عنوان مقاله:

A Simple Finite Element Procedure for Free Vibration and Buckling Analysis of Cracked Beam-Like Structures

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خلاصه مقاله:

In this study, a novel and very simple finite element procedure is presented for free vibration and buckling analysis of slim beam-like structures damaged by edge cracks. A cracked region of a beam is modeled using a very short element with reduced second moment of area (I). For computing reduced I in a cracked region, the elementary theory of bending of beams and local flexibility approach are used. The method is able to model cracked beam-columns by using ordinary beam elements. Therefore, it is possible to solve these problems with much less computational costs compared to 2D and 3D standard FE models. Numerical examples are offered to demonstrate the efficiency and effectiveness of the presented method.

کلمات کلیدی:

Cracked beam, Modal Analysis, Buckling load, F.E.M

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