



## DESIGN AND ANALYSIS OF TURBO JET ENGINE

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### ABSTRACT

*It is quite common that every component so designed will be affecting from various deformations and irregularities which may lead to generation of various stresses. So, it is very much essential to analyze the component for various stresses that are to be developed. Here, the analysis of various stresses in a turbojet engine is being done. The main objective is to find out the Displacement, Equivalent and Fatigue stresses of the jet engine blades when subjected to structural and thermal Loads. Structural analysis of a jet engine can be analyzed using finite element analysis techniques. From these techniques the FEA is done in order to find out the stresses in the existing blades for the calculated loads and boundary conditions using Finite Element Analysis Software ANSYS Workbench. This entire work is done in various steps like firstly modelling the turbine in SOLIDWORKS software and importing the geometry into the ANSYS software for the analysis process. The conclusions thus extracted from these analyses are the numerical values of stress concentrations, displacement, thermal stress, various modes of failure for different natural frequencies, and its life in cycles and safety factor. And it is found out that maximum stress is 2207.7MPa.*

**Key words:** Turbo jet engine, Shock absorber, Static Analysis, Thermal Analysis, Fatigue Analysis