

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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Project Report

On

**“STUDY THE EFFECT OF PISTON CROWN GEOMETRY OF
BIODIESEL FUELED I.C. ENGINE WITH INDUCED TURBULENCE
TO CONTROL THE AUTOMOBILE EXHAUST EMISSION”**

(Approved by KSCST, IISc, Bangalore)

Submitted in partial fulfillment of requirements for the award of degree of

BACHELOR OF ENGINEERING IN MECHANICAL ENGINEERING

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ABSTRACT

Besides the search for fuel for the future, due to high pollution and fast depletion of fuel resource, the need of the day is to look for the new alternative fuels. Although a number of other alternatives such as solar, electric motor, hydrogen, etc. are available, they are not economically viable. Thus the thrust is on biodiesel.

The depletion of world petroleum reserves results in two crises that are rising of fuel prices and global warming problems. The energy security can be maintained by improving the efficiency of energy producing components. Efforts are being made to find the alternatives. At this juncture bio-diesel has got sufficient attraction as vehicular fuel. But the properties of bio-diesels are not the same as diesel fuels, including high viscosity and low volatility. A detailed combustion and emission research is planned as the bio-diesel have got very poor atomization characteristics due to decreased cone angle during fuel injection.

This proposal relates to the modification of engine design, for including turbulence to improve the combustibility of combustible mixture. Combustion process with the induced turbulence generation during the combustion will be studied. Induced turbulence can be achieved through squish, swirl & tumble. The performance characteristics like SFC and BTE & combustion properties like heat release rate of biodiesel blend can be estimated. Also the emission characteristics of Jatropha biodiesel was observed and compared with diesel fuel.