

## **Theory of Structures:**

### **Course Outcomes (Semester 01 and 02) :**

- to understand the scope of study of structure for architects
- to study the technical names and functions of various structural components from foundation to roof
- to understand different systems of measurement units
- to understand different kinds of load and how it gets distributed in a structure
- to understand properties of structures -- tall, long, thin, wide etc
- to understand stress and strain, shear force and bending moment

### **Course Outcomes (Semester 03 and 04) :**

- to understand the theory of simple bending and deflection with an introduction to Macaulay's method
- to study and understand Direct and Bending stress
- to understand material testing and grades of RCC
- to understanding and short columns structurally
- to study and understand fixed beams and the moment distribution method
- to gain a basic understanding of Steel sections and use of the steel tables
- to understand planning of low-rise, low-span steel structures

### **Course Outcomes (Semester 05 and 06) :**

- to understand the fundamentals of structural steel design
- to understand the design of primary elements in the form of readily available steel sections, through the steel tables
- to understand design of tension and compression members in trusses and compression members in columns, design of beams, design of foundations, slab base, grillage etc
- to understand concrete technology as relevant to architecture, it's grades and where it gets used
- to be able to calculate for and understand the basic theory of flexure for singly and doubly reinforced sections, one way and two way slab systems, doglegged staircase, rectangular beams and circular columns, footings and other precast elements
- to understand the RCC theory of grid floors - rectangular and diagrid
- to understand the RCC theory of flat slab

### **Course Outcomes (Semester 07) :**

- to understand the structural design of a deep foundation
- to study and calculate for combined footings
- to study and calculate for pile footings

- to study the gist of retaining walls, earthquake resistant design and theory and principles for design of tall buildings

**Course Outcomes (Semester 09) :**

- to understand design of long span structures, cable support structures, folded plate structures, shell structures, portal frames, prestressing
- to be able to effectively use this understanding as part of their final design for dissertation