Sharif University of Technology
School of Civil Engineering

STRUCTURAL ANALYSIS I (20-121)

Instructor: Kiarash M. Dolatshahi

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http://sharif.edu/~dolatshahi/StructuralAnalysisI.html

Class Schedule:

Lecture: Saturday-Monday, 9:00-10:30, TA: Monday 12:00-13:00

Office hours: Saturday 10:30-11:00

Final Grades:

Homework 15%

Mid-term exam 35%

Final exam 50%

Exam dates:

Mid-term Exam: Ordibehesht 13th - 9:00-12:00

Final Exam: Tir 7th - 9:00-12:00

Organization of Course:

- Introduction: Aspects of structural analysis, Classification of structures, their components, and supports

- Determinacy and stability of structures

- Analysis of statically determinate structures: Beams, frames and trusses

- Shear and moment diagrams in determinate beams and frames

- Elastic deformation of beams: Double integration method, Moment-area theorems, Conjugate-beam method

- Energy methods: Internal work and external work, Unit-load method, Castigliano's theorem

- Maxwell's Theorem and Betti's Law

- Influence lines for determinate structures: Beams, frames and trusses

- Analysis of indeterminate structures by Force Method: Method of consistent deformations

Texts:

- Hibbeler, Russell C. *Structural analysis*. Pearson Prentice Hall, 2014.
- Hsieh, Yuan-Yu. *Elementary theory of structures*. Pearson Prentice Hall, 1995.
- Norris, C. H., J. B. Wilbur, S. Utku. *Elementary Structural Analysis*, McGraw Hill, 1976.
- Wang, Chu-Kia, Chu-Kia Wang. *Intermediate structural analysis*. McGraw Hill, 1982.
- Leet, Kenneth, Chia-Ming Uang, and Anne M. Gilbert. *Fundamentals of structural analysis*. McGraw Hill, 2010.

Class Policies:

- Homework will be due one week after being assigned. A penalty of 20% will be applied to the homework submitted a session late. Late assignments, submitted after one session, will not be accepted.
- Attendance policy -- Students are expected to attend all lectures.
- Academic Integrity -- The student conduct is governed by the rules of the University and students are expected to know and abide by the University policies on academic honesty and integrity. It is the responsibility of the student to refrain from infractions of academic integrity which include cheating, fabrication and plagiarism. Any homework, exam, and project handed in by an individual must represent their own original work. Violation of the University rules will result in a failing grade in the course, suspension, and dismissal.