

ABSTRACT

Axial force is a force applied to the lengthwise centreline of object. There are three types of analysis that can be done for a structure i.e., the mechanics of materials, elasticity theory, finite element analysis. Since the first two are analytical and can be solved by hand, they are limited to very simple loading conditions. Finite elements analysis is a numerical method for solving differential equations generated by theories of mechanics such as elasticity theory and strength of materials. Finite element analysis is applicable for arbitrary size and complexity. Inputs given are structural loads, geometry, support conditions, material properties and results include support reactions, stresses and displacements and are compared to requirements. The availability of advanced analysis tools based on finite elements and matrix structural analysis concepts has enabled engineers to model, analyze and design innovative complex structure. This project deals with analysis of complex member using finite element tool ANSYS. Model is fixed at both ends and loads are applied on sectional areas towards one end. This project aims, to find deflections at each joint, axial force and stresses in each member.

Keywords- Axial force, arbitrary size, complexity, displacements, Complex member, Ansys, Finite Element Analysis.