MIDDLE EAST TECHNICAL UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING

CE 482
DESIGN OF STEEL STRUCTURES

FALL 2019

Instructors: Cem Topkaya (Section 1) and Tuğçe Akbaş (Section 2)
Lecture Hours: Friday 9:40 – 12:30
Classroom: CES1 (Section 1); K2-107 (Section 2)
Course Assistant: Korhan Kocamaz (K2-105)

Topics:

- Loads and Load Combinations
  Introduction to Eurocodes; Eurocode 0: Basis of Structural Design; Eurocode 1: Actions; Calculation of Imposed Loads, Snow Loads and Wind Loads According to EC1; Earthquake Loads According to EC8; Load Combinations According to EC0 and ASCE7-10.

- Special Topics in Flexural Members
  Review of Flexural Members; Flexural Members with Non-compact and Slender Elements; Plate Buckling; Efficient Girder Design; Stiffened and Unstiffened Girders; Tension Field Action; Lateral Torsional Buckling for Plate Girders; Singly Symmetric Sections.

- Web Behavior Under Concentrated Loads
  Local Web Yielding; Web Crippling; Sidesway Web Buckling.

- Composite Construction in Steel and Concrete
  Composite Beams; Shear Connectors; Full and Partial Composite Action.

- Special Topics in Compression Members
  Review of Compression Members; Learner Columns; ΣP Concept; Composite Columns.

- Special Topics

Grading: Homeworks (15%); MidTerm 1 (35%); Final Exam (35%); Final Project (15%)

Eligibility to Take the Final Exam: Students who attend 75 percent of the classes and whose cumulative is equal to or greater than 30 will be eligible to take the final exam. Students who fail to meet this requirement will be granted an "NA" grade. The cumulative will be calculated based on 15% of homeworks, 35% of MidTerm 1.

References:
Steel Structures: Design and Behavior, C.G. Salmon, J.E. Johnson and F.A. Malhas, 5th Edition, 2009.
Design of Steel Structures, E.Gaylord, C.Gaylord, J. Stallmeyer, 3rd Edition, 1992.
Specification for Structural Steel Buildings, American Institute of Steel Construction, AISC 360-16, 2016.
Eurocode 3: Design of Steel Structures – Part 1.1: General Rules and Rules for Buildings, EN 1993-1-1, 2003.
Structural Steel Design, J.C. McCormac, 4th Edition, 2008.