III B.Tech II Semester

15AME39 - CAD/CAM LABORATORY

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Course Objectives:-
• To review and train in CAD modeling.
• To train on part programming and program generation from a CAD model.
• To train on machining in various CNC machines.

I. COMPUTER AIDED DRAFTING

A. Introduction to 3D Modeling
   1. Modeling of Component in 3D - V block.
   2. Modeling of Component in 3D - Open Bearing.
   3. Modeling of Component in 3D - Angular block.
   4. Modeling of Component in 3D - Dovetail Guide.
   5. Modeling of Component in 3D - Dovetail Bracket.
   6. Modeling of Component in 3D - Dovetail stop
   7. Geometric Modeling Using Pro-E or CATIA or solid works or iron CAD (Any four exercises).

B. Assembly Modeling: Student must do at least two exercises
   1. Assembly of a screw jack parts.
   2. Assembly of a knuckle joint.
   3. Assembly of a Oldham's coupling.
   4. Assembly of a footstep bearing.
   5. Assembly of a stuffing box.
   6. Assembly of a square tool post.

II. COMPUTER AIDED MANUFACTURING

CAM (Any Six exercises)

   a. Introduction to CNC & NC Machines.
   b. Introduction to CNC & NC part programming - for Different operations like Turning,
   c. Threading, Milling, Drilling etc., (G-Codes & M-Codes).
   d. Experiments on CNC lathe -Turning, Threading operations.
   e. Experiments on Milling Machine - Plane Milling, Drilling Operations.
   f. Experiment on Robot - pick up an object with & without using teach window.
   g. Developing a CNC code for a given job using.
      i.   Solid works- CAM
      ii. PRO-E- CAM
      iii. MASTER CAM
      iv. Edge CAM

Course Outcomes:-
After successful completion of this course:
   • Students will be able to review and train in CAD modeling.
   • Design a part or assembly of parts using Computer-Aided Design software.
   • Apply top-down design principles to model a design.
   • Students would get trained on machining in various CNC machines.