

School of Engineering and Natural Sciences / Industrial Engineering (English)

2023 - 2024 Academic Year

FACILITY DESIGN and PLANNING

Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
FACILITY DESIGN and PLANNING	IND3249130	Spring Semester	3+0	3	6
Prerequisites Courses	AĞ AKIŞLARI VE TAMSAYILI PROGRAMLAMA; ÜRETİM PLANLAMA VE KONTROL				
Recommended Elective Courses					
Language of Instruction	English				
Course Level	First Cycle (Bachelor's Degree)				
Course Type	Required				
Course Coordinator	Assoc.Prof. Melis Almula KARADAYI				
Name of Lecturer(s)	Assoc.Prof. Melis Almula KARADAYI				
Assistant(s)					
Aim	The purpose of this course is to make an introduction to planning and design of manufacturing facilities from an industrial engineering point of view.				
Course Content	This course contains; Introduction to Facilities Planning,Product, Process and Schedule Design,Plant Layout: Types of Layouts,Flow Patterns,Quantitative Flow Analysis, Block Layout,Systematic Layout Planning,Machine Sequencing,Space Requirements,Assembly Line Balancing,Plant Location,Location Analysis, Location Allocation Models,Storage and Warehousing,Article Presentations I,Article Presentations II.				
Course Learning Outcomes			Teaching Methods	Assessment Methods	
Explain and apply the basic concepts of designing a new plant.			12, 16, 9	A, E, G	
Solves assembly systems and assembly line balancing problems.			12, 16, 9	A, E, G	
Calculate machine requirements for a desired production rate			12, 16, 9	A, E, G	
Design production cells using clustering approaches based on process similarities			12, 16, 9	A, E, G	
Formulate and solve facility location models.			12, 16, 9	A, E, G	
Having knowledge about real-life facility design and planning problems			13, 14, 16	F	
Teaching Methods	12: Problem Solving Method, 13: Case Study Method, 14: Self Study Method, 16: Question - Answer Technique, 9: Lecture Method				
Assessment Methods	A: Traditional Written Exam, E: Homework, F: Project Task, G: Quiz				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1	Introduction to Facilities Planning	Lecture Notes			
2	Product, Process and Schedule Design	Lecture Notes			
3	Plant Layout: Types of Layouts	Lecture Notes			
4	Flow Patterns	Lecture Notes			
5	Quantitative Flow Analysis, Block Layout	Lecture Notes			
6	Systematic Layout Planning	Lecture Notes			
7	Machine Sequencing	Lecture Notes			
8	Space Requirements	Lecture Notes			
9	Assembly Line Balancing	Lecture Notes			
10	Plant Location	Lecture Notes			
11	Location Analysis, Location Allocation Models	Lecture Notes			
12	Storage and Warehousing	Lecture Notes			
13	Article Presentations I				
14	Article Presentations II				
Evaluation Methods		Weight(%)			
Midterm Exam		30			
General Exam		70			

Resources
J. A. Tompkins, J. A. White, Y.A. Bozer, and J. M. A. Tanchoco, "Facilities Planning", 4th ed., John Wiley & Sons, Inc., (2010). ISBN 978-0470444047."