

GUJARAT TECHNOLOGICAL UNIVERSITY
PDDC - CIVIL ENGINEERING
Semester: III

Subject Name: **Structural Analysis-II**

Sr. No.	Course content
1.	Displacement methods: Analysis of continuous beams & plane frames for various loading including settlement/ rotation of support by slope deflection method, Moment distribution method including sway.
2.	Influence lines: Muller-Breslau's principle, Influence Line Diagrams for reaction and internal forces in propped cantilever and continuous beams having one static indeterminacy, qualitative ILD for statically indeterminate structures such as beams & frames.
3.	Matrix methods: Analysis of indeterminate plane trusses, beams and frames by matrix flexibility and stiffness methods. Application of computer for analysis of various structures.
4.	Buckling: Buckling of columns, different end conditions, effective length, least radius of gyration, product of inertia, principal axes and Mohr's circle of inertia, Euler's and Rankine's formulae, columns with initial curvature, eccentrically loaded columns, columns with lateral loading.
5.	Curved Structures: Three hinge arches, two hinge arches - circular and parabolic shapes, internal actions and end actions. Forces and end actions in cables. Domes-spherical & conical, longitudinal and hoop stresses.

Term Work:

(A) Laboratory Experiments :

1. ILD of indeterminate beams.
2. Settlement of supports.
3. Buckling of columns.
4. End reactions of Arches.

(B) Assignments :

This will consist of analytical solution of at least 25 problems based on the syllabus of structural analysis II.

Reference Books :

1. Junarkar S.B. ; *Mechanics of Structures Vol. II*
2. Vazirani & Ratwani ; *Analysis of Structures Vol. II*
3. Wang C. K.; *Intermediate Structural Analysis*
4. Reddy C.S.; *Basic Structural Analysis*
5. Gere & Weaver ; *Matrix Analysis of Framed Structures*
6. B.C. Punamia; *Strength of Materials & Theory of Structures Vol. II*