

MME 305(L) : CAD/CAM Lab

Programme: B. Tech. (MME)
Course: Core

Year: 3rd
Credits: 2

Semester: Even
Hours: 3 (per week)

Course Context and Overview (100 words):

The course is designed based upon the theory courses on CAD/CAM (MME601). The objective of this lab is to expose the students to practical aspects of the concepts taught in the course mentioned above, through demonstration on CAD/CAM set-ups. This will help the students to design and manufacture the components as per the customer or client requirements using latest technologies. The detailed objectives are as follows:

1. To understand the basic concepts of CAD/CAM.
2. To understand the application of additive and subtractive machining.
3. Getting hands on experience on CNC plasma cutting and robots.
4. To learn the machining principles, applications and design criteria.

Prerequisites Courses: Nil

Course outcomes (COs):

On completion of this course, the students will have the ability to:

C01 Understand the modelling drafting and assembly features of CAD software.

C02 Understand CNC machine hardware and CNC programming.

C03 Understand and have hands on experience of CNC plasma cutting machine.

C04 Understand the working of 3D printer.

C05 Understand the working of industrial robot arm.

Course Topics

List of Experiments (CIM Lab.)

S. No.	Experiment / Activity	Hours
1	Experiment on 3D modelling using CAD software.	3
2	Experiment on 3D modelling and drafting using CAD software.	3
3	Experiment on 3D modeling and assembly using CAD software.	3
4	Experiment on line generation using Bresenham's algorithm.	3
5	Experiment on circle generation using a circle drawing algorithm.	3
6	Study the construction, and working of CNC machines.	3
7	Experiment on vertical machining center (VMC).	3
8	Experiment on rapid prototyping using FDM 3D printer.	3
9	Experiment on CNC plasma cutting machine.	3
10	Experiment on welding using industrial robot.	3

Suggested Reading: Reference Books / Journals: Same as for the theory courses of MME601.

Additional Resources (NPTEL, MIT Video Lectures, Web resources etc.)

Evaluation Methods:

Item	Weightage (%)
Internal Sessional Assessment (Lab work with report)	50
End Term Practical Examination	50

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