SAMSKRUTI COLLEGE OF ENGINEERING TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING

LESSON PLAN

Academic Year : 2017-2018, B.Tech III YR – II Sem
Name of the Branch : Mechanical (MECH)
Name of the staff member : Mr. Gurunatha Nayaka
Name of the subject : Finite Element Method

S.No.	Unit No.	Topic	No. of Periods	Planned Date
1	I	Introduction to Finite Element Method for solving field problems	1	20-12-2017
2		Stress and Equilibrium and Boundary conditions	1	23-12-2017
3		Strain - Displacement relations	1	26-12-2017
4		Stress- strain relations for 2-D and 3-D Elastic problems.	1	27-12-2017
5		Finite element modeling coordinates and shape functions	1	30-12-2017
6		Assembly of Global stiffness matrix and load vector	1	02-01-2018
7		Treatment of boundary conditions and Quadratic shape functions	1	03-01-2018
8		Derivation of stiffness matrix for one dimensional bar element	1	06-01-2018
9		Problems on stiffness matrix	2	08-01-2018
10		Problems on load vector	2	09-01-2018
11		Problems on shape functions	2	10-01-2018
12	II	Introduction on Analysis of Trusses	1	15-01-2018
13		Stiffness matrix for Plane Truss Elements	1	16-01-2018
14		Stress Calculation and problems	1	17-01-2018
15		Stiffness matrix problems	2	22-01-2018
16		Introduction on Analysis of Beams: Element	1	23-01-2018
17		Stiffness matrix for two nodes and two degrees of Freedom per node for beam element	1	24-01-2018
18		Derivation of hermite shape function		29-01-2018
19		Problems on beam element		30-01-2018
20	III	Finite element modeling of two dimensional stress analysis with constant strain triangle (CST)	1	05-02-2018
21		treatment of boundary conditions for CST	1	12-02-2018
22		Estimation of Load Vector and Stresses.	2	13-02-2018
23		Problems on CST elements	2	14-02-2018
24		Problems on stiffness matrix for CST element	2	17-02-2018

25	III	Finite element modeling of Axi-symmetric solids subjected to Axi-symmetric loading with triangular elements.	1	19-02-2018
26		Problems on axi-symmetric models	1	20-02-2018
27		Two dimensional four noded iso-parametric elements and problems.	3	21-02-2018,
28	IV	Steady State Heat Transfer Analysis of one dimensional analysis of Slab,	1	26-02-2018
29		Steady State Heat Transfer Analysis of one dimensional analysis of fin	1	27-02-2018
30		Steady State H9at Transfer Analysis of one dimensional analysis of thin plate	2	28-02-2018
31		Analysis of a uniform shaft subjected to torsion.	2	03-03-2018
32		Problems on slab	2	05-03-2018
33		Problems on fin	2	06-03-2018
34		Problems on thin plate	1	07-03-2018
35		Problems on shaft subjected to torsion	1	12-03-2018
36	V	Introduction of Dynamic Analysis	1	13-03-2018
37		Formulation of finite element model, element	1	14-03-2018
38		Mass matrices and lumped matrices	1	19-03-2018
39		evaluation of E1gen values and Eigen vector to a stepped bar	1	21-03-2018
40		evaluation of E1gen values and Eigen vectors to truss.	1	24-03-2018
41		Problems on E1gen values and Eigen vectors	1	27-03-2018
42		Finite element -formulation to 3 O problems 1n stress analysis, and convergence requirements	2	28-03-2018
43		Mesh generation, techniques such as semi automatic use of softwares such as ANSYS. NISA, NASTRAN,etc.	2	31-03-2018
44		Mesh generation, techniques such as fully Automatic use of the software such as ANSYS. NISA, NASTRAN,etc.	2	02-04-2018

TEXT BOOKS

1. Finite Element Method – C R ALAVALA.
2. Finite Element Method – S B HALESH.

FACULTY **H.O.D** **PRINCIPAL**