

# A STUDY ON THE EFFECT OF TWO INTERNAL TRANSLATIONALELASTIC RESTRAINTS ON MODE SHAPES OF BEAMS

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## **Resumen.**

This work deal swith the problem of free vibrations of uniform beams with elastically restrained ends and with two internal translational elastic restraints. The main objective of this work is to obtain the minimum stiffness of the internal elastic restraints that raises a natural frequency to it supper limit. The minimum stiffness is determined by using the derivative of the function which gives the natural frequencies, with respect to the support position. The problem is solved with the close form solution. The effect of mode shape shift caused by changes in the rigidity parameter of the internal translational elastic restraints is analyzed. Additionally, results of the frequency parameter and modal shape of beams with different end conditions are presented.

**Palabras clave:** Vibrations of beams, intermediate elastic restrictions, minimum stiffness, close form solution.