

CO5														
CO6													L	

List of Topics Covered

UNIT I INTRODUCTION TO CAD AND ITS ELEMENTS	9
Principles of Computer hardware, Software and Operating System, application Programs, Data Handling and File Structures, Computer aid in Phases of design- Development of Design Database using CAD Systems- Conceptual Design Process Analysis Optimization- Detailed Design and Documentation.	
UNIT II ELEMENTS OF CAD SYSTEMS AND DESIGN USING COMPUTERS	9
Elements of CAD Systems, Introduction to Graphic Hardware, Software, Details of 2D Software Packages- Layering, Drawing Primitives, Display Techniques, Editing, utilities, Scaling, Dimensioning, 3D Visualization, Geometric Modeling- Wireframe and Solid models.	
UNIT III DESIGN USING COMPUTERS	9
Design of Gears, Couplings, Flywheels, Shafts Connecting Rods etc. Software for Vibration Problems- Stress Analysis, Kinematic Analysis, Dynamic Analysis.	
UNIT IV COMPUTER AIDED MANUFACTURING	9
Numerical Control- Modes- NC Elements- NC Machine Tools- CNC Machines- CNC Hardware Basics- CNC Tooling- CNC Machine Tools and Control System- Part Programming- Manual and Computer Aided- Turning Center Programming- Advanced Part Programming- Direct Numerical Control- Adaptive Control- Computer Aided Part Programming, APT. Introduction to Robotics, Group Technology, Computer Aided Process Planning, FMS.	
UNIT V COMPUTER INTEGRATED MANUFACTURING	9
CIM as a Concept and a Technology- CASA/SME Model of CIM- Benefits- Communication Matrix in CIM- Fundamentals of Computer Communication in CIM, CIM Data Transmission Method, Serial, parallel, asynchronous, modulation, Demodulation, Simplex and Duplex- Types of Communications in CIM- Point to Point, Star and Multiplexing- CIM for Batch Production- Group Technology – FMS- Process Control in CIM- Characteristics of Manufacturing Process Data- Continuous, Analog, Discrete Binary and Pulse Data- ADC/DC Multiplexers, Process Monitoring Through Computer- Types of Computer Process Control- Preplanned, Direct Digital Control (DDC)- Regular Control and Feed Forward Control, Requirements of Control Programming Interrupt, Real Time Clock Input.	