**Failure Analysis of Internal Combustion Engine Valves by using ANSYS**

**Abstract**

 Intake and exhaust valves are very important engine components that are used to control the flow of intake and exhaust Gases in internal combustion engines. They are used to seal the working space inside the cylinder against the manifolds; and are opened and closed by means of what is known as the valve train mechanism. These valves are loaded by spring forces and subjected to thermal loading due to high temperature and pressure inside the cylinder. The present study is forced on different failure modes of internal combustion engine valves. Failures due to fatigue, high temperature effects, and Failures due to impact load that depends on load and time. For the study of fatigue life, a combined S-N (max. stress v/s number of cycles) curve is prepared. Such a curve helps in comparing the fatigue failure for different materials at different high temperatures and may also assist the researchers in developing the valve materials with a prolonged life. For achieving above sad goals couple –field, fatigue and transient analysis will be done on valves to determine structural and thermal behavior in working condition. Keywords: Internal Combustion, valve train mechanism, fatigue, couple – field.