Course Code	Course Title	L	T	P	C
17CE022	PRE ENGINEERED BUILDINGS	3	0	0	3

Course Objectives:

1. To understand the importance of Prefabrication
2. To know the process of prefabrication of various structural elements
3. To understand the assembling and dismantling of prefabricated components
4. To study the design considerations in the process of prefabrication
5. To understand the joining techniques in prefabrication

Course Outcomes:

At the end of the course the student will be able

1. To know the procedure of prefabrication
2. To design the structural prefabricated elements.
3. To familiarize with joining techniques used for prefabrication
4. To know abnormal loads which are hazardous to the prefabricated structures.

UNIT I: Introduction:

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

UNIT II: Prefabricated Components:

Behaviour of structural components – Large panel constructions – Construction of roof and floor slabs – Wall panels – Columns – Shear walls

UNIT III: 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.

UNIT IV: Joint in Structural Members:

Joints for different structural connections – Dimensions and detailing – Design of expansion joints

UNIT V: 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.

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.

REFERENCES:

1. Koncz T., "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 Betor Verlag, 2009.