

عنوان مقاله:

Determination of mechanical constants of unidirectional glass/epoxy composite plates by using modal test

محل انتشار:

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خلاصه مقاله:

The goal in this paper is to determine the mechanical properties of unidirectional thin and thick glass/epoxy composite plates by using vibrational analysis and also an inverse method. Four thick and thin composite plates with different arrangement of fibers and also dimensions are investigated in the present study. Natural frequencies of these plates are obtained in the modal laboratory with different boundary condition. In this study, that is a kind of theory/experimental method, mechanical properties of plates have been obtained by a code in MATLAB software that is combination of FEM method and PSO optimization algorithm. Error function in this study is considered as sum of squared difference between experimental and numerical frequencies. To enhance validation of the presented paper, results of tensile test have been compared with the present study. The results obtained for mechanical properties of these plates indicate high accuracy of presented method.

کلمات کلیدی:

Mechanical Constants; Composite Plates; Vibration Analysis; Optimization; FEM

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