**58. Design Optimization of Helicopter Landing Gear**

## ABSTRACT

The main landing gear is one of the most critical components of a helicopter. It is a primary source of shock attenuation at landing. It controls the rate of compression extension and prevents damage to the vehicle by controlling load application rates and peak values. Thus utmost care must be taken while designing a landing gear.

The landing gear is a structure that supports a helicopter on ground and allows it to take-off, and land. In fact, landing gear design tends to have several interferences with the helicopter structural design. Now a day the weight of landing gear has become an important factor. Efforts are being made to reduce the weight of the helicopter and consequently increase the payload.

The landing gear should be able to bear the helicopter total weight and its loads at ground level, and it is investigated with the use of finite-element software (ANSYS) for static analysis.

In this project a structural static analysis shall be done to verify the deflections and stress values due to static conditions and a harmonic analysis shall be done to simulate the component behavior due to sinusoidal loads applied during transportation and verify for deflections and stresses. The results of the finite element analysis would give a clear idea of the presence of excess material and helps to optimize the weight by removing the excess material. Solid works 2016 software shall be used for 3D modeling of the helicopter landing gear and ANSYS software shall be used for the finite element analysis of the helicopter landing gear.