

# GUJARAT TECHNOLOGICAL UNIVERSITY

## PDDC SEMESTER : VI

### CIVIL ENGINEERING

Subject Name: **STRUCTURAL DESIGN - I**

Sr. No.	Course Contents
1.	<b>Loads:</b> Appraisal of loading standards such as I.S, I.R.C. Effect of wind and earthquake on structure
2.	<b>Connections:</b> Stiffened and unstiffened, moment & shear resisting structural connections, design and detailing of connection between roof truss to column, column to beam, beam to beam and truss to web block.
3.	<b>Design of roof trusses:</b> Various types of trusses and their selection in industrial structures, effect of wind &/or other loads on trusses and structural detailing, moment and knee braced trusses.
4.	Structural design of columns with eccentric loads including base.
5.	Design of portal frames using elastic and plastic approach.
6.	<b>Design of steel structures:</b> Cantilever shed, plate girder, industrial building (rolled/tubular) including gantry girder, through and deck type bridges.

#### Term Work:

Term work shall consist of not less than 3 design suitably selected from topics of course under Design of steel structures. The report shall consist of full analytical treatment, design procedure, references and all necessary drawings in form of neat dimensioned sketches. In addition to one detailed working drawing shall be prepared on full imperial size drawing sheet.

Practical shall consist of oral and sketching based on topics given under term work.

#### Books:

1. Design of Steel Structures, Dayaratnam
2. Steel Structures, Arya & Ajmani
3. Code of practice for General Construction in steel, IS : 800-2007
4. Code of practice for structural safety of IS : 875-1987 Buildings Loading standards.
5. Criteria for earthquake resistant design of IS : 1893-1984 structures.