

Branch Name:	Mechanical Engineering (CAD/CAM)
Program Code:	ET201
Course Name:	Computer Aided Design - Practical
Course Code:	2ET2010101P
Pre-requisite Course:	Zeal to learn the subject

Course Objectives:

1. To understand fundamental concepts of computer graphics and its tools in a generic framework
2. To impart the parametric fundamentals to create and manipulate geometric models using curves, surfaces and solids
3. To provide clear understanding of CAD systems for 3D modeling and viewing.

Teaching and Examination Scheme:

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								
					Theory (Marks)				Practical (Marks)				Total (Marks)
	SEE		CCA		SEE		CCA						
	L	T	P	Total	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
1	-	-	2	2	-	-	-	-	10	25	10	25	50

Subject Contents:

Sr. No	Detail of Practicals	Contact Hours
1	Programming Exercises for Point, Line, and Circle Plotting	04
2	Programming Exercises for Curves	02
3	Programming Exercises for Transformations	02
4	Introduction to CAD Tools and Hardware	02
5	Surface Modeling	02
6	Solid Modeling	02
7	Programming Exercises for estimating surface and mass properties of model.	02
8	Assembly	02

List of Reference Books:

1. Mastering CAD / CAM Ibrahim Zeid McGraw-Hill
2. Geometric Modelling M Mortenson Industrial Press.
3. CAD / CAM: Theory and Practice Ibrahim Zeid McGraw-Hill
4. Mathematical Elements of Computer Graphics David F Roger McGraw Hill
5. Computer Graphics: C Version Hearn and Baker Pretice Hall of India
6. Curves and Surfaces for CAGD: A Practical Guide 5/e, Gerald Farin Morgan Kaufmann
7. Computer Graphics and Geometric Modelling David Salomon Springer.
8. Computer Aided Engineering Design Anupam Saxena and Birendra Sahay Springer
9. Mechanical Assemblies: Their Design, Manufacture, and Role in Product Development D E Whitney Oxford Press

E-Resources:

1. nptel.ac.in/courses/112106175/

Course Learning Outcomes (CLO): On completion of this course, the students will be able to

CLO	Description	Bloom's Taxonomy Level
CLO1	Understanding the product life cycle, role of CAD and various application of CAD tool	1 Remembering 2 Understanding
CLO2	Solve 2D and 3D transformations for the basic entities like line and circle.	5 Evaluating
CLO3	Formulate the basic mathematics fundamental to CAD system	4 Analyze
CLO4	Use the different geometric modeling techniques like feature based modeling, surface modeling and solid modeling.	3 Applying
CLO5	Create geometric models through animation and transform them into real world systems	6 Creating
CLO6	Simulate assembly of parts using Computer-Aided Design software.	4 Analyze

Mapping of CLOs with POs & PSOs:

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes(PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CLO1	H												M	
CLO2		M	H										M	
CLO3			H										L	
CLO4				M	M									M
CLO5					M		M		H					M
CLO6										L	H			M

H: High, M: Medium, L: Low