عنوان مقاله:

Analysis of free vibration of Timoshenko beam-soil structure

محل انتشار:

دومین کنفرانس بین المللی ژئوتکنیک و مهندسی لرزه ای شهری (سال: 1394)

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خلاصه مقاله:

Many problems related to soil-structure interaction can be modelled by means of a beam or a beam-column on an elastic foundation. Also, natural frequencies are important dynamic characteristics of a structure where they are required for the forced vibration analysis and solution of resonant response. Therefore, the close form solution to free vibration of Timoshenko beam-soil structure is presented in this paper. The applied method is based on the Green Function. The Winkler's model is used for detailed solutions due to its simplicity in analysis as well as evaluation of the soil parameters. In addition, the effect of the tensionless elastic foundation, as well as, the elastic coefficient of Winkler foundation is assessed. Finally, some numerical examples are shown to present the efficiency and simplicity of the Green Function in the new formulation

کلمات کلیدی:

tensionless Winkler foundation and Green Function ، free vibration ، Timoshenko beam ،