Abstract

This project aims to develop a higher-order structural model by advanced Carrera Unified Formulation (CUF) models for the mechanical study of Variable Angle Tow (VAT) composites. In particular, the CUF was used to implement models that could describe the behaviour of curvilinear fibre composites. In the first case, a "layer-wise" approach was used, according to which each layer of the VAT laminate is discretized independently using Lagrangian-like polynomial expansions in thickness. This methodology has therefore been used to characterize simple VAT panels in terms of static response, free natural frequencies and linear buckling problems. In the last part optimization of VAT panels will be obtained.