MME 305(L) : CAD/CAM Lab

Programme: B.Tech. (MME) Year: 3rd Semester:Even
Course:Core Credits:2 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:	Lab Experiment
CO1 Understand the modelling drafting and assembly features of CAD software.	Experiment 1,2,3
C02 Understand CNC machine hardware and CNC programming.	Experiment 6, 7
C03 Understand and have hands on experience on CNC plasma cutting machine.	Experiment 9
C04 Understand the working of 3D printer.	Experiment 8
C05 Understand the working of industrial robot arm.	Experiment 10

Course Topics

List of Experiments (CIM Lab.)

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

			and Skill Development

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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