

Structural Analysis-II

Course Code CE-306	Credit Hours 3-0
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Course Description

This course provides the knowledge and understanding of analyzing structural elements by Force and Displacement Methods of analysis. This is the second course on the structural analysis domain. In the first course (SA-I), the minds of students are agitated towards structural analysis by exposing them to the analysis of idealized determinate structures. In the second course (SA-II), students are introduced to the analysis of indeterminate structures. Construction of influence lines for indeterminate structures is also carried out, along with analysis of 2-hinged arches.

Text Book:

1. Fundamentals of Structural Analysis by Kenneth M. Leet
2. Structural Analysis by R.C.Hibbeler
3. Stresses in Plates, Beams, And Shells by Ansel C. Ugural

Reference Book:

1. Survey for Engineers by John Uren & Bill Price

Prerequisites :

CE-206 Structural Analysis-I.

ASSESSMENT SYSTEM FOR THEORY

	Without Project (%)	With Project/Complex Engineering Problems (%)
Quizzes	15	10-15
Assignments	10	5-10
Mid Terms	25	25
Project	-	5-10
End Semester Exam	50	45-50

ASSESSMENT SYSTEM FOR LAB

Lab Work/ Psychomotor Assessment/ Lab Reports	70%
Lab Project/ Open Ended Lab Report/ Assignment/ Quiz	10%
Final Assesment/ Viva	20%

Teaching Plan

Week No	Topics/Learning Outcomes
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1-3	Consistent Deformation Method and Method of Least Work for Analysis of 1 st , 2 nd , and 3 rd degree indeterminate Beams.
4-5	Consistent Deformation Method and Method of Least Work for Analysis of 1 st , 2 nd , and 3 rd degree indeterminate Frames. Analysis of externally and internally indeterminate trusses. Analysis of support settlement cases.
6-7	Slope-Deflection Method for Analysis of 1 st , 2 nd , and 3 rd degree indeterminate Beams.
8	Slope-Deflection Method for Analysis of 1 st , 2 nd , and 3 rd degree indeterminate Frames and Multi-story frames Analysis of support settlement cases.
9	Mid Semester Exam
10-11	Moment Distribution Method for Analysis of 1 st , 2 nd , and 3 rd degree indeterminate beams.
12	Moment Distribution Method for Analysis of 1 st , 2 nd , and 3 rd degree indeterminate Frames and multi-story frames Analysis of support settlement cases.
13	Influence Lines for Indeterminate Beams
14	Approximate structural analysis Analysis of frames using the Portal Method.
15-16	Modelling and analysis of indeterminate structure members using computer software.
17-18	End Semester Exam

Practical: Nil.