

IV B.Tech I Semester

15AME63-COMPUTER AIDED ENGINEERING (CAE) LABORATORY

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Course Objectives

- To use the commercial Finite Element packages to build Finite Element models and solve a selected range of engineering problems.
- To validate a Finite Element model using a range of techniques.
- To communicate effectively in writing to report (both textually and graphically) the method used, the implementation and the numerical results obtained.
- To discuss the accuracy of the Finite Element solutions.

I. Introduction to Analysis Software Package**II. Structural analysis:(Any Four exercises)**

- Analysis of a truss member under loading
- Analysis of a rectangular plate with a hole
- Analysis of a bracket plate with axial loading
- Analysis of a bracket plate with eccentric loading
- Static Analysis of a Corner Bracket
- Static Analysis of beam
- Analysis of Thermally Loaded support Structure
- Analysis of Hinged support member

III. Thermal and Fluid Flow analysis:(Any two exercises)

- Analysis of a square plate considering conduction
- Analysis of a extended fin considering conduction and convection
- Analysis of a compound bodies considering conduction and convection
- Determination of velocity of a fluid and volumetric flow rates for 1-D Fluid flow


IV. CAE Through MATLAB

- Introduction to MATLAB.
- One dimensional Truss
- One dimensional Beam
- One dimensional Heat Conduction

Course outcomes

After completion of the course student can be able:

- Ability to solve engineering problems using ANSYS.
- Ability to solve the engineering problems using the MATLAB.


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