FINITE ELEMENT ANALYSIS AND OPTIMIZATION LAB

Course Code: 15ME2110

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Course Outcomes: At the end of the course, the student will be able to

CO1: Create part models of different mechanical components using modeling packages

CO2: Perform static analysis using 1-D and 2-D elements

CO3: Perform static analysis using 3-D elements

CO4: Carry out dynamic analysis

CO5: Solve optimization problems using FEA packages

Note: Any **ten** exercises from the following

1. Modeling of machine components
2. Assembly and drafting of machine components
3. Static analysis with link elements
4. Static analysis with beam elements
5. Static analysis with shell elements
6. Static analysis with solid elements
7. Bulking analysis of pressure vessel
8. Modal analysis of shaft
9. Harmonic analysis of plate
10. Transient thermal analysis in a cylinder
11. Spectrum analysis
12. Size optimization of beam
13. Shape optimization of bracket
14. Topology optimization of plate

Modelling packages: CATIA, UNIGRAPHICS, Pro-E, etc.
FEA packages: ANSYS, NISA, NASTRAN, etc.