

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,
BELGAUM- 590014**



**A Project Report
On**

**EFFECT OF COMBUSTION CHAMBER SHAPES AND EGR ON THE
PERFORMANCE OF BIODIESEL FUEL ENGINES.**

(PROJECT IS SPONSORED BY KARNATAKA STATE COUNCIL FOR SCIENCE AND TECHNOLOGY , INDIAN INSTITUTE OF
SCIENCE, BANGALORE 560012 PROJECT PROPOSAL REFERENCE NUMBER: 37S_B_BE_004)

**Bachelor of Engineering in
Automobile Engineering**

SUBMITTED BY

SHIVANNA	2BV10AU047
MALLIKARJUNREDDY B V	2BV10AU020
VENKAPPA GIRADDI	2BV11AU416
CHIDANAND MANTUR	2BV11AU404

**UNDER THE GUIDANCE OF
Prof. N.M. Gireesh**



**B.V.B. COLLEGE OF ENGINEERING & TECHNOLOGY,
HUBLI – 580 031 (India).
(An Autonomous Institution affiliated to VTU, Belgaum)
Academic Year 2013-2014**

ABSTRACT

Diesel engines are highly efficient machines and used for transportation, power generation and agricultural applications. The main drawback of such engines is their high Nox and smoke emissions. Biodiesel is a renewable fuel with properties closer to diesel and can be used as an alternate fuel in diesel engines. Use of biodiesel will reduce emissions drastically the present project aims at utilizing such biodiesels in the existing diesel engines with suitable modifications in the form of combustion chamber shapes and EGR. The existing hemispherical shapes will be modified to obtain different types of TOROIDAL combustion chamber shapes. In order to suitably reduce Nox emissions, a heat exchanger to act as a EGR(exhaust gas recirculation) will be designed and fabricated. The effect of combustion chamber shapes and EGR on the performance of biodiesel fuelled engines will be investigated.

KEYWORDS: Diesel engines, biodiesel, Nox, smoke, EGR, combustion chamber shapes.