



## NEW INTERPOLATION METHOD FOR FREE VIBRATION AND STABILITY ANALYSES OF CRACKED BEAMS

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Volume: **XII**

No: **3**

Pages: **81-94**

Date: **July 2015**

### **Abstract:**

The need for modification of the classical finite element formulation for the analysis of cracked beam-like structures led to the introduction of the stiffness reduction function. This function is innovatively used to derive an interpolation method in which the parameters of a cracked beam are defined by interpolation of the two original and destination state conditions. As a result, by defining the equivalent length factor for free vibration, and the effective length factor for buckling analysis, the analysis reduces to a simple formulation similar to the equivalent Euler buckling load. The effectiveness of the work is verified through concise formulation and comparison of the results with those of the others.

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