**DESIGN AND ANALYSIS OF CRANKSHAFT FOR SINGLE**

**CYLINDER 4-STROKE DEISEL ENGINE**

**ABSTRACT**

Crankshaft is one of the critical components for the effective and precise working of the internal combustion engine. In this paper a dynamic simulation is conducted on a crankshaft from a single cylinder 4- stroke diesel engine. A three-dimension model of diesel engine crankshaft is created using SOLID WORKS software. Finite element analysis (FEA) is performed to obtain the variation of stress magnitude at critical locations of crankshaft. Simulation inputs are taken from the engine specification chart. The dynamic analysis is done using FEA Software ANSYS which resulted in the load spectrum applied to crank pin bearing. This load is applied to the FEA model in ANSYS, and boundary conditions are applied according to the engine mounting conditions. The analysis is done for finding critical location in crankshaft. Stress variation over the engine cycle and the effect of torsion and bending load in the analysis are investigated. Von-mises stress is calculated using theoretically and FEA software ANSYS. The relationship between the frequency and the vibration modal is explained by the modal and harmonic analysis of crankshaft using FEA software ANSYS.

KEYWORDS – Diesel engine; Crank shaft in Ansys; finite element analysis; stress analysis;