Google Drive



Analytical and Numerical Buckling and Vibration Investigation of Isotropic and Orthotropic Hyper Composite Materials Structures

Muhannad Al-Waily

Download now

Click here if your download doesn"t start automatically

Analytical and Numerical Buckling and Vibration Investigation of Isotropic and Orthotropic Hyper Composite Materials Structures

Muhannad Al-Waily

Analytical and Numerical Buckling and Vibration Investigation of Isotropic and Orthotropic Hyper Composite Materials Structures Muhannad Al-Waily
The analytical solution of the general equation of bucking behaviors and general equation of motion (to evaluated the natural frequency of plate) of isotropic and orthotropic composite plate is investigation. The composite materials studied are isotropic and orthotropic hyper composite materials plate combined from three materials as reinforcement powder, mat or short reinforcement fiber (for isotropic plate) and unidirectional or woven reinforcement fiber (for orthotropic plate) and resin materials. The method using to evaluating the buckling load and natural frequency of orthotropic and isotropic hyper composite plate are theoretical analysis method with derivation the general equation of buckling and general equation of motion of orthotropic hyper composite, and general equation of buckling and general equation of motion of isotropic hyper composite plate. In addition to, drive the equation of properties of hyper composite materials of plate with effect of powder reinforcement and unidirectional, woven, mat or short fiber and resin materials. The results evaluated are the buckling load and the natural frequency of isotropic and orthotropic hyper composite simply supported plate with different aspect ratio of plate ( ), various volume fraction of reinforcement powder and fiber, and different reinforcement and resin materials types. The theoretical results evaluated of buckling and natural frequency of plate comparison with numerical results evaluated with finite element method by using Ansys program ver. 14, where, the compare between the theoretical and numerical results shown a good agreement with maximum error about (2.7%) with buckling results of isotropic materials plate and maximum error about (1.9%) with buckling results of orthotropic materials plate and maximum error about (3.2%) with natural frequency of orthotropic materials plate and maximum error about (1.8%) with natural frequency of isotropic materials plate. The results evaluated are the buckling load and the natural frequency of simply supported orthotropic and isotropic hyper composite plate combined from powder reinforcement and unidirectional, woven, mat or short fiber and resin materials with different volume fraction and materials types of resin and reinforcement, and different dimensions of plate. The results shown that the adding of reinforcement powder causes increasing of modulus of elasticity of hyper composite plate, and then, the increasing the volume fraction of reinforcement powder causes increase the natural frequency of isotropic and orthotropic hyper composite plate structure. And, the results shown that the buckling load of plate increasing with increase of the reinforcement powder and the buckling load non effect with the powder reinforcements types. Also, the results shown that the buckling load increases with increase the mat, short, unidirectional or woven reinforcement fiber more than the increases of the buckling load of composite plate with increase of powder reinforcement. And, the buckling load increasing with increase the modulus of elasticity of resin materials types used. Also, the effect of powder reinforcement on the natural frequency of unidirectional and woven hyper composite material beam was studied. The study of natural frequency was evaluated with three methods, the first is theoretical method with driving of the general equation of beam motion with shear deformation and rotary inertia effects, the second is driving of the general equation of motion for single degree of freedom beam, and the third is the numerical method with finite element method by using Ansys program Ver. 14. The study included the powder reinforcement volume fraction effect for hyper composite material beams of the following types: unidirectional, woven hyper composite beams with different volume fractions of fiber.

Download Analytical and Numerical Buckling and Vibration In ...pdf

Read Online Analytical and Numerical Buckling and Vibration ...pdf

Download and Read Free Online Analytical and Numerical Buckling and Vibration Investigation of Isotropic and Orthotropic Hyper Composite Materials Structures Muhannad Al-Waily

---

From reader reviews:

Mark Frey:

A lot of people always spent all their free time to vacation or maybe go to the outside with them household or their friend. Are you aware? Many a lot of people spent they free time just watching TV, or maybe playing video games all day long. If you need to try to find a new activity that is look different you can read a book. It is really fun for you. If you enjoy the book you read you can spent all day every day to reading a e-book. The book Analytical and Numerical Buckling and Vibration Investigation of Isotropic and Orthotropic Hyper Composite Materials Structures it is rather good to read. There are a lot of people that recommended this book. These people were enjoying reading this book. In the event you did not have enough space to deliver this book you can buy the e-book. You can m0ore quickly to read this book from the smart phone. The price is not to cover but this book features high quality.

Martin Phair:

Does one one of the book lovers? If so, do you ever feeling doubt when you are in the book store? Make an effort to pick one book that you never know the inside because don't assess book by its deal with may doesn't work is difficult job because you are frightened that the inside maybe not as fantastic as in the outside appear likes. Maybe you answer is usually Analytical and Numerical Buckling and Vibration Investigation of Isotropic and Orthotropic Hyper Composite Materials Structures why because the great cover that make you consider concerning the content will not disappoint anyone. The inside or content is actually fantastic as the outside or even cover. Your reading 6th sense will directly guide you to pick up this book.

Eugene Williams:

As a college student exactly feel bored for you to reading. If their teacher questioned them to go to the library or to make summary for some reserve, they are complained. Just little students that has reading's internal or real their hobby. They just do what the professor want, like asked to the library. They go to at this time there but nothing reading very seriously. Any students feel that reading is not important, boring as well as can't see colorful pics on there. Yeah, it is for being complicated. Book is very important for you. As we know that on this era, many ways to get whatever we want. Likewise word says, ways to reach Chinese's country. So , this Analytical and Numerical Buckling and Vibration Investigation of Isotropic and Orthotropic Hyper Composite Materials Structures can make you experience more interested to read.

David Fern:

Reading a guide make you to get more knowledge from that. You can take knowledge and information coming from a book. Book is composed or printed or descriptive from each source which filled update of news. In this modern era like at this point, many ways to get information are available for a person. From media social such as newspaper, magazines, science e-book, encyclopedia, reference book, novel and comic. You can add your understanding by that book. Do you want to spend your spare time to spread out your

book? Or just in search of the Analytical and Numerical Buckling and Vibration Investigation of Isotropic and Orthotropic Hyper Composite Materials Structures when you necessary it?

Download and Read Online Analytical and Numerical Buckling and Vibration Investigation of Isotropic and Orthotropic Hyper Composite Materials Structures Muhannad Al-Waily #CGIVTXOPDR5

Read Analytical and Numerical Buckling and Vibration Investigation of Isotropic and Orthotropic Hyper Composite Materials Structures by Muhannad Al-Waily for online ebook

Analytical and Numerical Buckling and Vibration Investigation of Isotropic and Orthotropic Hyper Composite Materials Structures by Muhannad Al-Waily Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Analytical and Numerical Buckling and Vibration Investigation of Isotropic and Orthotropic Hyper Composite Materials Structures by Muhannad Al-Waily books to read online.

Online Analytical and Numerical Buckling and Vibration Investigation of Isotropic and Orthotropic Hyper Composite Materials Structures by Muhannad Al-Waily ebook PDF download

Analytical and Numerical Buckling and Vibration Investigation of Isotropic and Orthotropic Hyper Composite Materials Structures by Muhannad Al-Waily Doc

Analytical and Numerical Buckling and Vibration Investigation of Isotropic and Orthotropic Hyper Composite Materials Structures by Muhannad Al-Waily Mobipocket

Analytical and Numerical Buckling and Vibration Investigation of Isotropic and Orthotropic Hyper Composite Materials Structures by Muhannad Al-Waily EPub