

# Syllabus - Fall 2020

The information on this syllabus may change. For the most up-to-date syllabus, check this site on the related day of classes. This course provides an overview of Multi Criteria Decision Making methods. Students will learn variety of multi-criteria decision making techniques including AHP, ANP, WASPAS, TOPSIS etc. Students will learn to choose the best possible alternative in business also decisions on public or private sectors to satisfy objective considering evaluation criteria.

## Program Information

This is a two-credit undergraduate level elective course.

## Course and Instructor Information

<b>Course</b>	Multi-Criteria Decision Making
<b>Credits:</b>	3
<b>Instructor:</b>	Sukran Seker, PhD
<b>E-mail:</b>	sseker@yildiz.edu.tr; seker.sukran@gmail.com
<b>Textbook:</b>	Instructor's lecture notes, Multiple Attribute Decision Making: Methods and Applications, Gwo-Hshiung Tzeng, Jih-Jeng Huang, CRC press, 2011.

## Course Objectives

The aim of the course, to enable students to use the multicriteria decision making methods (MCDM) by employing quantitative methods. Accordingly, in order to make business decisions using ranking irregularities, ELECTRE methods, the Analytic Hierarchy Process (AHP), decision-making applications are used to identify the variables and their suitability ratings for decisions. Students will be able to use Multi-criteria decision making techniques, partially or completely be able to rank the alternatives, and make decisions under conditions of uncertainty and high risk.

## Course Outline

Week	Topic	Hour
1.2	Introduction to MCDM The need for decision making Key figures in decision making Managerial decision modeling	2+2
3	Decision Making Under Uncertainty Maximax Criterion Maximin Criterion Criterion of Realism Minimax regret	2
4	Introduction to MCDM MCDM applications, Normalization methods Simple Additive Weighting Method	2
5	Weighted Sum Method (WSM)    Weighted Product Method (WPM) WASPAS method	2
6	Analytic Hierarchy Method (AHP) and Case study	2
7	Technique for Order Preference by Similarity to an Ideal Solution (TOPSIS) method and Case study	2
8	Mid-Term Exam	

9	<b>ELECTRE (Elemination and Choice Translating Reality English) method</b>	
10	MCDM method and application	2
11	MCDM method and application	2
12	Presentations(Assignment)	2
13	Presentations(Assignment)	2
14	Presentations(Assignment)	

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**Grading:**

Midterm: 30%

Presentation: 30%

Final Exam: 40%

**Assignment:** A team, which consist of up to 3 students, will select a decision making problem from various areas (supplier selection, transportation, safety,medical etc.)

-**Determine alternative**

-**Determine evaluation criteria**

-**Apply one MCDM method (different from classess preferable, hybrid method preferable)**

-**Apply the MCDM method using Excel sheeet in detail**

-**To validate results apply sensitivity analysis using graphic**

-**Comment results in detail**