



GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC

Subject Code: 2920603

Semester – II

Subject Name: Computer Aided Civil Engineering Drawing

Type of course: Civil Engineering

Prerequisite: Elements of drawing, Components of building and their types, Primary knowledge of surveying, leveling and computer

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. using software application

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE (E)	PA (M)	ESE (V)	PA (I)		
3	0	4	5	70	30	30	20	150

Content:

Sr. No.	Content	Total Hrs
1	Introduction to buildings, Classification of Buildings, Building Components, Principles of building planning, Orientation of building, Principles of architecture composition	06
2	Building by-laws as per National Building Code, Building by-laws of local authority, Standards for Residential, Public, Commercial, Industrial And Institutional Buildings Planning, Planning of Earth Quake Resistant Building	08
3	Elements of Building Drawing, Planning and Preparing working drawing of Residential Building with scale proportion, Layout of Public Building, Industrial Building etc., Provision of Building services (like water supply, drainage, electrification, etc.)	06
4	Elements of perspective views, Types of perspective views, software application in building planning and building Drawing for 2D, 3D model generation	07
5	Historical aspects and origin of Town Planning in the World and in India, Necessity of Civic surveys for Planning purpose, types, data and its presentation and analysis, Fundamental principles of Town Planning, Use of Soft Computing Tools for Town Planning	07
6	Components of town such as Land use, Zones, Road Network, CBD, Neighbour hood planning, Development controls for new town planning schemes for growth negotiation, Formation of Slums, Causes of Slum formation, remedial measures for avoiding slum formation, Slum Clearance and Rehabilitation.	08



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Suggested Specification table with Marks (Theory): (For PDDC only)

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10%	40%	30%	5%	5%	10%

Legends: 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. 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:

Sr. No.	CO statement	Marks % weightage
CO-1	Comprehend local building bye-laws and provisions of National Building Code in respect of building and town planning resulting in functionally efficient, economically viable and legally acceptable buildings.	30 %
CO-2	Discuss and apply various aspects of principles of planning in planning of building	15%
CO-3	Understand and implement various aspects of Principles of Architectural	15%



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	composition	
CO-4	Explain the principles of planning and design considerations to construct earthquake resistant building	15%
CO-5	Understand, interpret and prepare working drawings, foundation plans, perspective drawing and other executable drawings using softwares	25%

List of Experiments:

Term Work:

(A) Four A1 Size Drawing sheet and one Print of 3D model:

- (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 of Sheet -1 Planning. (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.
- (5) Prepare Building Drawing (2D, 3D model) of Sheet -1 Planning using Software

(B) Assignments:

- (1) Assignment -1: Principles of Planning & Architecture
- (2) Assignment -2: Building Bye laws
- (3) Assignment -3: Town Planning

List of Open Source Software/learning website:

FreeCAD, Fusion 360, Onshape, nanoCAD, OpenSCAD, 3D Slash. LibreCAD, DraftSight, QCAD