

Subject Code : 1ET1060402	Subject Title : STRUCTURAL ANALYSIS-II
Pre-requisite Subject	Basic Knowledge of Mechanics of Solids and structural analysis-I

Course Objective:

- The students will learn fundamental basics of Mechanics of solids and structural analysis-I.

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture	Tutorial	Practical	Credit	Theory		Practical		Total (T+P)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
4	2	0	6	70	30	-	-	100

Subject Contents			
Sr. No	Topic	Total Hours	Weight (%)
01	Fixed Beams & Consistent Deformation Method: Computation of fixed-end actions for various types of loads and secondary Effects using basic principles, beams of varying moment of inertia. Analysis of propped cantilever beams & beams of varying moment of inertia using Consistent Deformation Method	10	10
03	Energy principles: Castigliano's theorems, computation of displacements of statically determinate beams, trusses and frames by unit load method, analysis of indeterminate structures – beams, trusses, frames & two hinge arches.	10	20
04	Slope deflection method: Analysis of continuous beams for various loading including settlement/rotation of support, analysis of simple portal frame with sway.	08	15
05	Moment distribution: Analysis of continuous beams & frames including sway, use of symmetry of structure upto two storeyed / two bay frames.	08	15
06	Kani's method: Concept of method application to continuous beams and frames with sway.	06	15
07	Influence lines: For statically determinate beams, I.L.D for support reaction, shear and moment for u.d.l, several point loads, criteria for maximum effects, influence lines for statically determinate trusses, forces in members for u.d.l and point loads, criteria for maximum effect.	08	15
	Influence lines for indeterminate structures: Muller-Breslau's principle, steps for obtaining I.L for reaction and internal forces in propped cantilever and continuous beam, qualitative I.L for rigid jointed structures having higher degree of statically indeterminacy	06	10

Term Work : This will consist of graphical and analytical solutions of at least 30 problems based on the above course.

List of References:

- Junnarkar S.B. & Shah H.J.; Mechanics of Structures Vol-II; Charotar publishing house, Anand
- Wang C.K.; Intermediate Structural Analysis; McGraw Hill book Company, New Delhi
- Reddy C.S.; Basic Structural Analysis; Tata Mc Graw Hill Publishing Company Ltd, New Delhi
- Dr. Punmia B. C., Jain Ashok & Jain Arun; Strength of materials & Theory of Structures; Laxmi Pub., New Delhi
- Krishna Raju; Prestressed Concrete; Tata Mc Graw Hill Publishing Company Ltd, New Delhi
- William Weaver, Jr & James M. Gere; Matrix Analysis of Framed Structures; CBS Publishers & Distributors, Delhi