



M.Tech in CAD/CAM

SEMESTER I

MANUFACTURING PROCESSES AND ANALYSIS

Forming; Fundamental theories of plasticity, mechanics of plastic deformation; Casting, Welding and Machining processes, Non conventional Machining

ADVANCE DYNAMICS OF MACHINES

Analytical methods of Displacement, Velocity and Acceleration, Static & Dynamics force analysis, Synthesis of mechanism, Vibration analysis ,Cam Dynamics, Balancing

ADVANCED MACHINE DESIGN-I

General design procedure for design problems, Advanced Materials, Composite Materials, ceramics and super alloys, Design based on Fatigue, Creep, Fracture Mechanics, Design for Rigidity, Design for manufacturing, Wear and Lubrication, Tanks and pressure vessels

COMPUTER AIDED DESIGN

Introduction, CAD hardware and software, Computer graphics, Standards in CAD, graphics and computing standards, Computer aided design of mechanical elements with animation, Capabilities of various commercially available software

COMPUTER AIDED PRODUCTION MANAGEMENT

Introduction to Computer aided production management, computer aided production planning, Linear programming, Transportation and Assignment Models ,Computerized relative allocation of facility technique, Group Technology, MRP, Assembly line balancing

SEMESTER – II

COMPUTER AIDED MANUFACTURING

NC / CNC machine; Numerical controls, Fundamentals of manual part programming, Computer assisted part programming; Flexible Manufacturing System; FMS definition, Manufacturing cells, System support equipment, FMS computer hardware & software, Computer Integrated Manufacturing Systems, Introduction to CIMS, Steps to implement CIM

FINITE ELEMENT ANALYSIS

Introduction to FEM, Higher order and isoperimetric element formulations, Solid and Structural Mechanics Applications, Applications of FEA in metal forming & metal cutting problems

ADVANCED MACHINE DESIGN-II (3ME1203)

Gear Materials, Design and analysis of crane structure, Rotating Discs and rotating cylinder, Theory of Shells, Design of circular and non-circular plates, Johnson's method for mechanical engineering design, concept of optimization

ROBOTICS & ARTIFICIAL INTELLIGENCE (3ME1204)

Robotics, Robot technology, Control of Actuators in robotic mechanisms, Robot programming & languages, Robot motion analysis and control, robot application in Manufacturing, Implementation of Robots, Artificial Intelligence, Artificial Intelligence, Expert Systems, Fuzzy Logic, Semantic Nets

MANUFACTURING AUTOMATION

Automation In Production, Introduction to automation, Basics of automated work piece handling, Construction elements for automation, Assembly automation, Low cost automation, Hydraulic and pneumatic control in machine tools, Hydraulic Principles, Analysis and study of typical hydraulic circuits in M/C tools, Pneumatic & hydro pneumatic circuits, Design of systems for specific requirements, Electrical Control, Components of electrical controls, Microelectronics Control

SEMESTER III

MAJOR PROJECT

SEMESTER IV

MAJOR PROJECT

During M.Tech Semester-III and IV students are required to carry out the projects either in the industry or in the institute. It is in two parts Major Project Part I in Semester -III and Major Project Part II in Semester -IV. There will be three intermediate evaluations in Semester -III and IV and later on followed by final evaluation. At the end of the semester the students are required to submit the Dissertation