning, and loading the workshop. To teach and apply the methodology of assembly line balancing concepts and techniques.

Course Content

Structure and implementation of material requirement planning and capacity requirement planning. Sequencing and Scheduling; criteria, ordering in workshop type production, Gantt charts, n job one machine problems, n job two machine problems, n job three machine problems, n job m machine problems. Assembly line balancing concepts and techniques.

Weekly Topics and Related Preparation Studies		
Week	**Topics**	**Preliminary**
1	What is MRP? Relationship between production planning and MRP, purpose and benefits of MRP, basic concepts of MRP system, prerequisites and assumptions of MRP system, features and structure of MRP system.	
2	Inputs and outputs of MRP, creating and reading bills of materials, super product trees, concepts for MRP system operation, MRP operation, Order size determination methods.	
3	Examples of operating the MRP system.	
4	Capacity definitions and measurements, capacity needs planning	
5	Capacity requirement planning and matrix method examples	
6	Introduction of sequencing and scheduling concepts, Gantt diagram, sequencing studies in workshop type production,	

	sequencing and scheduling criteria and examples of these criteria.	
7	Performance criteria for sequencing and scheduling, equivalent performance criteria, dominant program, permutation program, representation of sequencing and scheduling problems.	
8	**Midterm Exam**	
9	Sequencing and Scheduling Methods: Operation of SPT (Shortest Process Time) and EDD (Earliest due date) methods.	
10	Operation of Moore-Hodgeson algorithm, operation of Lawler algorithm, Smith algorithm and sample problem solutions of these methods.	
11	Sequencing study with dynamic programming and Branch-Bound methods and solving sample problems related to the use of these methods.	
12	Scheduling in the Flow Type Workshop: The functioning of the Johnson algorithm, the application of the Johnson algorithm to the works on different routes, the operation of the Akers graphic method and sample problem solutions of these methods.	
13	Production and production line concepts, basic concepts of assembly line balancing, assembly line balancing purposes.	
14	Constraints in assembly line balancing, layout of assembly lines.	
15	Operations of Some Assembly Line Balancing Methods: Position-weighted balancing (Helgeson-Birnie) method, Solution with priority diagram (Hoffman Method), Kilbridge and Wester method	
16	**Final Exam**	

Resources (Textbook and Supplementary Books)

Evaluation System		
Studies	**Number**	**Contribution Margin**
Continue		
Laboratory		
Application		
Field Study		
Course Specific Internship (if applicable)		
Quizzes/Studio/Critical		
Homework		
Presentation		
Projects		
Report		
Seminar		
Midterm Exams/Midterm Jury	1	% 40
General Exam/Final Jury	1	% 60
	Total	**% 100**
Contribution to the Success Grade of Mid-Semester Studies		% 40
Contribution of End of Semester Studies to Success Grade		% 60
	Total	**% 100**

Course Category	
Basic Vocational Courses	X
Specialization/Field Courses	
Support Lessons	
Communication and Management Skills Lessons	
Transferable Skills Lessons	

Relation of Course Learning Outcomes and Program Qualification						
No	**Program Qualifications / Outcomes**	**Contribution Level**				
		1	**2**	**3**	**4**	**5**
1	Ability to design, conduct experiments, collect data, evaluate and interpret results for the analysis and solution of Industrial Engineering problems.					x
2	To be able to use course information in solving industrial engineering problems.					x
3	Acquisition of analytical thinking skills				x	
4	Ability to use information technologies required for Industrial Engineering applications.			x		
5	Having an up-to-date and sufficient background in engineering, mathematics, science and social sciences related to industrial engineering; To be able to use the theoretical and applied knowledge in these fields together in solving industrial engineering problems.					x

ECTS/Workload Table			
Activities	**Number**	**Duration (Hours)**	**Total Workload**
Lesson hours (Including the exam week: 16 x total lesson hours)	16	4	64
Laboratory			
Application			
Course Specific Internship			
Field Study			
Out of Class Study Time	16	4	64
Presentation/Seminar Preparation			
Projects			
Reports			
Homeworks			
Quizzes/Studio Critic			
Preparation Time for Midterm Exams/Midterm Jury	1	16	16
Preparation Time for the General Exam/General Jury	1	16	16
Total Workload	**(160/30 = 5)**		**160**