

# GUJARAT TECHNOLOGICAL UNIVERSITY

## CIVIL ENGINEERING (06) BUILDING & TOWN PLANNING SUBJECT CODE: 2140607 B.E. 4<sup>th</sup> Semester

**Type of course:** Civil Engineering

**Prerequisite:** Elements of drawing, Components of building and their types, Primary knowledge of surveying and levelling

**Rationale:** A Civil Engineer has to be conversant with building and town planning and their development controls, skill of preparing drawings of various types like, orthographic, perspective, working drawings etc.

### Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks						Total Marks
L	T	P		Theory Marks			Practical Marks			
				ESE (E)	PA (M)		PA (V)		PA (I)	
		PA	ALA		ESE	OEP				
4	0	2	6	70	20	10	20	10	20	150

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment

### Content:

Sr. No.	Topics	Teaching Hrs.	Module Weightage
<b>A</b>	<b>BUILDING PLANNING</b>		
<b>1</b>	Introduction to buildings, Type of buildings, Principles of building planning, Principles of architecture composition	<b>07</b>	12
<b>2</b>	Building by-laws as per National Building Code, Standards for residential buildings, Building by-laws of local authority, standards for industrial, public, commercial and institutional buildings	<b>06</b>	12
<b>3</b>	Planning of earthquake resistant building considering symmetry, simplicity, continuity, consideration of locating staircase and overhead water tank, most sensitive to earthquake	<b>03</b>	10
<b>4</b>	Preparing working drawing of residential building, software application in planning, detached, semidetached, row houses and apartments with scale proportion, open spaces standard as per F.S.I. permissible	<b>06</b>	10
<b>5</b>	Elements of perspective views, Types of views such as one point, two point perspective etc	<b>06</b>	10
<b>6</b>	Building services like water supply, drainage, electrification etc. for modern buildings	<b>04</b>	4
<b>B</b>	<b>TOWN PLANNING</b>		
<b>1</b>	Historical aspects and origin of Town Planning in the World and in India	<b>03</b>	5

2	Necessity of Civic surveys for Planning purpose, types, data and its presentation and analysis, Fundamental principles of Town Planning	05	8
3	Land use Planning and percentage of different Land uses as per category of town.	05	8
4	Components of town such as Zones, Road Network, CBD, Neighbour hood planning, Development controls for new town planning schemes for growth negotiation	05	8
5	Formation of Slums, Reasons of Slum formation, remedial measures for avoiding slum foundation	03	8
6	Introduction to smart city, its Characteristics as per present scenario.	03	5

**Suggested Specification table with Marks (Theory):**

Distribution of Theory Marks				
R Level	U Level	A Level	N Level	E Level
10%	45%	35%	5%	5%

**Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate 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. Planning, designing building by Y. S. Sane, Allies Book Stall
2. Town Planning by G. K. Hiraskar
3. National Building Code-2005, New Delhi
4. Building Planning, Designing and scheduling by Gurucharan Singh, Standard Book House, New Delhi
5. General Development Control Regulations published by AUDA and GICEA
6. Building Drawing by M. G. Shah, C. M. Kale and S. Y. Patki, Tata Mc Graw Hill, New Delhi
7. Town Planning by S.C. Rangwala, Charotar publishing House, Anand
8. Architecture- Form, Space and Order by Francis D.K. Ching
9. Architectural Graphics by Francis D.K. Ching

**Course Outcomes:**

After studying this subject students will be able to:

1. Comprehend local building bye-laws and provisions of National Building Code in respect of building and town planning
2. Discuss various aspects of principles of planning and architecture in planning building and mass composition
3. Explain the principles of planning and design considerations to construct earthquake resistant building
4. Prepare working drawings, foundation plans and other executable drawings with proper details for residential buildings

**List of Experiments:**

Term Work:

(A)

Four A1 Size Drawing sheet:

(1) Residential Planning: Two storied Building: Plans, elevation, section, lay-out plan, key plan, site plan, area table, schedule of opening. Scale-1:100.

(2) Public Building: Ground Floor plan, typical floor plan, elevation, section, lay-out plan, key plan, site plan, area table, schedule of opening.

(3) Working Drawing: sheet should accommodate min. six types with sectional details. ( Furniture plan, Drainage lay out, Toilet Detail, Wood work detail, Kitchen detail, Electrical plan etc)

(4) Perspective Drawing: Two point perspective of sheet -1 planning.

(B)

Assignments:

(1) Assignment -1: Principles of Planning & Architecture

(2) Assignment -2: Building Bye laws

(3) Assignment -3: Town Planning

**Design based Problems (DP)/Open Ended Problem:**

1. eco friendly planning
2. energy efficient buildings
3. smart building planning
4. Project report for detached house to urban development authority for approval
5. Project report for neighbourhood society to urban development authority for approval

**Major Equipment:**

None

**List of Open Source Software/learning website:**

1. ocw.mit.edu
2. nptel.ac.in

**ACTIVE LEARNING ASSIGNMENTS:** Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should submit to GTU.