

GUJARAT TECHNOLOGICAL UNIVERSITY
BRANCH NAME: B.ID.
SUBJECT NAME: BASIC STRUCTURES – II
SUBJECT CODE: 2X25102
1st Year, Semester: 2

Prerequisite:

Exposure to build forms through Basic Structural systems.

Rationale:

- Understanding of loads distribution & behavior of these systems.
- Fundamentals of load transfer
- Structural System design – approach to design & Implementation

Teaching and Assessment Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks	University Exam Type
Lectures	Tutorials	Studio		External exam		Internal exam			
				(ESE) Practical	(ESE) Viva	(PA) Practical	(PA)Viva		
1	1	0	02	50	NA	50	NA	100	Exam

Content:

Sr. No	Content	Total Hours*	% Weightage*
1	Unit 1: Basic understanding of various types of structures like masonry, framed (R.C.C. Or Steel) and Structural systems. - Definition, Properties, Advantages and implementation	08	25
2	Unit 2: Types of supports to simply supported beams and trusses, general loading conditions, various types of loads and load taken by the supports	08	25
3	Unit 3: Shear Force & Bending Moment - Definitions ,Sign Conventions , relationship between Shear Force & Bending Moment - Direct, compressive and tensile forces in light of loading of various kinds.	08	25
4	Unit -4: - Introduction to Natural & man-made tensile ,framed , composite and shell structures, - Introduction to Geodesic Domes, Space Frame, Pneumatic Structures	08	25

*: indicative

Reference Books:

- Bear & Johnston – Vector mechanics for engineers – static
- Junarkar & H. J. Shah – Applied Mechanics
- Jeffery Cook – Seeking Structures from Nature
- Frei Otto : Complete Works
- Structure: The Essence of Architecture – Forrest Wilson
- Structural – Systems – Henry J. Cowan, Forest Wilson
- D.K. Ching - Building Structure Illustrated.

*- this is suggestive for common purpose. Faculty may decide on this, considering student group and institution philosophy.

