GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Minor/Hons. Program
Level: UG
Branch: Minor/Hons. Computer Aided Civil Engineering Processes
Course / Subject Code : BE040AV011
Course / Subject Name : Basics of Planning - Software Applications

w. e. f. Academic Year:	2025-26
Semester:	4th
Category of the Course:	Core Courses

Prerequisite: **Basics of Principles of planning, types of buildings and its drawings**

Rationale:	This subject helps students to use computer in the planning

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes
01	Apply basic drafting commands to create 2D objects and single line building plans.
02	Develop detailed 2D working plans for residential, commercial, and industrial buildings using layers and text tools.
03	Prepare sections, elevations, and detailed component drawings from building plans.
04	Students will be able to create furniture plans in AutoCAD
05	Explore AI-based tools and other drafting software for efficient planning and documentation.

Teaching and Examination Scheme:

Teaching - Learning Scheme (in Hours per Semester)					Total Credits = TH/30	Assessment Pattern and Marks					Total Marks
						Theory		Tutorial / Practical/PBL			
L	T	P	PBL*	TH		ESE (E)	PA / CA (M)	PA/CA (I)	PBL (I)	ESE (V)	
30	0	60	30	120	04	70	00	00	30	50	150

Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1.	Software Phase-I Introduction for drafting software-AutoCAD, Workspace of AutoCAD, General setting up for the drawing, Basic command introduction with its usage, small object preparation by using Drafting commands. AI tools available in the field of planning/drawing.	04	13.30
2.	AutoCAD 2D Plan Preparation	08	26.7

	Single Line plan Preparation, 2 line preparation, Use of Layers in plan, Use of other commands like, Hath, Text, Creation of object, Staircase planning.		
3.	AutoCAD 2D Working Plan Working plan for residential building, Commercial building and industrial building. Center line plan for structural inputs.	08	26.7
4.	Section and Elevation Creation of section view from various locations to locate internal views, Creation of elevation, RHS, LHS and Back side view	05	16.65
5.	Miscellaneous Furniture Plan, Electricity plan, Plumbing plan, Introduction to BIM, Introduction to the AI-based tools and other drafting software for efficient planning and documentation.	05	16.65
	Total	**30**	**100**

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
10%	**30%**	**30%**	**15%**	**10%**	**5%**

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

References/Suggested Learning Resources:

(a) Books:

1.Computer Aided Civil Engineering Drawing by Dr.D. Chandra Mauli. (https://ekumbh.aicte-india.org/)
2. Civil Engineering Drafting & House planning by B.P.Verma :- Khanna Publications.
3. National Building Code of India. Bureau of Indian Standards, Govt. Of India
4. AutoCAD Reference Guide Book by CAD Desk……

(b) Open source software and website:

1. https://ekumbh.aicte-india.org/
2. https://www.qcad.org.
3. www.Autodesk.com
4. www.nptel.iitm.ac.in

Suggested Course Practical List:

1. Create or Set drawing limit equal to A1 size sheet in Auto CAD to Draw Line plan, detailed plan, elevation and section of existing building (actual Measurement Drawing).
2. Prepare detail of foundation plan of 2- BHK single story load bearing building in computer.
3. Prepare working drawings in computer for single storied residential building (bungalow) of 260 sq. m plot with scale and show following detail: GF&FF plan with elevation, section and opening schedule

Suggested Project List:

1. Prepare a suggestive report on upgrading existing buildings into green buildings as per IGBC/GRIHA standards.

2. Prepare detailed Plan, Elevation and Sections for 9-story residential building using AutoCAD.

3. Prepare detailed Plan, Elevation and Sections for 9 story commercial building.

List of suggested activities for Problem Based Learning:

Following are the **list of self-learning activities** under **PBL Component** which will be assessed by faculty members at the institute level. Institutes need to maintain the records for the same.

SN	Name of the activity	No. of hours	Evaluation Criteria
1.	Visit a construction site and collect drawings for the interpretation and analysis.	Visit = 5h, Report preparation = 5h, Total = 10h	Based on report submitted. Reports should contain observations and analysis of collected drawings based on field visit data.
2	Technical Video based learning related to the subject	Duration of video = 5h Report preparation = 5h Total = 10h	Report /presentation based on the questionary prepared by faculty reflecting understanding of video learning outcomes.
3	Problem solving Using Python/C++ or **AI tools**	2 Problem based task of 5h each. Total =10 hrs	Based on the coding solution/Effective use of AI tools submitted with proper explanation and outcomes.

* * * * * * *