

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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A Project Report

on

**“EFFECT OF INJECTION PRESSURE AND EXHAUST GAS
RECIRCULATION (EGR) ON THE PERFORMANCE OF
DIESEL ENGINE USING DIETHYL ETHER”**

Submitted in partial fulfillment of the requirements

for the award of degree of

Bachelor of Engineering

in

Mechanical Engineering

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ABSTRACT

The automobile industry has faced numerous challenges. One of the most compelling tasks has been the reduction of emissions and increase in the efficiency of engines. Since, the market share of diesel engine is increasing predominantly in many countries; the problem with diesel engines is to be identified. Diesel engine is widely used globally and can be found in almost every conceivable application. Diesel engines are energy efficient, but their NO_x, particulate emissions and the high exhaust gas temperature present major obstacles to engine development.

The main aim of this project work is to reduce the exhaust gas temperature and to compare the performance characteristics of diesel engine by injecting “**Di-Ethyl Ether (C₄H₁₀O)**” at different injection pressure using optimum Exhaust Gas Recirculation. The performance study indicates that the injection of Di-Ethyl Ether (C₄H₁₀O) using optimum Exhaust Gas Recirculation in a compression ignition engine requires no major modifications in the existing engine, except for the fuel.

There is no magnitude of de-rating of engine performance. The brake thermal efficiency of the engine has considerably increased after injecting the blend Di-Ethyl Ether and pure diesel at different ratios into the engine for various openings of the exhaust gas recirculation valve. Also, the exhaust gas temperature has decreased by recirculating the exhaust gas.