

عنوان مقاله:

Free vibration analysis of rectangular sandwich plates with functionally graded core resting on elastic foundation

محل انتشار:

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خلاصه مقاله:

In this paper, free vibration analysis of rectangular sandwich plates with functionally graded core resting on Winkler–Pasternak elastic foundations is investigated using second order shear deformation theory. In functionally graded layer, the material properties are assumed to vary in an power law in thickness direction with the Poisson ratio to be constant. The equilibrium equations are derived by using energy method and then solved analytically by using Navier's method for a In this paper, free vibration analysis of rectangular sandwich plates with functionally graded core resting on Winkler–Pasternak elastic foundations is investigated using second order shear deformation theory. In functionally graded layer, the material properties are assumed to vary in an power law in thickness direction with the Poisson ratio to be constant. The equilibrium equations are derived by using energy method and then solved analytically by using Navier's method for a rectangular sandwich plate with simply supported boundary conditions. The method is validated by comparing numerical results with the results obtained in the literature. Finally the effects of grading index, width to thickness ratio and Winkler and Pasternak coefficients on the frequency are investigated

کلمات کلیدی:

FGM, foundation, Free Vibration, SSDT

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