

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

## 5. COURSE DETAILS

**Note:** There are no separate classes for theory as given below. The relevant theory has to be discussed before the practical during the practical sessions.

Unit	Major Learning Outcomes ( in Cognitive Domain )	Topics and Sub-topics
<b>Unit – I</b>  <b>Introduction to AutoCAD</b>	1a. Demonstrate the basics of AutoCAD software and its important commands  1b. Prepare a simple building drawing file using basic draw and modify commands	1.1 File menu of AutoCAD with New, Open, Save, Save as and Close 1.2 Basic 2D commands like Line, Circle, Ellipse, Multi Line ,Construction Line, Polyline, Point, Donut, Ellipse, Polygon, Rectangle, Arc 1.3 Erase, Snap, Redraw, Regenerate , Zoom, Pan
<b>Unit – II</b>  <b>Editing of AutoCAD Drawing</b>	2a. Explain the applications of Edit commands 2b. Modify existing AutoCAD Drawing 2c. Apply advanced command for edit /modification of drawing	2.1 Modify Properties of Drawing Entity 2.2 Copy, Move, Rotate, Mirror , Offset , 2.3 Array, Scale, Stretch, Lengthen, Trim, 2.4 Extend , Break, Chamfer , Fillet 2.5 Block, WBlock, Insert and Explode , Area 2.6 and Volume with Civil Engineering 2.7 Application
<b>Unit – III</b>  <b>Advanced 2D Commands</b>	3a. Prepare typical Drawings using Different Layers  3b. Develop final Drawings with Dimension and Text and Hatching	3.1 Application of LAYER command in Civil Engineering 3.2 Layer command with its all sub commands, Line type, Color  3.3 Dimension command – linea , aligned, arc length, radius, Diameter, Centre, Leader, Baseline and Continuous Dimensioning, tolerance, override and Dimension updates Text and DTEXT commands with Text Style Hatch command
<b>Unit – IV</b>  <b>3D Commands of AutoCAD</b>	4a. Use 3D commands to generate 3d view from 2D drawing  4b. Prepare 3D Drawings using 3D Commands of AutoCAD  4c. perform rendering/shading on 3d drawing	4.1 Units, Elevation, Thickness, UCS and UCS Icon  4.2 Viewports , Extrude , 3D Solids – Sphere, Box, Cylinder, Cone, Wedge, Interference  4.3 3D Surface – Revolved, Tabulated and Ruled Surfaces  4.4 Hide, Render and Shade of 3D drawings

Unit	Major Learning Outcomes (in Cognitive Domain )	Topics and Sub-topics
<b>Unit – V</b> <b>Plot of 2D &amp; 3D Drawings</b>	5a. Setup printer , plotter for printing of drawings	5.1 PLAN , ELEVATION and 3D Views of Residential and Commercial Building
	5b. Plot 2D and 3D Civil Engineering Drawings as per requirement on different scale and sizes	5.2 PLOT and its Sub Command for Plotting Drawing on A1, A2 and A3 Size Paper using Printer and / or Plotter

## 6. SUGGESTED SPECIFICATION TABLE WITH HOURS & MARKS (THEORY)

Not Applicable

## 7. SUGGESTED LIST OF EXERCISES/PRACTICAL

The practical/exercises should be properly designed and implemented with an attempt to develop different types of skills (**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 outcomes in psychomotor domain are listed as practical/exercises. However, if these practical/exercises are completed appropriately, they would also lead to development of certain outcomes in affective domain which would in turn lead to development of **Course Outcomes** related to affective domain. Thus over all development of **Programme Outcomes** (as given in a common list at the beginning of curriculum document for this programme) would be assured.*

*Faculty should refer to that common list and should ensure that students also acquire outcomes in affective domain which are required for overall achievement of Programme Outcomes/Course Outcomes.*

S. No.	Unit No.	Practical/Exercise (outcomes in psychomotor domain )	Approx Hours Reqd.
1	I	Draw Basic 2D objects such as line circle, polygon - (at least 04 objects)	04
2	II	Draw simple plan of a rectangular room or layout of given dimensions -- 02 drawings	08
3	III	Draw a drawing of a plan of two BHK house	14
4	IV	Draw Four 3D Geometrical Figures	12
5	V	Develop PLAN , ELEVATION and 3D Views of One Residential and One Commercial Building	18
Total Hours			<b>56</b>

## 8. SUGGESTED LIST OF STUDENT ACTIVITIES

- Visit to architect/civil engineering firm for understating the CAD and its applications and study of typical drawings prepared by AutoCAD
- Collect different types of civil drawings in hard copy from architects , builders, and practicing engineers for preparing the same using CAD software