عنوان مقاله:

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

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 foundation is investigated using first 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. In order to verify the accuracy of the present theory, some numerical examples are solved and compared with other published solutions by using exact 3D analysis and other higher order shear deformation theories. Finally the effects of grading index, width to thickness ratio and Winkler and Pasternak coefficients on the frequency are investigated.

کلمات کلیدی:

Elastic foundation, FGM, Free Vibration, FSDT

لینک ثابت مقاله در پایگاه سیویلیکا: