

# Thermal Analysis of Three Cylinder Engine Head and Performance Optimisation

Prof. Chetan P. Sable, Mr. Rushikesh Puyad, Mr. Atharv Kanholkar, Mr. Abhay Chikhale  
Mr. Shivam Khadare, Mr. Advait Patil, Mr. Atharv jadhav  
Dr. Rajendra Gode Institute of Technology & Research, Amravati (Polytechnic)

**Abstract:** *The internal combustion engine is a rich source of examples of almost every conceivable type of heat transfer. There are a wide range of temperatures and heat fluxes in the various components of the internal combustion engine. Internal combustion engines come in many sizes, from small model airplane engines with a 0.25 " (6 mm) bore and stroke to large stationary engines with a 12" (300 mm). About 25 % of the air/fuel mixture energy is converted to work, and the remaining 75% must be transferred from the engine to the environment. The heat transfer paths are many, and include many different modes of heat transfer. In this module, we will discuss the heat transfer processes in the engine components, then consider the engine parameters and variables which affect the heat transfer processes. Maximum amount of heat is transferred through the cylinder head. In this project we have taken efforts to analyze the heat transfer through the cylinder head of three cylinder S.I. engine. CAE is extensively used for simulation. Heat transfer is analyzed for different rates of coolant flow and a optimized coolant flow rate is suggested.*

**Keywords:** Cylinder Head, Thermal Analysis, Heat Transfer