

ABSTRACT

The need for lightweight, yet stiff and durable structures has made the sandwich composite configuration a leading edge technology with promise for innovative high performance structural designs. A typical sandwich structure is composed of two thin metallic or composite laminated faces and a thick soft core made of foam or low strength honeycomb. This lightweight sandwich construction is of great interest in the design and manufacture of aircraft, spacecraft and marine vehicles. In addition to the high specific stiffness and strength, sandwich construction offers enhanced corrosion resistance, noise suppression and reduction in life – cycle costs.

In this thesis a cylindrical shell is designed and modelled with the shape of sandwich with pyramidal truss like cores. Structural, Vibration and Buckling analysis is done on the shell to determine the stresses, frequencies and buckling load factors for different composite materials Carbon Fiber, S2 Glass and Kevlar. Modelling is done in Pro/Engineer and analysis is done in Ansys.