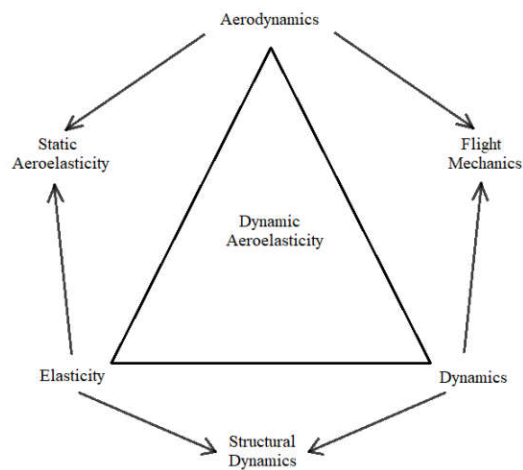


Project Title: Effect of Composite Parameters on the Flutter Behavior of Composite Plates

Abstract

Aeroelasticity studies the effects of aerodynamic, elastic and inertial forces interacting with each other on engineering structures. Flutter is a dynamic aeroelasticity problem which can be briefly defined as the self-growing unstable oscillations of the structure. In other words, flutter is unstable vibration, which occurs in a solid structure interacting with the flow of gas or liquid. It is a common design consideration of wings in aircraft as it can lead to catastrophic failure with the wrong design.



For further information about flutter phenomenon, please see the video provided in the link below:

https://www.youtube.com/watch?v=XDegHSkV_Bg

As composite materials have been frequently used in aircraft components, there have been many studies in the literature related to the flutter analysis of composites. In this project, the influences of different material and geometrical parameters upon the flutter behavior will be investigated. The investigated composite parameters include fiber volume ratio, orientation of fibers, the sequence of the plies and etc. Other parameters such as different boundary conditions, and plate geometry may also be considered.

Required skills: Basic knowledge related to the dynamic behavior of structures (natural frequency, vibration etc.)