Istanbul Technical University – Department of Architecture

MIM 271E – Theory of Structures, 22224
Course Syllabus | 2019-2020 Spring Semester

Course Day and Hour: Friday, 10:30 – 12:30	Course Instructor: Cenk Üstündağ
Course Room: -	e-mail: ustunda1@itu.edu.tr
Course Credit :2	Office no: 103
Course Web Site: Ninova	
	Course Assistant/s:
	e-mail:
	Office no:

Course Description

Within the context of the course; concept of structural determinacy and indeterminacy, internal force distribution in determinate systems (continuous beams with hinges, three hinged frames and arches), truss configurations for large spans, deflection problems of beams and frames under gravity and/or lateral forces, internal force distribution in indeterminate systems and important rules to configure a regular structural system are given with examples of various real buildings. At the end of the course, students are expected to be capable of configuring proper structural systems with their approximate cross-sectional dimensions.

Course Structure and Plan

Course Plan

WEEK	DATE	TOPIC
1	14.02.2020	Introduction and Basic Concepts
2	21.02.2020	Internal Force Diagrams (Simply supported beams, cantilever beams and frames)
3	28.02.2020	Internal Force Diagrams (Simply supported beams and frames with overhangs)
4	06.03.2020	Continuous Beams with Hinges
5	13.03.2020	Three-hinged Arches and Frames
6	20.03.2020	Trusses
7	27.03.2020	Problem Solving Session
8	10.04.2020	Midterm Exam
9	17.04.2020	Deflections in Structures, Virtual Work Method
10	24.04.2020	Concept of Statically Indeterminacy, Flexibility (Force) Method
11	01.05.2020	National Holiday
12	08.05.2020	Flexibility (Force) Method
13	15.05.2020	Problem Solving Session
14	22.05.2020	General Principles of Moment Distribution (Cross) Method

Recommended Readings

1. Dinkler, D., Grundlagen der Baustatik, Springer Vieweg, 2019, ISBN: 978-3658238384
2. Hibbeler, R.C., Structural Analysis (10th Edition), Prentice Hall, 2018, ISBN: 978-0134610672
3. Girgin, K., Aksoylu, M.G., Darılmaz, K. Durgun, Y., Yapı Statiği İzostatik Sistemler, Birsen Yayınevi, 2017, ISBN: 978-9755115559
4. Girgin, K., Aksoylu, M.G., Darılmaz, K. Durgun, Y., Yapı Statiği Hiperstatik Sistemler, Birsen Yayınevi, 2017, ISBN: 978-9755115641

Course Assessment
Assessment criteria is based on the scores of one homework assignment, one mid-term exam and one final exam.The effect of the homework assignment score and the mid-term exam score on the total mid-term score is 20% and 80%, respectively. In order to qualify for the final exam, course attendance should not be below 70% and at least 40 points out of 100 must be obtained as the total mid-term score. The effect of the total mid-term score and the final exam score on the overall success grade is 40% and 60%, respectively.

Total mid-term score: 80% mid-term exam score, 20% homework score
Qualification for the final exam: 70% course attendance and min. 40 points out of 100 as total mid-term score
Overall success grade: 40% total mid-term score, 60% final exam score

Contributors

Ress. Asst. Sinem Emanet / sinem.emanet@itu.edu.tr