OSTİM TECHNICAL UNIVERSITY
ENGINEERING FACULTY

IENG 303 – OPERATION RESEARCH II
COURSE CURRICULUM FORM
2022-2023

IENG 303 – Operation Research II							
Course Name	**Course Code**	**Period**	**Hour**	**Application Time**	**Lab Time**	**Credit**	**ECTS**
Operation Research II	IENG 303	4	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
Emphasizing the place and importance of Integer programming, Network analysis and Nonlinear programming problems in operations research, introducing general concepts and applications, teaching modeling and solution techniques

Course Content
Ability to model real life problems, find optimal solutions and perform scenario/sensitivity analysis.

Weekly Topics and Related Preparation Studies		
Week	**Topics**	**Preliminary**
1	Transportation Problems (Basic Concepts, DP Formulation, Initial Solutions)	
2	Transportation Problems (Finding the Most Appropriate Solution)	
3	Transportation Problems (Sensitivity Analysis)	
4	Temporary Accommodation Problems	
5	Assignment Problems	
6	Network Models (Basic Concepts, Least Propagation Problems)	
7	Network Models (Shortest Path Problems, Traveling Salesman Problems)	
8	**Midterm Exam**	
9	Network Models (Maximum Flow Problems)	
10	Project Management (Basic Concepts, Arrow Diagram, Critical Path Analysis-CPM)	
11	Project Management (Pert Analysis)	
12	Project Management (Pert Analysis)	
13	Time-Cost Relationship in Project Planning	

14	Game Theory (Basic Concepts, Balanced Games, Superiority Strategies)	
15	Game Theory (Graphic Solution Method of mx2, 2xn Games)	
16	**Final Exam**	

Resources (Textbook and Supplementary Books)

1. Taha H.A., "Yoneylem Arastirmasi", Literatur Yayincilik (cev. Alp Baray ve Sakir Esnaf), (2000).
2. Winston W.L., Albright S.C., "Practical Management Science", Duxbury Press, WadsworthInc., (2001).

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**