National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Static and Dynamic Analysis of Axially Loaded Beam-Column Members
Speaker	: Dr. Mahendra Gattu
Supervisor	: Dr. M. Gattu
Venue	: CE Seminar Hall
Date and Time	: 10 Jul 2025 (10:00AM)
Abstract	: This paper carries out the free vibration analysis of a beam using the finite element method. The frequencies and mode shapes are determined. The vibration behavior of the beam under axial load is investigated analytically and using the finite element method. The results show that the square of the frequency reduces linearly with an increase in axial load. At the critical buckling load, this frequency goes to zero. Experimental work to determine the buckling load of a column can be carried out indirectly from an axial load versus frequency plot. Key words: Buckling; Vibration; Axial-Load; Beam-Column;