A PROJECT REPORT ON

# THE EFFECT OF ISO-PROPYL-DIESEL-BIODIESEL BLENDS ON THE ASSESSMENT OF COMBUSTION AND VIBRATIONS OF COMPRESSION IGNITION ENGINE

**A Project report submitted for the partial fulfilment of the requirements for award of Degree of**

**BACHELOR OF TECHNOLOGY**

**IN**

**MECHANICAL ENGINEERING**

**Submitted by**


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## DEPARTMENT OF MECHANICAL ENGINEERING

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### CERTIFICATE

This is to certify that the project entitled "THE EFFECT OF ISO-PROPYL-DIESEL BIODIESEL BLENDS ON THE ASSESSMENT OF COMBUSTION AND VIBRATIONS OF COMPRESSION IGNITION ENGINE" is the record of the work carried out by M.SAI VENKATA RAM CHARAN (19815A0346), K.SATISH (19815A03A9), U. L V S VARAHA PRASAD(19815A0379),P VARAHALA BABU (19815A0366), K. SANTOSH (19815A0345) students of final year B. Tech in the department of Mechanical engineering. This work is done for the partial fulfilment for the award of BACHELOR OF TECHNOLOGY during the year 2021-2022.

Project Guide

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# ABSTRACT

The world is currently facing two crises: the depletion of fossil fuels and environmental degradation. In the current setting, the search for an alternative fuel that offers a harmonic relationship with sustainable development, energy conservation, efficiency, and environmental preservation has become very prominent. Although the physical and chemical properties of vegetable oil are close enough to those of mineral diesel to be used as a substitute for diesel, long-term use of vegetable oils or their blends causes a variety of engine operational and durability issues that must be addressed (biodiesel). For the formulation of vegetable oil as a fuel, transesterification has been found to be an effective method. The purpose of this research is to see how a biodiesel mix including methanol impacts diesel engine combustion and vibration. Methanol additives in greater concentrations were added to biodiesel blends in amounts ranging from 5% to 15%. Density, calorific value, viscosity, flashpoint, fire point, cloud point, and pour point of test fuel samples were all evaluated using ASTM standards. With a compression ratio of 17.5, four different loads were applied in the experiment. A diesel engine's combustion and vibrations were scrutinized in depth.