

GUJARAT TECHNOLOGICAL UNIVERSITY
BRANCH NAME: BACHELOR OF INTERIOR DESIGN
SUBJECT NAME: BASIC STRUCTURES – I
SUBJECT CODE: 2X15103
1st Year, Semester: 1

Prerequisite:

It is a beginner course. There is no prerequisite for this course.

Rationale:

- Enable the students to understand the need of structural design.
- Develop their skills to feel & evaluate the existing structural designs of a space more effectively.
- Help them develop structural design vocabulary to equip them to understand, relate and articulate their design learning in practice.

Teaching and Assessment Scheme:

| Teaching Scheme | | | Credits | Examination Marks | | | | Total Marks | University Exam Type |
|-----------------|----------|--------|-------------|-------------------|------------|---------------|----|-------------|----------------------|
| Field work | Lectures | Studio | | External exam | | Internal exam | | | |
| | | | (ESE)Theory | (ESE) Viva | (PA)Theory | (PA)Viva | | | |
| 01 | 01 | 00 | 02 | 50 | NA | 50 | NA | 100 | EXAM |

Content:

| Sr. No. | Content | Total Hours* | % Weightage* |
|---------|--|--------------|--------------|
| 1 | Unit -1: Introduction to Basic Structures Why is it important for an Interior designer & understanding of elements in structures. | 02 | 05 |
| 2 | Unit 2:Natural Structures & their intuitive behaviors : - Glossary of technical words. - Natural structures and their intuitive behavior, their relationship with man-made structures, with various examples through models and analysis | 04 | 15 |
| 3 | Unit 3: Functions of Structures | 08 | 25 |
| 4 | Unit 4:Types of Forces and their applications - Primary and secondary forces acting on structures gravitational force i.e. dead load, live load, and environment loads like wind, temperature variation, earthquake etc. -State of Equilibrium | 08 | 25 |

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|---|---|----|----|
| 5 | Unit 5: Elements of Structure, need and properties (Implementation). <ul style="list-style-type: none"> ● Basic elements of structure and study of their behavior through models. ● Characteristic requirements of structural design – strength, stiffness and stability ● Structural properties of basic materials like masonry, timber, concrete and steel. | 06 | 20 |
| 6 | Unit 6 : Structural Systems <ul style="list-style-type: none"> ● Introduction to basic structural systems such as post-beam, bearing wall system, Trusses, rigid frames and their behavior. Study of distribution of loads through the elements of these systems with the help of case Studies. | 04 | 10 |

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List of Projects/Assignments*:

Presentations, models, case studies, and analysis of structural systems in the above- mentioned framework.

Reference Books:

- Jeffery Cook - Seeking Structures from Nature
- D.K. Ching - Building Structure Illustrated.
- Forrest Wilson -Structure: The Essence of Architecture

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

