B. E. CIVIL ENGINEERING
Choice Based Credit System (CBCS) and Outcome Based Education (OBE)
SEMESTER - VIII

PREFABRICATED STRUCTURES

Course Code	**18CV822**	CIE Marks	40
Teaching Hours/Week(L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

Course Learning Objectives: This course will enable students to

1. Understand modular construction, industrialized construction
2. Design prefabricated elements.
3. Understand construction methods.

Module -1

Introduction: Need for prefabrication–Principles–Materials–Modular coordination–Standarization–Systems–Production–Transportation–Erection.

Module -2

Prefabricated Components: Behavior of structural components–Large panel constructions–Construction of roof and floor slabs–Wall panels–Columns–Shear walls.

Module -3

Design Principles: Disuniting of structures-Design of cross section based on efficiency of material used–Problems in design because of joint flexibility–Allowance for joint deformation.

Module -4

Joint In Structural Members: Joints for different structural connections–Dimensions and detailing–Design of expansion joints.

Module -5

Design For Abnormal Loads: Progressive collapse–Code provisions–Equivalent design loads for considering abnormal effects such as earthquakes, cyclones, etc.,-Importance of avoidance of progressive collapse.

Course Outcomes: After studying this course, students will be able to:

1. Use modular construction, industrialized construction
2. Design prefabricated elements
3. Design some of the prefabricated elements
4. Use the knowledge of the construction methods and prefabricated elements in buildings

Question paper pattern:

- The question paper will have ten full questions carrying equal marks.
- Each full question will be for 20 marks.
- There will be two full questions (with a maximum of four sub- questions) from each module.
- Each full question will have sub- question covering all the topics under a module.
- The students will have to answer five full questions, selecting one full question from each module.

Textbooks:

1. CBRI, Building materials and components, India, 1990
2. Gerostiza C.Z., Hendrikson C. and Rehat D.R.," Knowledge based process planning for construction and manufacturing", Academic Press Inc., 1994

Reference Books:

1. KonczT.,"Manual of precast concrete construction", Vol. I, II and III, Bauverlag, GMBH,1976.
2. "Structural design manual", Precast concrete connection details, Society for the studies in the use of precast concrete, Netherland BetorVerlag, 2009

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