# BOĞAZİÇİ UNIVERSITY
# Department of Civil Engineering

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## Syllabus of CE480 Introduction to Architectural Engineering

**CE480 : Introduction to Architectural Engineering**
**2015-16 Spring Elective Course**

**Course Data:** Credits: (3+0+0) 3
Lecture Hours: Friday 10:00-13: Lecture Hall: M3100
Office Hours: Friday 13:00-14:00

**Course Instructor:** Erhan KARAESMEN
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**Teaching Assistant:** To be announced later.

**Course Description:** Architectural/structural alliance. Structural systems and actions. Behavioral features of structural systems, focus on function layout and building projects and aesthetics. Structural integrity. A case study - Sinan's contributions in the domical vaulting art (field trip to Selimiye Mosque, Edirne), design and construction features. Fury of going up: tall buildings. Introduction to transportation systems.
*Prerequisite*: Instructor's consent (course is mainly for senior and junior students).

**Course Objectives:** Perceive evaluation of the alliance between architectural design and structural resistance. Introduce loads and materials as main components to be taken into consideration in architectural and structural design together. Cover developments in construction techniques and design concepts from ancient times to the present day. Emphasis on the importance of communication with seniors, peers, public and team work for successful engineers and architects .

**Course Text Book:**

- Karaesmen, E., ***"CE 480 Course Notes"***, 2014.

**References and Recommended Books (please note that list is not exhaustive):**

- Steadman, P., " *Energy, environment and building*", Cambridge Univ. Press, 1975. TJ163.2. S74 1975.
- Yoshiyuki, M., "*Design science: Six viewpoints for the creation of future*", Designjuku, Tokyo, Maruzen, 2010. T57.37.Y67 2010.
- Goel, A. and D. A. McAdams, "*Biologically inspired design: computational methods and tools*", London, New York, Springer, 2014. TA 174.B555 2014.
- Karaesmen, E. , "*Ardgermeli beton ve yeni cozumler",* Freysas-Freyssinet Yapi Sistemleri San. A.S. 2015. TA 683.9.K37 2015.

**Auxilliary Reference:**

- Karaesmen, E., *"Sinan teması üzerine çeşitlemeler"*, TMMOB İnşaat Mühendisleri Odası, Ankara, 2008. NA 1373.S5. K37 2008.
- Sykora, D. W., Hynes, M., and E. Karaesmen, ***"Report of an International Workshop on Preserving Historic Buildings of Major Importance"***, US Army Corps of Engineers, Washington DC, 1993 (Prepared for National Science Foundation – NSF).

**Curricular Context:**
The course aims to introduce and provide students equipped with fundamental structural analysis and design knowledge the need of focusing and encompassing several engineering and architectural disciplines in civil engineering.

**Laboratory and Computer Usage**
No laboratory sessions. Students are however encouraged to use softwares such as AutoCAD, SAP2000 or similar to draw building plans in homework and/or project.

**Grading Policies:**

*Homework 1: 12%, Homework 2: 14%*
*Take Home Midterm: 14%, Take Home Final: 14%*
*Term Project: 46%*

**Student Outcomes**

i) An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability,
ii) An ability to function on multi-disciplinary teams with several engineering disciplines.
iii) An ability to communicate effectively,
iv) The broad education necessary to understand the impact of engineering solutions in a global and societal context,
v) Knowledge of contemporary issues.