

ADVANCED STRUCTURAL ANALYSIS (11 - CE 402)

Pre – requisite: 11-ES201, 11-CE204, 11-CE301

L	T	P	Cr
3	1	0	4

SYLLABUS

I.L.D for Determinate Structures: Influence line for reactions, simply supported, over hang, I L D for shear force in cantilever, simply supported, I L D for B. M cantilever, over hang and simply supported beams, position and magnitude of maximum shear force and B.M for concentrated load and udl, series of concentrated loads, absolute maximum S.F and B.M

Analysis of Structure by Flexibility Matrix Method: Concept of flexibility coefficients, analysis of truss, indeterminate beams and rigid frames by this method. **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.

Analysis of Cable and Three Hinged Structures: Solution method for cable structure, analysis of three hinged arch, **Plastic Analysis Structures:** Idealized stress-strain diagram, Plastic Moment of resistance, plastic modulus, shape factors for different sections, load factor, Plastic hinge and mechanism, plastic analysis of indeterminate beams and frames

TEXT BOOKS:

1. Basic Structural Analysis by C S Reddy, Tata McGraw Hill publishing Company ltd. Delhi. 2nd edition 2010

REFERENCE BOOKS:

1. Intermediate Structural Analysis by C. K. Wang, McGraw Hill Book Company, 2010
2. Structural analysis, A Matrix Approach by Pandit & Gupta, Tata McGraw Hill publishing Company ltd. New Delhi.2008
3. Structural Analysis by T.S Thandavamoorthy, Oxford University Press, New Delhi, First edition, 2011.
4. Fundamentals of Structural Mechanics and Analysis by M L Gambhir, PHI learning private limited, New Delhi, 2011.