GUJARAT TECHNOLOGICAL UNIVERSITY, AHMEDABAD, GUJARAT

Course Curriculum

COMPUTER AIDED DRAFTING
(Code: 3335005)

Diploma Program me in which this course is offered	Semester in which offered
Architectural Assistantship	3rd Semester

1. RATIONALE

Drafting and development of drawings is an essential skill for a student of architectural assistantship and due to availability of the software the task of drafting has become simplified and easy. Student shall prepare architectural basic drawings, presentation drawings on a computer with CAD as drafting tool. In this course, the student acquires knowledge of CAD - 2D, the basic knowledge of 3D drawing software such as Google Sketch Up and Revit Architecture. This knowledge is very helpful in inculcating essential 3D visualization ability in the student. It is mandatory for the students to possess the above-mentioned skills adding to their proficiency so that they are able to draw 2D drawings using computers as well as create new designs using 3D software.

2. COMPETENCY (Programme Outcome according to NBA Terminology):

The course content should be taught and implemented with the aim to develop different types of skills so that students are able to acquire the following competencies:

i. Prepare 2D and presentation drawings using CAD software and take print outs to an appropriate scale.

3. Teaching and Examination Scheme

Teaching Scheme (In Hours)			Total Credits (L+T+P)	Examination Scheme				
				Theory Marks		Practical Marks		Total Marks
L	T	P	C	ESE	PA	ESE	PA	
0	0	4	4	0	0	40	60	100

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

4. DETAILED COURSE OUTLINE

Unit	**Major Learning Outcomes** (Course outcomes in cognitive domain according to NBA terminology)	**Topics and Sub-topics**
Unit – I Introduction	1a. Prepare a new drawing from scratch with the "Create Drawing" 1b. Save created drawing definition as a new drawing	**1.1** Introduction to CAD and relevant software **1.2** Computer system and peripherals requirement **1.3** Simple drawing creation.
Unit – II CAD- 2D	2a. Use 2D commands to draw building components such as wall, door, window 2b.Use Modification commands to alter the existing drawing.	2.1 2D Entity command • line, poly line, spline, 3d ploy line, rectangle, multi line, construction line, arc, circle, ellipse, polygon, donut 2.2 Modification commands • offset, copy, paste, erase, trim, break, mirror, array, move, rotate, stretch, lengthen, trim, extend, break, chamfer, fillet 2.3 Replication of Drawn Objects • Block • Insert block • Edit block • Explode block
Unit – III Presentation Drawings	3a. Make Presentation drawing using 2D commands and add text and dimensioning to them using appropriate commands	3.1 Multi line text and text • Writing text, formatting text style, • Editing text 3.2 Dimensioning • Formatting dimension style • Editing dimension style 3.3 Use of leader 3.4 Multiple hatch commands 3.5 Applying components from AutoCAD Libraries (Design Centre) to drawing
Unit-IV Plot/Print	4a. Print/plot the prepared drawing	4.1. Plot dialogue box 4.2. Printing in PDF and Save as PDF
Unit-V Introduction to 3D Software	5a. Use appropriate 3D toolbars& commands to create different views	5.1 3D Model Making - software- Use of Functions and features to create 3-D views

5. SUGGESTED SPECIFICATION TABLE WITH HOURS & MARKS (Theory)

Not Applicable

6. SUGGESTED LIST OF EXERCISES/PRACTICAL

The practical/exercises should be properly designed and implemented with an attempt to develop different types of practical skills **(Course Outcomes in psychomotor and affective domain)** so that students are able to acquire the competencies (Programme Outcomes). Following is the list of practical exercises for guidance.

Note: Here only Course Outcomes in psychomotor domain are listed as practical/exercises. However, if these practical/exercises are completed appropriately, they would also lead to development of **Programme Outcomes/Course Outcomes in affective domain** as given in a common list at the beginning of curriculum document for this programme. Faculty should refer to that common list and should ensure that students also acquire those Programme Outcomes/Course Outcomes related to affective domain.

S. No.	Unit No.	**Practical/Exercise** (Course Outcomes in Psychomotor Domain according to NBA Terminology)	**Apprx. Hrs. Required**
1	I	Prepare simple lines using basic command	04
2	II	Create basic shape using command	04
3	III	Prepare Plan, Section and Elevation of bungalow using 2D entity command, modification and others commands	20
4	IV	Create a presentation drawing in computer : Layout Plans, All Floor Plan, section and Elevation	12
5	V	Create a 3Dview of a building with any 3D software e.g.- Google sketch up, Revit etc,	16
Total			56

7. SUGGESTED LIST OF STUDENT ACTIVITIES

Following is the list of proposed student activities like: Course/topic based seminars, internet based Drafting Software download, teacher guided self learning activities, etc. These could be individual or group-based.

8. SPECIAL INSTRUCTIONAL STRETAGIES (If Any)

Teachers should visit each student's computer table while they are prepare the drawings and should solve their problems and guide them. A grid for assessment of drawings may be prepared and shown to students in advance so that they may take care of the points on which they are going to be assessed. A sample of such grid is given below. Teachers may further improve this grid and more criteria.

Sample specification grid for assessment of drawings (just to give an idea. This may be improved/modified by concerned teachers)

Practical Exercises (Drawings) → / **Competency to be tested** ↓	1	2	3	4	5
Proper use of 2D commands	√	√			
Proper use of 3D commands					√
Steps followed in creation of 2D drawings i.e. curve, box,etc	√	√			
Final creation of 2D dawings -Plan, elevation & section	√	√	√		
Final creation of 3D dawings –different 3D views					√
Correctness of drawings/plans ,section etc		√			

9. SUGGESTED LEARNING RESOURCES

(A) List of Books:

S. No.	Title of Books	Author	Publication
1	Harnessing AutoCAD Release -2012	Thomas A. Stellman, G. V. Krishnan, Robert A. Rhea	Delmar Publication
2	AutoCAD 2011	Ellen Finkelstein	Wiley India Pvt Ltd
3	Engineering Graphics with AutoCad	Kulkarni,D.M.Rastogi, A.P.Sarkar	PHI Learning Pvt. Ltd

(B) List of Major Equipment/Materials:

Personal Computer/Laptop and Software – AutoCAD, Google Sketch up, Revit Architecture

(C) List of Software/Learning Websites

i. Archi CAD by Graphisoft
ii. Auto CAD by Autodesk
iii. Sketch –Up by Google
iv. Revit Architecture by Autodesk

*Free educational software can be downloaded from AICTE website.

10. Course Curriculum Development Committee

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