

AAE TEACHING SEMINAR

Fundamentals of Structural Vibrations

FRIDAY FEBRUARY 20TH 9:00-9:50AM
ARMS B071 OR ZOOM

PANKAJ JOSHI

Abstract

Understanding structural vibration is paramount for designing efficient, reliable and reusable aerospace vehicles. The aim of this lecture is to discuss fundamentals of structural vibration. As an example, I will consider one and two degree-of-freedom systems and discuss their characteristics and responses. Important concepts of eigenvalues and eigenvectors will be connected to the physics of structural vibrations. Towards the end of the lecture, I will address the broader application of the discussed concepts to the real-world engineering problems.

Biography

Pankaj Joshi is a visiting assistant professor in School of Aeronautics and Astronautics at Purdue University and teaches structures and materials core courses to undergraduate and graduate students. Before moving to Purdue University from Hamburg, Germany, he was working as an acoustic engineer and later as a senior expert for acoustics and vibration at AIRBUS and ZAL in Hamburg, respectively. During his 12 years of hands-on research and technology work at AIRBUS and ZAL, he was responsible for the development of new and enhancing the current numerical as well as measurement methods aimed at expediting the vibroacoustic design and development of future aerospace vehicles such as AIRBUS A30X. He is a graduate of Virginia Tech with a PhD in Aerospace Engineering. His PhD thesis was also on multidisciplinary vibroacoustic design optimization of aircraft structures with curvilinear stiffeners. Before moving to AIRBUS, he worked as a Post-Doctoral Associate at NASA Langley Research Center (LaRC). At LaRC, his work was focused on vibroacoustic measurements to validate vibroacoustic design and analysis methods for unitized structures with curvilinear stiffeners.