

## Advanced Diploma in CAD/CAM

### Objective of the Course:

The course is aimed at giving exposure to and enhancing the knowledge and skills of fresh graduate engineers and engineers involved in the operation use of CNC machines, CAD/CAM packages and for those who want to provide training to others in this area. It gives exposure and on hand experience in the field of CAD/CAM, Industrial Robots, CNC machines, FMS & CIM.

### Learning Outcomes:

The participants will be able to:

- Understand the concepts of CAD and CAD tools
- Design and drafting of Part Modelling and Assembling Modelling in 2D and 3D models, and AutoLISP
- Understand the working of CNC Machines, Robots, Machine Vision
- Design and machine using CAD/CAM packages like MasterCAM and Surface Design and Machining using MasterCAM
- Design cell level in FMS and CIM
- Hand-on exposure to real life CIM environment
- Understand advanced features of CAD/CAM

### Expected Job Roles:

AutoCAD Senior Programmer

**Duration of the Course (in hours)** 360 hrs

**Appr. Fees (INR):** Rs. 40,000/- (Service Tax Extra)

**Minimum eligibility criteria and prerequisites if any**

- a. BE /B.Tech or Diploma in Mechanical/Production Engineering or equivalent
- b. Candidates who have appeared in the qualifying examination and awaiting results may also apply

### Outline of the Course

S. No	Topic	Minimum No. of Hours
1.	<b>CAD, Drafting and 3D Modelling</b> <ul style="list-style-type: none"> <li>• Fundamentals of CAD, 2D Modelling,</li> <li>• 3D Modelling: Concepts, Wireframe, Surface, and Solid Modelling, AutoLISP</li> </ul>	120
2.	<b>CNC Machine Tools and NC Part Programming</b> <ul style="list-style-type: none"> <li>• Fundamentals of NC/CNC, NC Part Programming, Conventional versus CNC Machines, NC Programming through CAD/CAM, Chucking and Turning Centres, Machining Centres, Maintenance and Trouble Shooting of CNC Machine Tools</li> <li>• 2D and 3D Machining sequences like Volume mill,</li> </ul>	120

### Short Term Courses – NIELIT

	boundary mill, Pocketing, Lathe operations and all relevant machining sequences for Lathe and Milling. CNC Machines	
3.	<b>Computer Integrated Manufacturing</b> • Fundamentals of CIM, Group Technology and Computer Aided Process, Planning, AGV/RGVs, Automated Storage and Retrieval Systems (ASRS), Computer Aided Inspection, Introduction to Machine Vision , Industrial Robotics, Robot Task Programming, Modelling and Simulation, Design of a Manufacturing cell using the CIM software, MRP & MRP II	40
4.	Project Work	80
Theory/ Lecture Hours:		100
Practical/ Tutorial Lecture Hours:		260
Total Hours:		360

**Books**

recommended for reference and reading:

**REFERENCES**

1. Automation, Production Systems, and Computer –Integrated Manufacturing by Mikell P. Groover
2. CAD/CAM Principles, Practice and Manufacturing Management by Chris McMahon and Jimmie Browne.
3. Computer Integrated Manufacturing by Roger Hannam
4. Robotics for Engineers by Yoram Koren
5. Machine Vision and Digital Image Processing Fundamentals by Louis J. Galbiati, Jr.
6. Computer Control of Manufacturing Systems - *Yoram Koren*.
7. Manuals of CNC Machines (Denford), Manuals of Robots (Mitsubishi, and Eshed Robotic), Manuals of AutoCAD, MasterCAM

In addition manufacturer's device data sheets and application notes are to be referred to get practical application oriented information.

Group Code:	CADD	Group Name:	AutoCad / Instrumentation
Course Code:	AD01	Course Name:	Advanced Diploma in CAD/CAM