SEMESTER S3

COMPUTER AIDED DRAFTING LAB

Course Code	PCPOL308	CIE Marks	50
Teaching Hours/Week (L: T:P: R)	0:0:3:0	ESE Marks	50
Credits	2	Exam Hours	2 Hrs. 30 Min.
Prerequisites (if any)	GCEST203	Course Type	Lab

Course Objectives:

1. Provide practical experience in using AutoCAD software for 2D and 3D drawing
2. Equip students with the skills necessary to create and modify 2D drawing for industrial applications
3. Establish a solid foundation in 2D drawing to facilitate the transition to AutoCAD 3D
4. Prepare students to master similar graphics software, enhancing their versatility and adaptability in various design and engineering environments.

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Expt. No.	Experiments
1	Introduction to Computer Aided Drafting: Applications-Advantages, -Hardware & Software Requirements-Different drafting software
2	Familiarize the AutoCAD Basics: Main menu, starting a new drawing, open, save, exit etc. Limits of drawing, Units, Coordinates-absolute, relative, polar coordinate system, Drafting setting-grid, snap, osnap, ortho mode etc.
3	Drawing commands: lines, circle,arc,ellipse,rectangle,polygon, spline, polyline, helix, donut, block, table, hatch etc.
4	Modify commands: trim, copy, rotate, mirror, stretch, scale, trim, extend, fillet, chamfer, array, erase, offset, OOPS, explode etc
5	Practice Format tools: layer, colour, line type, line weight, text style
6	Perform Dimensioning: Linear, Angular dimension style
7	Draw orthographic views: Hexagonal bolt, dumb bell, angular tear etc.
8	Isometric drawing tools: isometric snap, isocircle, direction changing
9	Convert .dwg file into pdf/jpg format and take print out

10	Comprehend opening a various commands and operations required in AutoCAD for drawing 3D objects
11	Drawing simple figures to practice 3D drawing
12	Design and draft various polymer products

Course Assessment Method

(CIE: 50 marks, ESE: 50 marks)

Continuous Internal Evaluation Marks (CIE):

Attendance	Preparation/Pre-Lab Work experiments, Viva and Timely completion of Lab Reports / Record (Continuous Assessment)	Internal Examination	Tota
5	25	20	50

End Semester Examination Marks (ESE):

Procedure/ Preparatory work/Design/ Algorithm	Conduct of experiment/ Execution of work/ troubleshooting/ Programming	Result with valid inference/ Quality of Output	Viva voce	Record	Total
10	15	10	10	5	50

Submission of Record: Students shall be allowed for the end semester examination only upon submitting the duly certified record.

Endorsement by External Examiner: *The external examiner shall endorse the record*

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Course Outcomes (COs)

At the end of the course students should be able to:

	Course Outcome	Bloom's Knowledge Level (KL)
CO1	Build proficiency in computer aided drafting and various commands used in AutoCAD	**K3**
CO2	Develop 2D drawing, sectional views and dimensioning in AutoCAD	**K6**
CO3	Develop Isometric drawing of objects using AutoCAD	**K6**
CO4	Identify and use various commands and operations for drawing 3D objects in AutoCAD	**K3**
CO5	Design and draft various polymer products using AutoCAD 3D tools	**K6**

Note*: K1- Remember, K2- Understand, K3- Apply, K4- Analyse, K5- Evaluate, K6- Create*

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CO- PO Mapping (Mapping of Course Outcomes with Program Outcomes)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3											
CO2			3									
CO3	3											
CO4			3									
CO5	3											

1: Slight (Low), 2: Moderate (Medium), 3: Substantial (High), -: No Correlation

Text Books				
Sl. No	**Title of the Book**	**Name of the Author/s**	**Name of the Publisher**	**Edition and Year**
1	AutoCAD2024 For Dummies	Bill Fane and David Bymes		
2	AutoCAD Tutorial First Level 2D Fundamentals	Randy H Shih	SDC	

Reference Books				
Sl. No	**Title of the Book**	**Name of the Author/s**	**Name of the Publisher**	**Edition and Year**
1	Mastering CAD/CAM	Ibrahim Zeid	McGraw - HillEducation	2004
2	Mastering AutoCAD 2024 and AutoCAdLT 2024	Brian C Benton	Kindle eTextbook	
3	AutoCAD 2024: A comprehensive Guide	CAD Artifex	Kindle eTextbook	
4	AutoCAD 2024 Instructor	James A Leach & Shawna Lockhart	SDC	

Video Links (NPTEL, SWAYAM…)	
Module No.	**Link ID**
1	https://www.youtube.com/watch?v=EgKc9L7cbKc
2	https://help.autodesk.com/view/ACD/2023/ENU/?guid=GUID-39B76D69-225D-45EE-A9AC-59CCBF48AF64
3	https://www.youtube.com/watch?v=pvKVy-eMDYc

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Continuous Assessment (25 Marks)

Preparation and Pre-Lab Work (7 Marks)

- Pre-Lab Assignments: Assessment of pre-lab assignments or quizzes that test understanding of the upcoming experiment.
- Understanding of Theory: Evaluation based on students' preparation and understanding of the theoretical background related to the experiments.

Conduct of Experiments (7 Marks)

- Procedure and Execution: Adherence to correct procedures, accurate execution of experiments, and following safety protocols.

- Skill Proficiency: Proficiency in handling equipment, accuracy in observations, and troubleshooting skills during the experiments.
- Teamwork: Collaboration and participation in group experiments.

Lab Reports and Record Keeping (6 Marks)

- Quality of Reports: Clarity, completeness and accuracy of lab reports. Proper documentation of experiments, data analysis and conclusions.
- Timely Submission: Adhering to deadlines for submitting lab reports/rough record and maintaining a well-organized fair record.

Viva Voce (5 Marks)

- Oral Examination: Ability to explain the experiment, results and underlying principles during a viva voce session.

Final Marks Averaging: The final marks for preparation, conduct of experiments, viva, and record are the average of all the specified experiments in the syllabus.

Evaluation Pattern for End Semester Examination (50 Marks)

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Procedure/Preliminary Work/Design/Algorithm (10 Marks)

- Procedure Understanding and Description: Clarity in explaining the procedure and understanding each step involved.
- Preliminary Work and Planning: Thoroughness in planning and organizing materials/equipment.
- Algorithm Development: Correctness and efficiency of the algorithm related to the experiment.
- Creativity and logic in algorithm or experimental design.

Conduct of Experiment/Execution of Work/Programming (15 Marks)

- Setup and Execution: Proper setup and accurate execution of the experiment or programming task.

Result with Valid Inference/Quality of Output (10 Marks)

- Accuracy of Results: Precision and correctness of the obtained results.
- Analysis and Interpretation: Validity of inferences drawn from the experiment or quality of program output.

Viva Voce (10 Marks)

- Ability to explain the experiment, procedure results and answer related questions
- Proficiency in answering questions related to theoretical and practical aspects of the subject.

Record (5 Marks)

- Completeness, clarity, and accuracy of the lab record submitted

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