



# ADITYA ENGINEERING COLLEGE

An Autonomous Institution

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Recognised by UGC under sections 2(f) and 12(B) of UGC Act, 1956

Aditya Nagar, ADB Road, Surampalem - 533437, Near Kakinada, E.G.Dt., Ph:99498 76662

## Department of Mechanical Engineering

B.Tech - VII Semester (2021-22)

Teaching Method - Tutorial

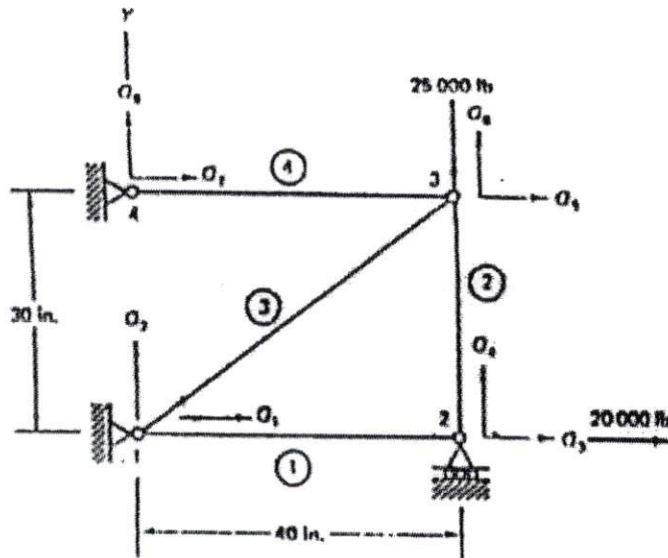
Course Code : 171ME7T18

Name of the Course: Finite Element Methods (AR17)

S.No.	Question	Knowledge Levels	Course Outcomes	Program Outcomes
1	<p>Consider the bar shown in figure. An axial load <math>P = 200 \times 10^3</math> N is applied as shown. Using the Penalty approach for handling boundary conditions, do the following:</p> <ol style="list-style-type: none"><li>Determine the Nodal displacements.</li><li>Determine the stress in each material.</li><li>Determine the reaction forces.</li></ol>	K3	CO1	PO1, PO2, PO5
<div style="text-align: center;"></div>				
2	<p>Consider the four-bar truss shown in figure. It is a given that <math>E = 29.5 \times 10^6</math> psi and <math>A_e = 1</math> in.<sup>2</sup> for all elements. Complete the following:</p> <ol style="list-style-type: none"><li>Determine the elements stiffness matrix for each element.</li><li>Assemble the structural stiffness matrix K for the entire truss.</li><li>Using the elimination approach, solve for the nodal displacement.</li><li>Calculate the reaction Forces.</li></ol>	K4	CO2	PO1, PO2, PO3, PO5

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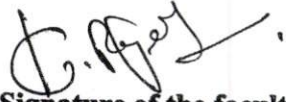
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SURAMPALAM - 533 437



Roll. No : 18A91A03A4

Name of the Student : TADI RAJKUMAR

Year/Sem/Sec : IV / I / B

  
Signature of the faculty

  
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