Sl. No.	Sub. Code	Theory	Contact Hours			Credit
			L	T	P/S	
4.3	22EAR7433	Elective 3. Prefabrication & Modular Coordination	3	0	0	3

Course Objective

The course aims to focus on the study of basics of modular coordination and applications of prefabrication systems in buildings primarily in the Indian context.

Anticipated Learning Outcomes:

Ability to understand, assess and implement prefabrication and modular coordination techniques in design projects.

Module 1 Introduction

Introduction to conventional modular principles and practices in the West in different periods, Post Industrial modular construction of large span and suspension structures in steel and concrete, Introduction to system building, mechanization of production of system.

Module 2 Principles of modular systems

Means and methods of various structural systems (Form - active systems like cables and arches; surface active systems like folded plates, vector- active like trusses, bulk active like trabeated members and complex structures).

Modular number pattern introduction, basic modular components and concepts of modular planning, advanced and contemporary themes of modular principles- new theories of pattern, space systems and group organisation and centring processes.

Module 3 Prefabrication systems

Modular systems for building components– Classification of prefabrication systems (Example- developed by CBRI Roorkee; Skeletal system, Brick panel system, R. C. Planks, non-structural elements); off-site and on-site prefabrication elements and construction joints.

Manufacturing of building components – Technology requirements for industrial building system Equipment used – manufacturing processes – transportation of components – assembly and finishing – structural aspect.

Module 4 Application of modular systems	Prefabrication - Advantages, limitations and relevance in Indian context; Feasibility of using industrial building systems in Residential and Non-Residential buildings. Social and economic issues related to the industrial building system. Development of planning Module and structural Modules for various types of buildings in India (Application of dimensional and functional coordination of modular systems in modern buildings), use of Industrial building system as an option for disaster mitigation. (Examples - Hindustan housing factory. Tapsia system and other such contemporary systems in India).
Module 5	Case studies and construction site visits as decided by the faculty.

Note: Most Architectural subjects do not have Textbooks. The Reference books mentioned below are for reference only and University question paper should be prepared from the Syllabus descriptions.

References

1. *Industrial Building and Modular Design Henrik Missen – C and CK, UK 1972.*
2. *Albert G. H. Dietz, Laurence Secotter – "Industrialized Building Systems for Housing" – MIT, special summer session, 1970 USA.*
3. *Industrialized Building Construction – Proceedings of National Seminar, Nov-17- 18, 2000, Indian Concrete Institute, Mumbai.*
4. *Innovative Construction Materials – Proceedings of Seminar, Jan 20-21,2001, Veermata Jeejabai Technical Institute, Mumbai.*
5. *R.M.E Diamant, Industrialized buildings, 1968.*
6. *Building Digest notes of CBRI, Roorkee*
7. *R. Nagarajan, Standards in building, Pitman Publishing, 1976*
8. *Le Corbusier, Le Modular-1and2*
9. *Garry Stevens, Reasoning Architect: Mathematics and Science in Design, McGraw-Hill Education, 1990.*