CE 208 – CONSTRUCTION MATERIALS

2019-2020 SPRING SEMESTER

Instructor: Dr. Ayhan Öner Yücel **Email:** aoyucel@adu.edu.tr

Course website: https://akademik.adu.edu.tr/fakulte/muhendislik/personel/aoyucel/dersler

Course Schedule: Monday 13:30 - 17:15 (MA201)

Office Hours: Wednesday 13:30 – 15:30

Objectives of the Course: At the end of this course, the student will understand the basic properties of various types of construction materials and the tests used to characterize those materials' properties.

Course Content: Production, types, uses in construction, properties and tests for these materials: lime, gypsum, hydraulic cements, mineral aggregates, concrete, clay products, ferrous metals, polymers, bituminous materials, timber. Constituents, theories of mix design, principal steps in production, physical and mechanical properties of concrete.

Attendance: Minimum **70%** lecture attendance is mandatory. In order to be eligible for the final exam, it is expected to continue at least **70%** of the lectures.

Course Assessment:

Midterm Examination……40%
Final Examination……..…60%

Textbook:

Sinan T. Erdoğan, Turhan Y. Erdoğan, Basic Materials of Construction, ODTÜ Yayıncılık, Ankara, 2014.

Reference Books:

1) P.K. Mehta, P. J. M. Monteiro, Concrete: Microstructure, Properties, and Materials, Mc Graw-Hill Professional, Third edition, 2006.

2) M.S. MAMLOUK and J.P. ZANIEWSKI, "Materials for Civil and Construction Engineers", Prentice Hall, II. Edition, 2011.

3) Turhan Y. Erdoğan, Beton, ODTÜ Yayıncılık, Ankara, 4. Baskı, 2013.

Course Learning Outcomes:

1. To familiarize the student with typical civil engineering construction materials regarding their production, types, properties and uses in construction.

2. To present relationships between microstructure and macroscale material behavior, i.e., mechanical properties and durability.

3. To introduce students to standard methods for testing physical and mechanical properties of construction materials.

4. To build an awareness of material strength, durability, and cost to promote effective material selection, material design, and structural design.

TENTATIVE COURSE SCHEDULE

Week		Subjects
1	03.02.2020	Introduction to materials of construction
2	10.02.2020	Gypsum
3	17.02.2020	Lime
4	24.02.2020	Portland Cement
5	02.03.2020	
6	09.03.2020	Pozzolans
7	16.03.2020	
8		**Midterm week**
9		
10	06.04.2020	Aggregates
11	13.04.2020	
12	20.04.2020	Concrete
13	27.04.2020	
14	04.05.2020	Polymers
15	11.05.2020	Ferrous metals, alloys, concrete reinforcement, clay bricks