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International Journal of Recent Technology and Engineering Open Access
Volume 7, Issue 6, March 2019, Pages 196-202

Educational software for stress analysis of non-idealized closed thin-walled sections (Article)

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Abstract

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Aerospace structures such as fuselage and wings are made of typical thin-walled closed sections and the detailed stress analysis of such closed thin-walled structures can be tedious and time consuming due to its statically indeterminate nature of the problem. In the present work, an educational software for the stress analysis of such non-idealized thin-walled closed sections has been developed that complements traditional methods of teaching and learning. The software developed is able to generate any given closed cross section which are subjected to bending, shear, and torsional loads and compute the resulting stresses on the cross section. Results from literature have been used to validate the results from the software. The software has been developed using Graphical User Interface (GUI) in MATLAB which makes the software very user friendly. The software is expected to be an effective teaching and learning tool of courses on thin-walled structures and aircraft/automotive structures. © BEIESP.

SciVal Topic Prominence

Topic: Buckling | Composite materials | Stringers

Prominence percentile: 77.042

Author keywords

Aircraft Structures | Educational Software | MATLAB | Non-Idealized | Stress Analysis | Thin-walled sections

Funding details

Funding sponsor	Funding number	Acronym
International Islamic University Malaysia		

Funding text

The authors would like to acknowledge the Research Management Centre, International Islamic University Malaysia for support of this work.

ISSN: 22773878
Source Type: Journal
Original language: English
Document Type: Article
Publisher: Blue Eyes Intelligence Engineering and Sciences Publication

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