

Branch Name:	CIVIL ENGINEERING
Program Code:	ET106
Course Title:	Building Construction and Technology
Course Code:	2ET1060304T
Pre-requisite Course:	Elements of drawing, Building components and their types

Course Objectives:

- To enable the students to understand the planning and drawing of residential buildings
- To aware the students about preparing various types of drawings like perspective, working drawings etc.
- To know about the various Building Components
- Concepts, principles and procedures related to building construction system
- To build awareness about the type of masonry, floors, and roofs
- To understand types of doors and stairs and its uses
- To know about the supporting structures and building services.

Teaching and Examination Scheme:

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								Total (Marks)
					Theory (Marks)				Practical (Marks)				
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
4	3	1	-	4	24	60	16	40	-	-	-	-	100

Course Contents:

Unit No	Topic	Total Hours	Weight age (%)
01	Introduction to Building Planning and Drawing: Need and importance of building planning in civil engineering, types of building, building components, Concept of line plan, detail plan, key plan, site plan, layout plan, working drawing, foundation plan, submission drawing etc.	04	10
02	Building Bye-Laws and Planning of Residential Building: Objectives, applicability and importance of building bye-laws as per National Building Code, F.S.I., Standards for residential buildings, Building by-laws of local authority, principles of building planning, standard guidelines for planning a building, plan, elevation and section of the building, development of detailed plan from line diagram, Definition, concept and different types of perspective views.	10	20
03	Masonry Construction: Stone Masonry: Technical terms, joints, Classification of Stone masonry. Brick Masonry: Technical terms, bonds in brickwork. Other Masonry: Composite masonry, Hollow blocks masonry, Partition Wall, Cavity walls Lintels & Arches: Lintels – types, construction. Arches – technical terms, types, construction. Wall Finishes: Plastering, pointing, and painting	08	20
04	Form Work and Scaffolding: Form work: Form work for R.C.C. Wall, slab, beam and column, centering for arches of large spans, slip formwork – Horizontal & Vertical. Scaffolding: types of scaffoldings,	04	10

05	Building Components: Doors: Location, technical terms, size, types, construction, suitability. Windows: Factors affecting the selection of size, shape, location, and no. of windows, types, construction, suitability, fixtures and fastenings, Ventilators. Staircases: Definition, technical terms, requirements of the good stair, fixing of going and rise of a step, types of steps, classification, stair design/planning, elevators, escalators. Floorings: Introduction, essential requirements of a floor, factors affecting selection of flooring material, types of ground floors and upper floor, pre-cast concrete floor. Roof: Introduction, requirements of good roof technical terms, classification, types of roofs and roof covering.	08	20
06	Special Work and Treatments: Special Works: Timbering in trenches, Control of Ground water in excavation, shoring, underpinning, Demolition of structures. Special Treatments: Fire resistant, water resistant, thermal insulation, acoustical construction and anti-termite treatment.	04	10
07	Building Services: Introduction, mechanical Services in building, electrical services and layout, plumbing services, fire protection, HVAC.	04	10

List of Tutorial:

1. Two storied residential building : Plans, elevation, section, lay-out plan, key plan, site plan, area table, schedule of opening. Scale-1:100.
2. Material identification of masonry work and Site Visit of Manufacturing of brick.
3. Identification of different building components like doors, windows, roofs, stairs and staircase and draw a sketch.
4. Dimension understanding and measurement of different building components.

Construction site visit under the supervision of faculty member /Site In-charge and prepare a brief report containing sketches and photographs of site visits.

Reference Books:

1. Gurucharan Singh, Building Planning, Designing and scheduling, Standard Book House, New Delhi
2. M. G. Shah, C. M. Kale and S. Y. Patki, Building Drawing with an integrated approach to Built Environment, Tata McGraw-Hill.
3. Y. S. Sane, Planning, designing building, Allies Book Stall
4. Y. N. Raja Rao, Planning and Designing of residential building, Standard Publishers.
5. Building Construction by B. C. Punamia
6. Building Construction by Sushil Kumar
7. Building Construction by S. C. Rangwala
8. Building Construction by Gurucharan Singh
9. Building Construction by P.C Varghese, Prentice-Hall of India, New Delhi
10. National Building Code-2005, New Delhi, India.

Course Learning Outcomes (CLO):

At the end of the course, Student will be able:

1. Understand principles of building planning, building Bye laws and perspective drawing.
2. Prepare working drawings, foundation plans and other executable drawings with proper details for residential buildings
3. Develop in-depth understanding about building components, its construction process etc., and apply the knowledge to execute normal sized building construction project.
4. Identify the factors to be considered in planning and construction of buildings.
5. Select appropriate method and use of building components in building construction and planning.
6. Recognize the associated entities involved in building construction and planning process.

7. Understand the practices and techniques for Temporary/Special construction Works.
8. Select the suitable building services for particular requirements of buildings.

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Understand principles of building planning, building Bye laws and perspective drawing.	L1, L2 and L3
CLO2	Prepare working drawings, foundation plans and other executable drawings with proper details for residential buildings	L2, L3 and L6
CLO3	Develop in-depth understanding about building components, its construction process etc., and apply the knowledge to execute normal sized building construction project.	L1, L2, L3 and L6
CLO4	Identify the factors to be considered in planning and construction of buildings.	L2, L3 and L4
CLO5	Select appropriate method and use of building components in building construction and planning.	L1, L2 and L3
CLO6	Recognize the associated entities involved in building construction and planning process.	L2, L3, L4 and L5
CLO7	Understand the practices and techniques for Temporary/Special construction Works.	L1 and L2
CLO8	Select the suitable building services for particular requirements of buildings.	L2, L3 and L6

L1- Remember, L2- Understand, L3- Apply, L4- Analyze, L5- Evaluate, L6- Create

Mapping of CLOs with POs & PSOs

	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
Course Learning Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
CLO1	M	L	H			M	M	L		L	M	M	H	M	M
CLO2	H	M	M			M		M	M		M	M	H	M	M
CLO3	H	M	M		M	H	L	M			M		M	H	M
CLO4	M			L		M					L		M		
CLO5	M		M	M		L	M	M			M	M	M	H	L
CLO6	M	M		L		M			L		M			M	L
CLO7	M	L		M	M	M	L				M	L	M	M	
CLO8	H		M	M	M	M	M	M	M	M	M		M	M	M

H: High, M: Medium, L: Low