



GUJARAT TECHNOLOGICAL UNIVERSITY

(Established Under Gujarat Act. No.:20 of 2007)

Date: 03-07-2017

CIRCULAR

Interested faculty members and students may register for the following webinar which is going to be held on Tue, Jul 4, 2017 3:30 PM - 4:30 PM IST.

Virtual Academy: "An Investigation of Buckling Behaviour on a Composite Stiffened Panel"

Tue, Jul 4, 2017 3:30 PM - 4:30 PM IST

Registration URL: <https://attendee.gotowebinar.com/register/3076261294041670915>

Description:

In today's Industrial applications structural efficiency is a primary concern. This brings about the need for strong and lightweight materials. Due to their high specific strength, fiber reinforced polymers find wide application in these areas. Cylindrical shells / Panels made of composite material are widely used in aerospace structures, automobile, civil, marine & biomedical industries because of their good mechanical properties, impact resistance, excellent damage tolerance and also low fabrication cost.

Buckling, is a major cause of failure in structures such as cylindrical structures. Buckling analysis presents the most important one in which huge helpful information (the failure modes, types of failure, and critical failure load respectively) must be taken in the considerations in the design of any structure. For the design of stiffened composite shell structures the knowledge of the structural response in the post buckling region is an important topic. The post buckling analysis for composite stiffened structures is a representative nonlinear analysis that is difficult to get analysis results and requires a lot of computational time. A stable, accurate, and efficient post buckling analysis module for the structures was studied.

In this study, buckling and post-buckling analysis was performed on composite stiffened panel using Abaqus/CAE to obtain the critical load and modes of failures, with different parameters like ply orientation, different composite materials, stiffeners & by changing the number of stiffeners were derived. To analysis the post buckling behavior of composite stiffened panels the commercial nonlinear finite element tools Abaqus/Explicit are employed and substantial investigations are undertaken with respect to FE model. Parametric studies are conducted using the analytical tool in order to understand the structural behavior in the post buckling range and to determine the critical parameters.

Presenter:

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Sd/-
Registrar (I/c)