



GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Bachelor of Engineering

Level: UG

Branch: Civil Engineering

Subject Code: BE04006031

Subject Name: Building and Town Planning

w. e. f. Academic Year:	2024-25
Semester:	4
Category of the Course:	Professional Core Course

Prerequisite:	1. Basic Concepts of Civil Engineering/Building Construction and Basic terminologies. 2. Fundamentals of Drawings, Maps, Technical drawings & their interpretation.
Rationale:	Building and town planning are concerned with the organized development of physical spaces to ensure efficient use of land and resources. It focuses on creating safe, comfortable, and sustainable environments that cater to the needs of people. By integrating functional, aesthetic, and social considerations, it supports balanced and well-managed growth of communities.

Course Outcomes:

Sr. No.	CO statement	RBT Level
CO-1	Recognize fundamental principles of building layout and town planning in relation to requirement of occupants and efficient land use.	R, U, A
CO-2	Apply basic mapping, visualization, drawing, safety and green concepts to layout and planning problems.	U, A, C
CO-3	Analyze spatial arrangements considering functional, aesthetic, and social requirements.	C, N
CO-4	Evaluate and implement planning options for their suitability, sustainability, and compliance with the regulations.	E, A, C

Teaching and Examination Scheme:

Teaching / Learning Scheme (in Hours per semester)					Total Credits	Assessment Pattern and Marks					Total Marks
L	T	P	PBL*	Total no of hours per semester		Theory		Tutorial / Practical			
						ESE (E)	PA / CA (M)	PA/ CA (I)	TW/ SL (I)	ESE (V)	
45	0	60	15	120	4	70	30	20	30	50	200

* Problem Based Learning (PBL) aims to accommodate learning beyond syllabus as per clause 9.4 of NBA manual.



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Content:

Sr. No.	Content	No of Hrs.	% weightage
1	Module 1A: Fundamentals of Building Systems Overview of types of buildings. Site selection & location criteria. Building byelaws as per NBC 2016 and local authority regulations. Standards for different building types. Overview of RERA. Role of stakeholders in building system development. Plan approval & permission process and ODPS.	08	18
2	Module 2: Building Planning Principles of building planning with case study. Concepts of Passive Planning (climate-responsive design, daylighting, ventilation). Principles of architectural composition. Building forms and planning strategies. Planning for Earthquake-resistant buildings. Occupants' requirements and analysis. Understanding human activity and use of space - Ergonomics. Conceptual planning: process, Bubble diagrams & Line diagrams. Building services planning.	08	18
3	Module 3: Building Drawings Working drawings: Scale, Methods of line drawings & detailed drawings. Floor plan, elevation, section, site plan, foundation plan, Roof drainage plan, Layouts of buildings, furniture layouts. Provision of building services with sustainability: water supply, drainage, electrification, fire safety, acoustics, HVAC, communication network. Software applications for 2D model generation.	08	18
4	Module 4: Perspective Views & Advanced Drawings Elements of perspective drawing. Types of perspective views. Fundamentals of Building Information Modelling (BIM), Software applications for 3D model generation (BIM tools)	06	13



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5	Module 5: Town Planning – Principles & Practices Historical aspects and evolution of town planning (World & India). Growth of the town. Fundamental principles & elements of town planning. Circulation, zoning, land use, housing, landscape, open spaces. Overview of URDPFI guidelines Civic survey: Importance, types, methods of data collection, presentation & analysis. Application of GIS, UAV & Geo-informatics in data collection and town planning. Master plan & regional planning concepts. Town Planning Schemes, Development controls, Growth negotiation, Neighborhood planning. Central Business District (CBD), Civic Centre, Shopping Centre. Slums: Causes, prevention, remedial measures, slum clearance & rehabilitation.	15	33
TOTAL		45 Hrs	

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
20	25	20	15	10	10

R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1. Modak, M., Ambdekar, N.V., Town and Country Planning and Housing, Orient Longman Ltd., New Delhi, 1995.
2. Hiraskar, G.K., Fundamentals of Town Planning, Dhanpat Rai & Sons, Delhi, 1993.
3. Shah, M.G., Kale, C.M., Patki, S.Y., Building Drawing: With an Integrated Approach to Built Environment, Tata McGraw-Hill Education, New Delhi, 2002.
4. Patil, S.M., Building Services, Sachin Printers, Mumbai, 2004.
5. Sane, Y.S., Planning and Designing of Building, Allies Book Stall, Pune, 1990.
6. Rangwala S.C., Town Planning, Charotar Publishing House, Anand
7. National Building Code-2016, New Delhi.



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| 8. | General | Development | Control | Regulations |
| | https://townplanning.gujarat.gov.in/act-legislation/common_gdcr.aspx | | | |
| 9. | Gurcharan Singh, Building planning, designing and scheduling, Standard Book House. New Delhi | | | |
| 10. | URDPFI Guidelines | | | |

Learning Websites

1. NPTEL – National Programme on Technology Enhanced Learning (nptel.ac.in)
2. SWAYAM – Government of India’s MOOC platform (swayam.gov.in) – Courses on urban planning, architecture, and sustainable building practices.
3. e-Gov Urban Learning Platform (eULP) – Ministry of Housing and Urban Affairs (eulp.nic.in) – Training modules for urban planning and building regulations.
4. IGNOU eGyankosh – Digital repository of Indira Gandhi National Open University (egyankosh.ac.in) – Study materials on building construction, planning, and housing.
5. Town Planning & Valuation Department , Gujarat- ([https://townplanning.gujarat.gov.in/act-legislation/ common_gdcr.aspx](https://townplanning.gujarat.gov.in/act-legislation/common_gdcr.aspx))
6. URDPFI Guidelines: <https://mohua.gov.in> for URDPFI guidelines.
7. Sustainable building: <https://bullittcenter.org/wp-content/uploads/2015/08/living-proof-bullitt-center-case-study.pdf>

Learning tools

- AutoCAD, Sketch up, Revit, Tekla, etc

• List of suggested activities for Problem Based Learning:

Sr. No	Suggested List of Activities	Hrs
Term work/Self Learning		
1	Case Study Analysis: Site Visit & Housing Location Study, collection of building brochures, reviewing building by-laws and provisions of the National Building Code, Essential building services.	5
2	Examining & Understanding: Sun-Path & Wind Direction Study for Passive Planning at a particular location.	5
3	3D Model Generation: Use of BIM –3D model building.	5
4	Case study: Reviewing TP (Town planning) scheme of the city / Township	5
5	Prepare a note for frequently use terminology (at least 25) from latest NBC	5
6	Case study: Review Sustainable development of structure like :Bullitt Center (Seattle, USA)	5
Practical		
1	Planning of Building: (Graph Papers can be used).	10



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	<ul style="list-style-type: none">• Planning of one Residential and one Public building using bubble diagram and line plan.	
2	Drawings: (A1 sized Drawing Sheets to be used.) <ul style="list-style-type: none">• Residential Building Planning: Two storied Building: Plans, elevation, section, lay-out plan, key plan, area table, schedule of opening, north.• Working Drawing: sheet should accommodate minimum six types of layouts/sectional details. (Furniture plan, Drainage layout, Terrace Plan, Toilet Detail, Kitchen detail, Electrical plan, foundation plan, etc.)• Perspective Drawing: Two-point perspective drawing of the above Residential Building Planning drawing sheet.• Public Building: Typical Ground Floor plan, elevation, section, key plan, site plan, area table, schedule of opening.	40
3	Assignments: 05 Assignments based on the curriculum.	10
