COURSE CONTENT

BUILDING PLANNING AND CONSTRUCTION								
II Semester: CE								
Course Code	**Category**	**Hours/ Week**			**Credits**	**Maximum Marks**		
2520111	**Core**	**L**	**T**	**P**	**C**	**CIA**	**SEE**	**Total**
		2	0	0	2	40	60	100
Contact Classes: 30	**Tutorial Classes: Nil**	**Practical Classes: Nil**				**Total Classes: 30**		
Prerequisites: NIL								

Course Overview :

Building Planning and Construction introduces principles of site selection, building bylaws, planning standards, materials, and construction methods. The course covers structural systems, foundations, services, cost estimation, sustainability, safety, and project management, equipping students with practical skills to plan, design, and execute efficient, compliant, and durable buildings in real-world contexts effectively.

Course Objectives: This course is expected to enable the student to:

- Provide fundamental knowledge about buildings and the influence of climate, orientation, and landscaping on building planning and design.
- Impart understanding of planning principles
- Familiarize students with the National Building Code (NBC), its structure and guidelines for residential buildings,
- Develop knowledge of key building components
- Introduce various finishing works and temporary structures

Course Outcomes: Upon completion of this course, student should be able to

- Understand the classification of buildings, criteria for site selection, the impact of climate on building design, and the role of orientation and landscaping in planning.
- Apply the principles of planning and interpret building bye-laws to design functionally efficient, economical, and regulation-compliant buildings.
- Interpret and implement provisions of the National Building Code (NBC) related to residential buildings and understand basic construction techniques including foundations and masonry.
- Identify and analyze various types of floors, roofs, staircases, doors, windows, and lintels used in building construction and their suitability for different design conditions.
- Demonstrate knowledge of finishing works such as plastering, pointing, and

floor finishes, and explain the types, design, and safety aspects of scaffolding, formwork, and centering.

UNIT - I

Fundamentals of Buildings: Building, Classification of buildings, Site selection for Residential buildings, Climate and its influence on building planning; Elements of Climate, Climatic Zone of India, Climate and comfort, Earth and its motion, Directions and their characteristics, Landscaping.

Orientation of buildings; orientation, Factors affecting orientation, Sun, Wind, Rain, CBRT suggestions orientation criteria for Indian conditions.

UNIT - II

Principles of planning and Bye Laws of buildings: Aspects, prospect, Privacy, Furniture Requirements, Roominess, Grouping, Circulation, Elegance, Economy, Practical consideration.

Buildings bye Laws; Introduction, Objective, Principles, Applicability of building bye Laws. Introduction to National building code, Objectives, Scope, Structure of NBC. General Building Requirements, Guidelines for Residential Buildings. Building Heights, Setbacks, FAR/FSI. Open Spaces, room sizes, Lighting and Ventilation, Means of Access and service ducts. Classification of buildings for fire safety.

UNIT - III

Introduction to building construction and site preparation; components of Building, **Foundations: Functions & Requirements, Types of Shallow Foundations:** isolated footings, combined footings, strap footings, wall footings, raft foundations, **Types of Deep Foundations:** driven piles (timber, precast concrete, steel), bored cast-in-situ piles. Brick masonry – types – bonds; Stone masonry – types

UNIT - IV

Floors, Roofs, Stairs, Doors, Windows:

Types of floors – Ground and upper floors – Brick flooring, Cement concrete flooring, Stone flooring, Tiled flooring, Types of roofs – Flat, Pitched, Sloped, Curved roofs Components and classification of staircases – Straight flight, Dog-legged, Open well, Spiral staircases –Types of doors – Panelled, Flush,

Glass, PVC, Aluminum, Steel, Sliding, Revolving, Collapsible, and Rolling shutter doors – Door frame materials and fittings. Types of windows

UNIT - V

Finishing Works:

Plastering – Purpose, types, tools and techniques – Defects in plastering. Pointing – Types and application areas – Differences between plastering and pointing.

Scaffolding, Formwork, and Centering:

Scaffolding – Definition, purpose, components – Types: Single, Double, Cantilever, Suspended, Trestle, Steel and patented scaffolds – Safety considerations. Formwork – Functions, materials (timber, steel, aluminum, plastic), formwork for slabs, beams, columns, and walls – Centering: Definition and role in arches and domes.

TEXT BOOKS:

1. Benny Raphael (2022) Building Automation from Concepts to Implementation Routledge Publications.
2. Kumara Swamy N. and Kaneswaran Rao A., *Building Planning and Drawing*, Charotar Publishing House, Revised Edition, 2020.
3. B.C. Punmia, Ashok Kumar Jain, and Arun Kumar Jain, *Building Construction*, Laxmi Publications, 11th Edition, 2022.
4. S.S. Bhavikatti, *Building Materials and Construction*, Vikas Publishing House, 4th Edition, 2020.

REFERENCE BOOKS:

1. Sushil Kumar, *Building Construction*, Standard Publishers Distributors, 21st Edition, 2022.
2. Bindu Balan and R. Sathish Kumar, *Climatology and Building Design*, McGraw Hill Education, 1st Edition, 2020.
3. Gurcharan Singh, *Building Planning, Designing and Scheduling*, Standard Book House, 6th Edition, 2019.
4. Rangwala S.C., *Building Construction*, Charotar Publishing House, 33rd Edition, 2021.
5. M. Chakraborti, *Building Planning and Drawing*, Chakraborti Publications, 9th Edition, 2021.
6. Bureau of Indian Standards, *National Building Code of India (NBC) – 2016*, SP 7, Part 1 & 2, Reprint 2021

MATERIALS ON LINE:

- Course template
- Tutorial question bank
- Tech talk and Concept Video topics

- Open-ended experiments
- Definitions and terminology
- Assignments
- Model question paper–I
- Model question paper–II
- Lecture notes
- E-Learning Readiness Videos (ELRV)