

## COURSE OUTCOME ASSESSMENT AND ATTAINMENT (R16)

**COURSE NAME:**FINITE ELEMENT METHODS

**CODE:** R1641033

**COURSE OUTCOMES:** Students are able to

CO	STATEMENT
CO1	Understand the concepts behind variational methods and weighted residual methods in FEM.
CO2	Identify the application and characteristics of FEA elements such as bars, beams, plane and isoparametric elements, and 3-D element.
CO3	Develop element characteristic equation procedure and generation of global stiffness equation will be applied.
CO4	Able to apply Suitable boundary conditions to a global structural equation, and reduce it to a solvable form.
CO5	Able to identify how the finite element method expands beyond the structural domain, for problems involving dynamics, heat transfer, and fluid flow.

### MAPPING CO'S WITH PO'S

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	-	-	1	1	3	-	-	-	-	2	-	-
CO2	3	2	-	-	1	1	3	-	-	-	-	2	-	-
CO3	3	2	-	-	1	1	2	-	-	-	-	2	-	-
CO4	3	2	-	-	1	1	2	-	-	-	-	2	-	-
CO5	3	2	-	-	1	1	2	-	-	-	-	2	-	-
Avg	3	2	-	-	1	1	2.33	-	-	-	-	2	-	-

### MAPPING COURSE WITH PO'S

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
FEM	3	2	-	-	1	1	2.33	-	-	-	-	2	-	-

### COURSE OUTCOME RUBRIC

Course	Assessment Methods with weight age	Method	Attainment Level 1 (Average)	Attainment Level 2 (Good)	Attainment Level 3 (Excellent)
Theory Course Outcome	Internal tests (40%)	Direct	60% students scoring more than 50% marks out of the maximum marks	70% students scoring more than 50% marks out of the maximum marks	80% students scoring more than 50% marks out of the maximum marks
	University Average Mark (60%)	Direct	50% students scoring more than 35 % of University Max marks	60% students scoring more than 35 % of University Max marks	70% students scoring more than 35 % of University Max marks

Course Name: **FINITE ELEMENT METHODS**  
 Target for Course Outcome: **2.0**

Code: R1641033  
 Batch: 2016-2020

MEASURING CO ATTAINMENT THROUGH INTERNAL ASSESSMENTS		
INTERNAL TEST		
Attainment	:	58 out of 60 students got more than 15 (50% of max internal Marks 30) marks. So, 96.6 % of students got marks more than target marks.
Attainment level	:	3
MEASURING COURSE OUTCOMES ATTAINED THROUGH UNIVERSITY EXAMINATIONS (DIRECT METHOD)		
Attainment	:	39 out of 60 students got more than 24 (35% of University Max Marks 70) marks. So, 65% of students got marks more than target marks
Attainment level	:	2

**Total Attainment of FEM Theory Course**

Assessment Tool with weightage	Method	Level of attainment			
		3	2	1	0
Internal Exam (30%)	Direct	3			
University Exam (50%)	Direct		2		

Course Attainment =  $0.3 \times 3 + 0.5 \times 2.5 = 2.15$ . Since the attained level (2.15) is greater than the target level (2.0), all specified outcomes are achieved.

**Course-PO Attainment for FEM:**

Final PO attainment value =  $\frac{CO-PO \text{ Mapping Average} \times \text{Course Attainment Value}}{3}$

**Final COURSE Attainment WITH PO'S**

**Final Course PO attainment**

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO	2.16	1.44	-	-	0.72	0.72	1.67	-	-	-	-	1.44	-	-