Program : **Diploma in Civil Engineering**	
Course Code : **3019**	Course Title: **CAD Lab**
Semester : **3**	Credits: **Nil**
Course Category: **Program Core**	
Periods per week: **3 (L:0, T:0, P:3)**	Periods per semester: **45**

Course Objectives:

- Impart the knowledge of CAD commands for drawing 2D building drawingsrequired for various civil engineering applications.

Course Prerequisites:

Topic	Course code	Course name	Semester
Basic computer knowledge		Introduction to IT systems	S1
Knowledge of Engineering Graphics		Engineering Graphics	S1

Course Outcomes:

On completion of the course, the student will be able to:

COn	Description	Duration (Hours)	Cognitive Level
CO1	Develop geometric figures using various commands	10	Applying
CO2	Apply preliminary settings of CAD work sheet and develop plan of various buildings	11	Applying
CO3	Develop elevation and section of various type of buildings with detailing	11	Applying
CO4	Develop rain water harvesting, septic tank drawing and service plan of the building	9	Applying
	Lab Tests	4	

CO-PO Mapping:

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1				3			
CO2				3			
CO3				3			
CO4				3			

3-Strongly mapped, 2-Moderately mapped, 1-Weakly mapped

Course Outline:

On completion of the course, the student will be able to:

Module Outcomes	Description	Duration (Hours)	Cognitive Level
CO1	**Develop geometric figures using various commands**		
M1.01	Create an electronic worksheet by setting, limits, units etc and save to destination.	2	Applying
M1.02	Draw simple geometric figures.	3	Applying
M1.03	Annotate the drawing by using commands in proper scale and modify them.	5	Applying
CO2	**Apply preliminary settings of CAD work sheet and develop plan of various buildings**		
M2.01	Develop plan of single storied and multi storied buildings (Eg., Residential building, Library hall, Town hall, School building, Hospital building etc.)	11	Applying
	Lab Test I	2	
CO3	**Develop plan, elevation and section of various type of buildings**		
M3.01	Develop elevation and sectional views of single storied and multi storied buildings (Eg., Residential building, Library hall, Town hall, School building, Hospital building etc.)	7	Applying
M3.02	Detailing of building components like Doors, Windows, Roof Trusses etc.	4	Applying

CO4	**Develop rain water harvesting, septic tank drawing and service plan of the building**		
M4.01	Develop detailed drawing of rain water harvesting	3	Applying
M4.02	Develop detailed drawings of septic tank	3	Applying
M4.03	Develop service plan of the building	3	Applying
	Lab Test II	2	

Text /Reference:

T/R	Book Title/Author
T1	AutoCAD Essentials, Autodesk official Press, John Wiley & Sons, USA
R2	Computer Aided Design Laboratory by M. N. SeshaPraksh& Dr. G. S. Servesh – Laxmi Publications.
R3	Engineering Graphics by P. J. Sha – S. Chand & Co.
R4	Introduction to AutoCAD 2018 for Civil Engineering Applications by Nighat Yasmin, SDC Publications

Online Resources:

Sl.No	Website Link
1	https://www.autodesk.in/campaigns/autocad-tutorials
2	https://thesourcecad.com/autocad-tutorials/
3	https://all3dp.com/1/autocad-tutorial-for-beginners/
4	https://civilengineerspk.com/autocad-video-tutorials/