SCHEME OF COURSE WORK

FINITE ELEMENT ANALYSIS AND OPTIMIZATION LAB

Course Code:15ME2110 **L P C 0 3 2**

Pre requisites:CAD and Optimization methods

Course Outcomes:

At the end of the course, the student will be able to

1	Create part model and drafting of different mechanical components using modeling packages
2	Create assembly model using modeling packages
3	Develop animation of four bar mechanism
4	analyze static and transient thermal analysis using FEA packages
5	solve optimization problems using MATLAB

Program Outcomes (POs)

At the end of the program, the students in CAAD will be able to

PO 1	acquire knowledge in latest computer-aided design and analysis tools
PO 2	create 3D models of real-time components using latest CAD software
PO 3	acquire technical skills to formulate and solve engineering and industrial problems
PO 4	carry out analysis for the design of new products
PO 5	have proficiency to solve problems using modern engineering design tools
PO 6	have capability to work in multidisciplinary streams
PO 7	apply project and finance management skills to organise engineering projects
PO 8	prepare technical reports and present them effectively
PO 9	engage in lifelong learning
PO 10	realize professional and ethical responsibilities
PO 11	conduct surveys, analyse data, plan, design and implement new ideas into action

CO-PO matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO-1	S	S	M		M		M		M		
CO-2	S	S	M		M		M		M		
CO-3	M	M	M		M				M		
CO-4	S		S	S			M		M		
CO-5			S		S				M		

S - Strongly correlated, *M* - *Moderately* correlated, *Blank* - *No correlation*

Course Outcome-Assessment

Course outcomes	Delivery methods	Assessment methods	Sample viva questions
CO1	Demonstration and conducting experiments	Cycle – I Lab Exam	1.What are the various commands used for creating part model? 2. What is overconstraint?
CO2	Demonstration and conducting experiments	Cycle – I Lab Exam	1.What is contact constraints in assembly? 2. Explain offset constraint in assembly.
CO3	Demonstration and conducting experiments	Cycle – II Lab Exam	1.What is animation? 2.Explain the procedure for doing animation in CAD software.
CO4	Demonstration and conducting experiments	Cycle – II Lab Exam	1.What are the different types of elements? 2.What is preprocessor? 3.What is postprocessor?
CO5	Demonstration and conducting experiments	Cycle – II Lab Exam	1.Explain the different types of optimization technique. 2.What is genetic algorithm?

Assessment methods

Continuous assessment methods: Verification of experiments on system, Record correction

Mid semester assessment methods: Cycle – I Lab Exam, Cycle – II Lab Exam

End semester assessment methods: External Lab Exam