# Vidya Jyothi Institute of Technology

Aziznagar Gate, C.B. Post, Hyderabad-500 075

## DEPARTMENT OF MECHANICAL ENGINEERING
### IV B.Tech I Semester
## CAD/CAM LAB (A70390)

CAD/CAM (computer-aided design and computer-aided manufacturing) refers to computer software that is used to both design and manufacture of products. CAD is the use of computer technology for design and design documentation. CAD/CAM applications are used to both design a product and program manufacturing processes, specifically, CNC machining. CAM software uses the models and assemblies created in CAD software to generate tool paths that drive the machines that turn the designs into physical parts. CAD/CAM software is most often used for machining of prototypes and finished parts.



## LIST OF EXPERIMENT AND EQUIPMENTS

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### I. DRAFTING AUTOCAD

a) Draw the 2D drawing using Auto cad as per diagram
b) Draw the orthographic views of the given isometric view as per diagram

### II. PART MODELLING

a) Generate a 3D Model using Solid Works (Extrude command) as per diagram
b) Generate a 3D Model using Solid Works (Revolve, sweep command) as per diagram.
c) Generate a Surface Model using Solid Works as per diagram.

### III. ASSEMBLY MODELING

a) Generate a Assembly Model of Stuffing Box
b) Generate a Assembly Model of Spigot and Socket Joint/ Universal Joint.

## IV. ANALYSIS

a) Determination of deflection of stresses in 2D and 3D trusses and beams.

b) Determination of deflections component and principal and Von-mises stresses in plane stress, plane strain and Axisymmetric components.

c) Determination of stresses in 3D and shell structures

d) Estimation of natural freqeuncis and mode shapes, Harmonic response of 2D beam.

e) Steady state heat transfer Analysis of plane and Axisymmetric components.

## CAM LAB

## IV. MANUFACTURING

a) Develop a part programme for CNC turning using simulating software as per the given diagram and manufacture on CNC Lathe.

b) ) Develop a part programme for CNC turning using simulating software as per the given diagram and manufacture on CNC Lathe.

c) ) Develop a part programme for CNC milling using simulating software as per the given diagram and manufacture on CNC Milling.

d) Develop a part programme for CNC milling using simulating software as per the given diagram and manufacture on CNC Milling.

## LIST OF EQUIPMENT (or) SOFTWARES AVAILABLE:

| S.No. | NAME OF THE EQUIPMENT |
|-------|------------------------|
| 1 | CPU PENTIUM-IV |
| 2 | HCL COMPUTERS |
| 3 | SOLID EDGE V-14 |
| 4. | AUTOCAD 2002 |
| 5. | Catia v-5 r9 |
| 6 | SOLID WORKS 18 |
| 7 | ANSYS |
| 8 | ALGOR NASTRAN |
| 9 | GIBBS CAM EDUCATIONAL PACK V6.0 |
| 10 | AUTODESK INVENTOR |
| 11 | CNC-TRAINER LATHE SYM-CNC-100 |
| 12 | HIGH PRECISION CNC TRAINER MACHNING CENTER (MILLING M/C) |