GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Diploma in Architecture

Level: Diploma

Branch: Architecture

Course / Subject Code: DA03063051

Course / Subject Name: Computer Studio

w. e. f. Academic Year:	2026-27
Semester:	Third
Category of the Course:	Skill Enhancement Courses (SEC)

Prerequisite:	Students should have basic knowledge of architectural drafting concepts and manual drawing techniques. They should be able to read and understand simple plans, sections and elevations, and possess fundamental computer operating skills. Prior exposure to basic architectural design and building drawing is desirable.
Rationale:	Drafting and graphical representation are essential skills for learners of Diploma Architecture. With the increasing use of digital tools in architectural practice, computer-based drafting and visualization have become integral to professional workflow. This course introduces learners to computer-aided drafting and basic three-dimensional modeling to enhance accuracy, efficiency, and visual communication. Through hands-on practical exercises, learners develop skills in preparing architectural drawings using 2D CAD tools, adding annotations and dimensions, plotting drawings to scale, and creating basic 3D models using suitable software. The course aims to build digital drafting competence and improve spatial visualization abilities, enabling learners to effectively support architectural design and documentation processes.

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes
01	Prepare architectural plans, sections and elevations using 2D CAD commands.
02	Apply text, dimensions and annotations appropriately to architectural drawings.
03	Plot and print drawings to suitable scales using proper layout and plot settings.
04	Create basic 3D models of architectural forms using appropriate 3D software.

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Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ P	Assessment Pattern and Marks				Total Marks
				Theory		Tutorial / Practical		
L	T	P	C	ESE (E)	PA / CA (M)	PA/CA (I)	ESE (V)	
2	0	4	6	0	0	50	50	100

Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1.	**CAD 2D** **1.1** Introduction to CAD interface, workspace, file creation and saving. **1.2** Use of basic drawing commands to draw architectural components such as walls, doors and windows. **1.3** Use of modification commands to edit, copy, trim, offset and refine drawings. **1.4** Preparation of plans, sections and elevations of a character bungalow or similar building using 2D CAD.	10	33
2.	**Adding Text and Dimensions** **2.1** Creation and formatting of single line and multi-line text. **2.2** Dimensioning using appropriate commands and dimension styles. **2.3** Use of layers, blocks and CAD libraries for effective annotation and organization of drawings.	6	20
3.	**Plot / Print** **3.1** Understanding plot dialogue box and layout settings. **3.2** Creating, editing and applying plot styles. **3.3** Plotting drawings to appropriate scales and exporting drawings as PDF.	4	13

4.	**3D Modeling** **4.1** Introduction to basic 3D concepts such as axes, planes, views and navigation. **4.2** Creation of simple 3D forms using basic tools in suitable 3D software (e.g., SketchUp or equivalent). **4.3** Applying basic modifications, views, scenes and simple presentation techniques. **4.4** Preparation of a basic 3D model of the character bungalow or similar building.	10	34
	Total	**30**	**100**

Suggested Practical outcomes:

Sr. No.	Practical Outcomes (PrOs)	Unit	Approx. Hrs.
I	Prepare plans, sections and elevations of a given bungalow using 2D drawing and modification commands.	I	16
II	Add text, dimensions, layers and blocks to prepared drawings.	II	10
III	Prepare presentation drawings including layouts, floor plans, sections and elevations.	II	10
IV	Plot drawings to suitable scales using proper plot settings.	III	8
V	Create basic 3D models/views of the given building using appropriate 3D software.	IV	16
	Total		**60**

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:

S. No.	Title of Book	Author	Publication with place, year and ISBN
1	Practical Autodesk AutoCAD 2021 and AutoCAD LT 2021: A no-nonsense, beginner's guide to drafting and 3D modeling with Autodesk AutoCAD	Yasser Shoukry, Jaiprakash Pandey	Packt Publishing Limited; Illustrated edition (15 May 2020) ISBN-10 : 1709019171 ISBN-13 : 1709019172-970
2	AutoCAD 2021: A Problem-Solving Approach, Basic and Intermediate, 27th Edition	Prof. Sham Tickoo of urdue University, CADCIM Technologies	CADCIM Technologies; 27th edition (14 June 2020) ASIN : LWTL97B80B
3	The Sketch Up Workflow for Architecture: Modeling Buildings, Visualizing Design, and Creating Construction Documents with SketchUp Pro and LayOut	Michael Brightman	Wiley; 2nd edition (7 September 2018) ISBN-10 : 9781119383635 ISBN-13 : 1119383635-978
4	Photographic Rendering with VRay for SketchUp	Brian Bradley	Packt Publishing Limited (19 March 2014) ISBN-10 : 1849693226 ISBN-13 : 1849693226-978

(b) Open-source software and website:

1. https://youtu.be/MT1T31GtGpg
2. https://youtu.be/WEwkepkv6mg
3. https://youtu.be/trJQIvatIpI
4. https://nptel.ac.in/courses/112/103/112103019
5. https://nptel.ac.in/courses/112/105/112105294
6. https://www.scribd.com/search?content_type=tops&pa
7. https://www.visualizingarchitecture.com
8. http://sketchucation.com
9. https://www.youtube.com/channel/UCdv_VnYKlu_gaZa7rpXifEg (Sketchup School)

List of Laboratory/Learning Resources Required: NA

S. No.	Equipment Name with Broad Specifications	PrO. No.
1	Interactive board with LCD overhead projector	1-5
2	CAD Workstation: 64-bit Operating System,2.5-2.9 GHz processor(3+ GHz Recommended), 8 GB RAM (16 GB Recommended), 10 GB Disk Space, 17" FHD Screen, 1 GB GPU, Dedicated Graphics Card	1-5
3	A1 Size color Plotter: Print resolution Up to 1200 x 600 dpi, 16 MB Memory	1-5
4	Licensed latest network version of CAD software and related necessary 3D software like 3D CAD, Revit, SketchUp etc.	1-5

Suggested Project List:

a) Preparation of complete 2D CAD drawings (plans, sections and elevations) of a small residential building.

b) Development of a presentation drawing set including layouts, annotations, dimensions and plotting to appropriate scales.

c) Creation of a basic 3D model of a residential bungalow to understand massing and spatial relationships using suitable 3D software.

d) Conversion of 2D CAD drawings into a simple 3D model to visualize built form and spatial organization.

e) Preparation of a digital portfolio compiling all CAD drawings and 3D models completed during the semester.

f) Comparative study of manual drafting and computer-aided drafting with illustrated examples highlighting advantages and limitations.

g) Mini project on 3D modeling of building components such as stairs, doors, windows or interior spaces.

Suggested Activities for Students:

a) Draw plans, sections and elevations of different types of buildings using 2D commands.

b) Prepare 3D views of designed buildings given the necessary plans, sections and elevations using related software.

c) Plot a given drawing to different scales using self-created plot styles through plot style manager.

d) Render 3D views using basic rendering tools.

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