COURSE TITLE	**COMPUTER AIDED DESIGN LAB**
COURSE CODE	**01CA1103**
COURSE CREDITS	**2**

Objective:

1 The course is intended to provide exposure of modeling techniques for curves, surfaces and solids. It also includes topics on feature-based modeling, mass property calculations and assembly modeling. Topic on CAD data formats and exchange standards is also included

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

1 Apply the fundamentals of computer graphics and geometrical modeling for the creation and visualization of engineering models.

2 Apply various surface and solid modeling techniques using CAD software for developing engineering components.

3 Perform feature-based modeling and evaluate mass properties of CAD models using appropriate design tools.

4 Develop assembly models and implement CAD data exchange using standard CAD file formats.

Pre-requisite of course: Computer Programming, Machine Design

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
0	0	4	0	0	0	50	50

Contents : Unit	Topics	Contact Hours
Total Hours		

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**To demonstrate the Modeling software Creo, Unigraphics or others** To demonstrate the Modeling software Creo, Unigraphics or others	4
2	**To demonstrate about the Analysis software Ansys, Hypermesh etc** To demonstrate about the Analysis software Ansys, Hypermesh etc	4
3	**To do Modeling of Component 1 using Modeling software** To do Modeling of Component 1 using Modeling software	4

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
4	**To do Modeling of Component 2 using Modeling software** To do Modeling of Component 2 using Modeling software	4
5	**To do Assembly of Components 1 using Modeling Software** To do Assembly of Components 1 using Modeling Software	4
6	**To do Assembly of Components 2 using Modeling Software** To do Assembly of Components 2 using Modeling Software	4
7	**To do Static Analysis of Component 1 using ANSYS** To do Static Analysis of Component 1 using ANSYS	4
8	**To do Static Analysis of Component 2 using ANSYS** To do Static Analysis of Component 2 using ANSYS	4
9	**To do Static Analysis of Assembly of Component 1 using ANSYS** To do Static Analysis of Assembly of Component 1 using ANSYS	4
10	**To do Static Analysis of Assembly of Component 2 using ANSYS** To do Static Analysis of Assembly of Component 2 using ANSYS	4
11	**To do Programming for making Circle, Line and Point using MATLAB** To do Programming for making Circle, Line and Point using MATLAB	4
12	**To Apply CAD file formats for Various CAD models and Conversion.** To Apply CAD file formats for Various CAD models and Conversion.	4
Total Hours		**48**

Textbook :

1 Pro/ENGINEER Wildfire 5.0: A Tutorial Approach, Prof. Sham Tickoo, Mcgrawhill, 2010

2 Ansys Workbench: A Tutorial Approach, Prof. Sham Tickoo, Mcgraw-hill, 2015

3 CAD/CAM: Computer-Aided Design and Manufacturing, Mikell P. Groover and Emory W. Zimmers Jr., Prentice Hall; 1st edition, 2000

References:

1 Engineering Graphics Essentials with AutoCAD 2023 Instruction, Engineering Graphics Essentials with AutoCAD 2023 Instruction, Kirstie Plantenberg , SDC Publications, 2022

2 Mastering AutoCAD 2023 and AutoCAD LT 2023, Mastering AutoCAD 2023 and AutoCAD LT 2023, George Omura and Brian C. Benton , Sybex, 2022

3 Ansys Workbench: A Tutorial Approach, Ansys Workbench: A Tutorial Approach, Prof. Sham Tickoo, CADCIM Technologies, 2018

4 Creo Parametric 6.0: Introduction to Solid Modeling, Creo Parametric 6.0: Introduction to Solid Modeling, Randy H. Shih, SDC Publications, 2019

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**
10.00	20.00	20.00	20.00	20.00	10.00

Instructional Method:

1 Analysis

Supplementary Resources:

1 https://nptel.ac.in/courses/112/102/112102101/