

COURSE TITLE	COMPUTER AIDED MODELLING
COURSE CODE	01ME1201
COURSE CREDITS	1

Objective:

- 1 To teach students how to design and analyze engineering models using computer software.

Course Outcomes: After completion of this course, student will be able to:

- 1 Apply parametric and feature-based CAD concepts to create basic 2D sketches and 3D models.
- 2 Develop and modify solid features (extrude, revolve, rib, blend, sweep, shell, hole, etc.) to meet engineering design requirements.
- 3 Analyze and evaluate CAD models for accuracy, manufacturability, and compliance with design specifications.
- 4 Integrate advanced CAD tools (datum planes, coordinate systems, assemblies) to solve complex modelling tasks.
- 5 Demonstrate the ability to optimize and modify CAD drawings for improved design efficiency and sustainability.
- 6 Apply CAD software to real-world projects and evaluate multiple design alternatives for effective engineering decision-making.

Pre-requisite of course:Basic concept of drawings

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
0	0	2	0	0	0	50	50

Contents : Unit	Topics	Contact Hours
Total Hours		

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	Introduction & Understanding of Parametric Concepts Introduction & Understanding of Parametric Concepts	1
2	Understanding of Parametric, Feature-based, and Associative Concepts Understanding of Parametric, Feature-based, and Associative Concepts	2

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
3	Selecting and Editing of Geometry, Feature, and Models Selecting and Editing of Geometry, Feature, and Models	2
4	Understanding of Creo® Interface Understanding of Creo® Interface	2
5	Define Sketcher for Feature Define Sketcher for Feature	1
6	Creating Extrude, Revolve, Rib, Blend, Sweep, and Datum Feature Extrude as Solid and Solid Cut Extrude as Thicken Solid and Thicken Cut Creating Extrude, Revolve, Rib, Blend, Sweep, and Datum Feature Extrude as Solid and Solid Cut Extrude as Thicken Solid and Thicken Cut	3
7	Revolve as Solid & Solid Cut Revolve as Thin Solid & Thin Solid Cut Profile Rib ,Trajectory Rib Revolve as Solid & Solid Cut Revolve as Thin Solid & Thin Solid Cut Profile Rib ,Trajectory Rib	3
8	Creating Sweep Blend, Sweep, and Datum Feature: Create Sweep as a Solid and Solid Cut Create Sweep as a Thin Solid and Thin Solid Cut Creating Sweep Blend, Sweep, and Datum Feature: Create Sweep as a Solid and Solid Cut Create Sweep as a Thin Solid and Thin Solid Cut	2
9	Creating Sweep Blend as a Solid Feature and Solid Cut Creating Sweep Blend as a Thin Solid Feature and Thin Solid Cut Creating Sweep Blend as a Solid Feature and Solid Cut Creating Sweep Blend as a Thin Solid Feature and Thin Solid Cut	2
10	Create a Datum Plane Create Axis, Point, and Co-ordinate Create a Datum Plane Create Axis, Point, and Co-ordinate	2
11	Creating Round, Chamfer, Hole, Shell, and Draft: Hole, Shell, Draft, Round, Chamfer Creating Round, Chamfer, Hole, Shell, and Draft: Hole, Shell, Draft, Round, Chamfer	2
12	Projects for 3D modelling Projects for 3D modelling	2
Total Hours		24

Textbook :

- 1 Mastering Creo Parametric: A Guide for Design Engineers, Peter Moran, McGraw-Hill, 2020

References:

- 1 Creo Parametric 9.0 Tutorial, Creo Parametric 9.0 Tutorial, Roger Toogood, SDC Publications, 2015

References:

- 2 Learning Creo Parametric 9.0, Learning Creo Parametric 9.0, Michael Rider, SDC Publications, 2018
- 3 Creo Parametric 9.0 for Designers, Creo Parametric 9.0 for Designers, Sham Tickoo, CADCIM Technologies, 2019
- 4 Creo Simulate 8.0 Tutorial: Structural and Thermal Analysis, Creo Simulate 8.0 Tutorial: Structural and Thermal Analysis, Roger Toogood, SDC Publications, 2022

Suggested Theory Distribution:

The suggested theory distribution as per Bloom’s taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
5.00	20.00	30.00	20.00	20.00	5.00

Instructional Method:

- 1 PPT
- 2 CAD software

Supplementary Resources:

- 1 <https://www.ptc.com/en/products/cad/creo>
- 2 <https://www.tutorialspoint.com/creo/index.htm>
- 3 <https://www.cadtutor.net/>