

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. SEMESTER: V CIVIL ENGINEERING

Subject Name: **Structural Analysis-III**

Subject Code: **150605**

Teaching Scheme				Evaluation Scheme		
Theory	Tutorial	Practical	Total	University Exam (Theory) (E)	Mid Sem Exam (Theory) (M)	Internal Assessment (I)
2	1	0	3	70	30	50

MODULE - I

- Matrix Methods:**
Types of skeletal structures, Internal forces and deformations. Introduction and applications of flexibility method and stiffness method to analyze beams, Trusses and plane frames.

MODULE-II

- Domes:**
Uses of domes, Types of domes, Nature of stresses in conical and spherical domes, Analysis of conical and spherical domes subjected to uniformly distributed load/ concentrated load at crown, Analysis of domes with opening.

MODULE – III

- Beam Curved in Plan:**
Uses of curved beam, types of internal forces, Analysis of curved beam fixed at ends for point load, Uniformly distributed load, Analysis of circular beam supported symmetrically.

MODULE - IV

- Plastic Method:**
Concept, Assumptions, Shape factor for different cross section, Collapse load, Load factor, Plastic modulus of section, Plastic moment of resistance, Computation of collapse load for fixed beam, Continuous beam and plane frame subjected to various load cases.

Note: Each module has 25% weightage.

Term Work:

Term work shall consist of tutorials (minimum 30 problems) based on above course. Practical examinations shall consists of oral based on term work and above course.

Reference Books:

1. Junnarkar S. B. & Shah H.J, Mechanics of Structures Vol-II, Charotar publishing house, Anand.
2. Wang C.K., Matrix methods of Structural Analysis Mc Graw Hill book Company, New Delhi.
3. Reddy C.S., Basic Structural Analysis, Tata Mc Graw Hill Publishing Company Ltd, New Delhi.
4. Neal B G, Plastic Analysis, Mc Graw hill Publication.
5. Dr. Punmia B.C. Jain Ashok & Jain Arun, RCC Design, Laxmi Publications, New Delhi.
6. William Weaver, Jr & James M. Gere, Matrix Analysis of Framed Structures, CBS Publishers & Distributors, Delhi.