

CE/BOS/CE 301/0210

**K L UNIVERSITY**

**ADVANCED STRUCTURAL ANALYSIS (09 - CE 301)**

L	T	P	Cr
3	1	2	5

**SYLLABUS**

**UNIT – 1:** Analysis of Structure by Slope Deflection Method

Difference between force method and displacement method. Advantage of displacement method. Analysis of indeterminate beams, Beams with uneven support settlement, rigid frames by slope deflection method.

**UNIT – 2: Analysis of Structure by Moment Distribution Method**

Advantage of moment distribution method, stiffness, carry over and distribution factor, analysis of indeterminate beams and rigid frames, uneven settlement of support for beam and rigid frame by moment distribution method.

**UNIT – 3: Analysis of Structure by Flexibility Matrix Method**

Concept of flexibility coefficients, analysis of truss, indeterminate beams and rigid frames by this method

**UNIT – 4:** Analysis of Structure by Stiffness Matrix Method

Concept of degrees of freedom, degree of indeterminacy and stiffness coefficients, analysis of truss, indeterminate beams and rigid frames by this method.

**UNIT – 5: Analysis of Cable, Three Hinged and Two Hinged Arch Structures**

Solution method for cable structure, analysis of three hinged arch, analysis of semi circular two hinged arch, effect of temperature and yielding of support on horizontal thrust.

**TEXT BOOKS:**

2. Basic Structural Analysis by C S Reddy, Tata McGraw Hill publishing Company Ltd. Delhi. 2<sup>nd</sup> edition 2010

**REFERENCE BOOKS:**

3. Intermediate Structural Analysis by C. K. Wang, McGraw Hill Book Company, 2010
4. Structural analysis, A Matrix Approach by Pandit & Gupta, Tata McGraw Hill publishing Company Ltd. New Delhi.2008
5. Structural analysis by Vazirani and Ratwani, Khanna Publishers (Vol 1 and 2)

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**LIST OF EXPERIMENTS**

<b>L</b>	<b>T</b>	<b>P</b>	<b>Cr</b>
<b>3</b>	<b>1</b>	<b>2</b>	<b>5</b>

Students are required to design of the following structures using Software packages like STAAD-Pro

1. Analysis of continuous beam.
2. Analysis of plane frame.
3. Analysis of space frame.
4. Analysis of roof truss.
5. Analysis of Two storey residential building: Creating model from the given drawing.
6. Analysis of Two storey residential building: Assigning supports, loads and load combinations.
7. Analysis of Two storey residential building: Beams and Columns
8. Analysis of Two storey residential building: Slabs.
9. Analysis of Three storey Hospital building: Creating model from the given drawing.
10. Analysis of Three storey Hospital building: Assigning supports, loads and load combinations.
11. Analysis of Three storey Hospital building: Beams and Columns
12. Analysis of Three storey Hospital building: Slabs.