عنوان مقاله:

Optimization of multi-layer composite plates subjected to buckling load utilizing TLBO method

محل انتشار:

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خلاصه مقاله:

In the present study, maximizing the buckling load of laminated composite plates using Teaching-Learning-Based Optimization (TLBO) algorithm is investigated. The objective function is to maximize the buckling load of laminated composite plate, and fiber orientation angles of layers are considered as design variables. In order to find the optimum orientation angle for layers of laminated composite plates and calculate buckling loads with different boundary conditions a finite element method by interfacing the Abaqus solver with MATLAB is performed. The accuracy of the finite element models using the Abaqus for buckling analysis is verified by comparing the results with former works. The optimization procedure is carried out for laminated composite plates with 2, 3, and 4 layers subjected to buckling load for obtaining optimum orientation angles. Finally, the effect of various boundary conditions on the value of buckling load is studied and the results are compared.

کلمات کلیدی:

Composite plate, Buckling load, TLBO, FEM, Abaqus