عنوان مقاله:

Free Vibration Analysis of Laminated Composite Plates with Aritrary Shape

محل انتشار:

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خلاصه مقاله:

In this paper, the undamped free vibration analysis of arbitrary shaped laminated composite plates with general stacking sequences is conducted based on the first-order shear defor-mation theory. The finite element method is used to obtain the plate's vibrational characteris-tics by introducing a six-nodded triangular element, i.e., natural frequencies and the corre-sponding mode shapes. The element considered is a higher-order triangular element. Each node includes five degrees of freedom. Gaussian numerical integration is used to calculate the mass and stiffness matrices. The whole solution method is implemented within the MATLAB. The convergence of the results has been investigated, and results have been com-pared against some available data in the literature and also commercial software ANSYS in which three-dimensional analysis is used. Excellent agreements have been observed. The ef-fects of several parameters – such as boundary conditions, geometry, and lay-ups – on the natural frequencies are studied in detail

کلمات کلیدی:

Free Vibration; Arbitrary Shape, Laminated Composite; Plate; Finite Element.

لینک ثابت مقاله در پایگاه سیویلیکا: