ÇANKAYA UNIVERSITY
Department of Industrial Engineering

IE 551 – MULTIPLE CRITERIA DECISION MAKING

Spring 2019

Instructor:

Assoc. Prof. Orhan Karasakal
E-mail: okarasakal@cankaya.edu.tr
Office: L-306

Course Schedule:

Thursday 18:00- 20:50 (Balgat Campus SEDAM-1)

Textbook:

Lecture notes, journal articles and parts of certain texts will be distributed.

Reference Books:

1.   Multiple Criteria Optimization: Theory, Computation and Application, R.E. Steuer, John Wiley and Sons, 1986

2.   Multiobjective Programming and Planning, J.L. Cohon, Academic Press, 1978

3.   Nonlinear Multiobjective Optimization, K. Miettinen, Kluwer Academic Publishers, 1999

4.   Multicriteria Decision-aid, P. Vincke, John Wiley and Sons, 1992

5.   Multiple Criteria Decision Analysis: An Integrated Approach, V. Belton and T.J. Stewart, Kluwer Academic Publishers, 2002

6.   Multicriteria Decision in Management, Principles and Practice, J.C. Pomerol and S. Barba-Romero, Kluwer Academic Publishers, 2000

7.   Multiobjective Optimization: Principles and Case Studies, Y. Collette and P. Siarry, Springer, 2003

8.   Multicriteria Decision Aid Classification Methods, M. Doumpos and C. Zopoudinis, Kluwer Academic Publishers, 2002

9.   Multi-criteria Decision Analysis: Methods and Software, Alessio Ishizaka and Philippe Nemery, 2013

10.   Multicriteria Optimization, 2nd Edition, Matthias Ehrgott, 2005

Course Description:

This course covers the theory of Multiple Criteria Decision Making (MCDM) and methods for solving MCDM problems. The aim of the course is to provide sufficient awareness of the underlying philosophies and theories, and insight into practice to enable students to implement MCDM methods in an informed manner.

Prerequisite: Students are expected to have a good linear programming background.

Topics to be Covered:
- Basic Concepts of MCDM (2 weeks)
- Discrete-Alternative MCDM
  - A priori methods (3 weeks)
  - Interactive methods (2 weeks)
- Continuous Solution Space MCDM
  - A posteriori methods (2 weeks)
  - A priori methods (2 weeks)

- ▪ Interactive methods (2 weeks)
- • Behavioral Issues in MCDM (1 week)

Course Web Page:

A web page will be available for this course at https://webonline.cankaya.edu.tr. You will need to access this web page for announcements about class, lecture notes, and assignments. A copy of the lecture slides will be posted on Moodle at the beginning of every week. These lecture slides may not contain all the discussion, examples, and the solutions of the problems solved in the class; you are expected to use the slides to go over the plan of the week and to take notes during the class.

Grading:

Midterm	30 %
Final Exam	35 %
Project	15 %
Homework (2)	20 %
Total	100 %

Classroom Policy:

Every student is expected to respect the other students' right to learn. Any behavior which distracts or disturbs the other students or the instructor, or disrupts class in any way is unacceptable and will not be tolerated.

Make-up Policy:

A make-up examination for the midterm and the final exam will only be given under highly unusual circumstances (such as serious health or family problems). The student should contact the instructor as early as possible and provide the instructor with proper documentation (such as a medical note certified by Çankaya University's Health Center). A make-up exam may have a different format and may contain different type of questions than the regular exam.

Attendance:

Attendance will be taken every lecture hour. It is strongly recommended to attend all the lecture hours to understand the course material.

Conditions that lead to the letter grade "NA":

Not attending any one of the Midterm Exam (or its makeup) or the Final Exam (or its makeup).