Subject Code	Subject Name	Hours per Week			Total
		L	T	P	Credits
ME5CC02	Elective II (**Computer Integrated Manufacturing**) M.Tech CAD/CAM/CIM	4	0	0	4

Unit-I

Computer Integrated manufacturing System : Definition, Concept of CIM wheel, Evolution of CIM,Automation and reasons of automation, System view of manufacturing,Concurrent Engineering, Elements of CIM system, CIM hardware andsoftware.

Unit-II

Computer Aided Design : Historical background, Development of CAD, CAD System, CAD Software :Different Graphicsstandards, Basic definitions, Modes of graphic operation, User interface, Software modules,Modeling and viewing, 2D scaling-Representation and transformation of Points, transformation of Lines –Rotation, Reflection, Scaling and combined transformations, 3Dscaling-shearing, Rotation, Reflection, Translation - Projections parametric representation of Ellipse, Parabola,Hyperbola,CAD Hardware: Input devices, output devices, concept of workstations and its types, Types ofModelling: Wire frame, Surface and Solid modeling –Different Solid modeling packages.

Unit-III

Computer Aided Process Planning: Computer Aided Process Planning - Retrieval and Generative approaches, Feature Identification- Algorithms, Graph Based Approach, Attribute Adjacency Graph, Benefits of CAPP.

Unit-IV

Computer Aided Manufacturing and Manufacturing Systems :CNC technology and its development, Classification of CNC Machine Tools,Concepts of DNC, CNC Controller, its types,Part Programming of Prismatic andrevolved components,APT part programming using CAD, CAM S/w.Group Technology : Concept of part family, parts classification and coding and Production Flow Analysis, Cellular Manufacturing and introduction to Flexible Mfg. system.

Unit-V

Computer Aided Quality Control : Overview of Automated Identification Methods, Bar Code Technology, Radio Frequency Identification, Other ADC Technologies- Magnetic Stripes, Optical Character Recognition, and Machine Vision.

Unit-VI

Automated Material Handling Systems : Overview of handling system, Design considerations and principles of Material Handling, Material Transport Equipment-Industrial Trucks, Automated Guided Vehicles, Monorails and Other Rail-Guided Vehicles, Conveyors, Cranes and Hoists, **Automated Storage/Retrieval Systems** : Storage Location Strategies,Engineering Analysis of AS/RS

Reference Books:

1. Groover, Production System & CIM: PHI
2. Zeid, CAD/CAM Theory & Practice: McGraw Hills
3.Nanua Singh, Approach to computer integrated design and manufacturing :- ,John Wiley and sons
4.James Madison. "CNC Machining Hand Book ". Industrial Press Inc.. 1996.
5.Radhakrishnan. P. "Computer Numerical Control Machines ". New Central Book
Ag 6.Tien-Chien Chang, Richard A. Wysk, "An Introduction to automated process planning systems ",Prentice Hall, 1985
7. Rao P.N., "Computer Aided Manufacturing ", Tata McGraw Hill Publishing Co., 2000