	L	**T**	**P**	**C**
IV Year - I Semester	**0**	**0**	**2**	**2**

CAD/CAM LAB

Course Objectives:

1. To impart the fundamental knowledge on using various analytical tools like ANSYS, FLUENT, etc., for Engineering Simulation
2. To know various fields of engineering where these tools can be effectively used to improve the output of a product.
3. To impart knowledge on how these tools are used in Industries by solving some real time problems using these tools..

1.   **DRAFTING:** Development of part drawings for various components in the form of orthographic and isometric representation of dimensioning and tolerances scanning and plotting. study of script, DXE and IGES files.

2.   **PART MODELING:** Generation of various 3D models through protrusion, revolve, shell sweep. creation of various features. study of parent child relation. feature based and boolean based modelling surface and assembly modelling. study of various standard translators. design simple components.

3. a).   Determination of deflection and 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 (at least one example in each case)
   d).   Estimation of natural frequencies and mode shapes, Harmonic response of 2D beam.
   e).   Steady state heat transfer Analysis of plane and Axisymmetric components.
4. a).   Study of various post processors used in NC Machines.
   b).   Machining of simple components on NC lathe and Mill by transferring NC Code / from a CAM package. Through RS 232.
   c)   Practice on CNC Sinutrain Turning
   d)   Practice on CNC Sinutrain Milling
   e)   CNC programming for turned components using FANUC Controller
   f)   CNC programming for milled components using FANUC Controller
   g)   Automated CNC Tool path & G-Code generation using Pro/E/MasterCAM

Packages to be provided to cater to drafting, modeling & analysis from the following:

CATIA, Pro-E, I-DEAS, ANSYS, NISA, CAEFEM, Gibbs CAM, Master CAM etc.

Course outcomes:

Upon successful completion of this course student should be able to:

1. The student will be able to appreciate the utility of the tools like ANSYS or FLUENT in solving real time problems and day to day problems.
2. Use of these tools for any engineering and real time applications
3. Acquire knowledge on utilizing these tools for a better project in their curriculum as well as they will be prepared to handle industry problems with confidence when it matters to use these tools in their Employment