School of Engineering and Natural Sciences / Industrial Engineering (English) 2022 - 2023 Academic Year **DECISION ANALYSIS**

Syllabus

Course D	escription					<u> </u>		
			Code	Semester	T+A Hour	Credit	ECTS	
DECISION ANALYSIS			IND4168120	Fall Semester	3+0	3	6	
Prerequis	sites Courses	MODELLEME VE OPTIMIZASYONA G	ikiş; stokastīk	MODELLEK				
Recommended Elective Courses								
Language	e of Instruction							
Course Level		First Cycle (Bachelor's Degree)						
Course Type		Elective						
Course Coordinator		Assoc.Prof. Melis Almula KARADAYI						
Name of Lecturer(s)		Assoc.Prof. Melis Almula KARADAYI						
Assistant(s)								
Aim		Major objectives of this course include; • Iraining students to apply statistical models at intermediate level to solve relevant Developing a sense of critical thinking and providing a comprehension of modeling Developing analytical skills in structuring and analysis of decision making of mathematics (probability) theory to find solutions to real world problems.						
Course Content		This course contains; Overview of the Course, Introduction to Decision Analysis and Decision Making,Analytic Hierarchy Process,TOPSIS METHOD,VIKOR METHOD,INTRODUCTION TO DECISION ANALYSIS,DECISION TREES and EXPECTED MONETARY VALUE ,RISK PROFILES and DOMINANCE,MIDTERM EXAMINATION,MAKING DECISIONS WITH MULTIPLE OBJECTIVES,DECISION MAKING UNDER UNCERTAINTY,DECISION MAKING UNDER UNCERTAINTY,Value of information: Value of perfect information,Value of information: Value of imperfect information,INTRODUCTION TO GAME THEORY,TERM PROJECT PRESENTATIONS.						
Course Learning Outcomes					Teaching Method	s Asse Me	essment ethods	
Identifies the best decision alternative by evaluating expectations and ris			k analysis results s	simultaneously.	1, 2, 4	A, B, D		
Identifies the modelling steps in decision theory and recognizes the related basic of			ed basic concepts.		1, 2, 4	А, В		
Constructs the structure of a decision problem via decision trees.					1, 2	A, B, D		
Substitutes the preferences of decision maker into the decision pro /subjective preferences.			nd compares the re	compares the results due to these objective 1, 2		A	A, B, D	
Examines and finalises a real world decision problem by applying all stages that take place			s that take place ir	a decision process.	1, 2, 3, 4 A, B, D			
Teaching Methods		1: Lecture, 2: Question - Answer, 3: Discussion, 4: Exercise, Practice						
Assessment Methods A: Writte		Written Exam, B: Oral Exam, D: Project / Design						
Lecture Schedule								
Sequenc e	Topics		Preliminary Preparation					
1	Overview of the Course, Introduction to Decision Analysis and Decision Making							
2	Analytic Hierarchy Process							
3	TOPSIS METHOD							
4	4 VIKOR METHOD							
5	5 INTRODUCTION TO DECISION ANALYSIS							
6	5 DECISION TREES and EXPECTED MONETARY VALUE							
7	RISK PROFILES and DOM	INANCE						
8	MIDTERM EXAMINATION							
9	MAKING DECISIONS WITH MULTIPLE OBJECTIVES							
10	DECISION MAKING UNDER UNCERTAINTY							
11	DECISION MAKING UNDER UNCERTAINTY							
12	Value of information: Value of perfect information							
13	Value of information: Value of imperfect information							
14	4 INTRODUCTION TO GAME THEORY							
15	TERM PROJECT PRESENT	ATIONS						
Evaluation Methods			Weig	Weight(%)				
Midterm Exam 30			30					
General Exam								

Resources

-

. ..

Making Hard Decisions: An Introduction to Decision Analysis

by Robert T. Clemen& T. Reilly South -Western Cengage Learning Academic

Press. ISBN 0-495-01508

W. L. Winston, Operations Research: Applications and Algorithms, Thompson Brooks/Cole, 2004.
H. A. Taha, Operations Research: An Introduction, Pearson Education, 2007.