PG 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 Modlellings in2D and 3D models, and structural & thermal analysis
- Understand the working of CNC Machines, Robots, Machine Vision
- Design and machine using CAD/CAM packages like Creo (Pro/Engineer) Surface Design and Machining using Creo (ProEngineer)
- 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 Design Engineer

Duration of the Course (in hours) 720 hrs /*24 Weeks*

Appr. Fees (INR): Rs.68,000/- (Service Tax Extra)

Minimum eligibility criteria and prerequisites if any

a. BE /B.Tech 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.	**Computer Aided Design** • Fundamentals of CAD, 2D Modelling, • 3D Modelling: Concepts, Wireframe, Surface, and Solid Modelling • Part Modelling, Part Detailing, Feature Based Modeling, Free form modeling, Assembling modeling, and Drafting • Analysis: model evaluation: behavioral modeling, model checking, and design editing. Three types of analysis : Structural, Motion and Thermal	310

2.	**Computer Aided Manufacturing** • 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 • 2D and 3D Machining sequences like Volume mill, boundary mill, Pocketing, Lathe operations and all relevant machining sequences for Lathe and Milling. CNC Machines	240
3.	**Computer Integrated Manufacturing** • 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	50
4.	Project Work	120
	Theory/ Lecture Hours:	280
	Practical/ Tutorial Lecture Hours:	440
	Total Hours:	720

Books recommended for reference and reading:

REFERENCES

1. Automation, Production Systems, and Computer –Integrated Manufacturing by Mikell P. Groover
2. CADCAM 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 Robetic), Manuals of AutoCAD, MasterCAM and Creo.

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:	PG02	Course Name:	PG Diploma in CAD/CAM