

ANALYSIS OF SPARK IGNITION ENGINE USING ACETYLENE AS AN ALTERNATE FUEL

A Project report submitted in partial fulfillment of the requirements

For the Award of the degree of

BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING

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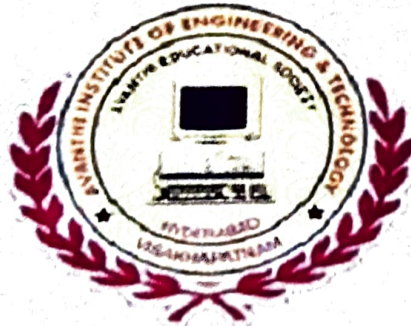
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DEPARTMENT OF MECHANICAL ENGINEERING

AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY

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Tamaram,Makavarapalem,Narsipatnam, Visakhapatnam-531113.

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BONAFIDE CERTIFICATE

This is to certify that the project work entitled "**ANALYSIS OF SPARK IGNITION ENGINE USING ACETYLENE AS AN ALTERNATE FUEL**" submitted by **N. SASI VADAN [15811A0389]** , **M. PAVAN SAI [15811A0385]** , **M.V.P. RAJU [15811A0386]** , **M. SANDEEP [15811A0377]** , to Avanthi Institute of Engineering and Technology, in partial fulfillment for the award of degree, Bachelor of Technology in Mechanical Engineering , is a bonafide record work carried out by them , under guidance and supervision during 2018-2019.

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ABSTRACT

Petroleum products are going to extinct in nearby future , so there is need to search for alternate fuels. The search for an alternative fuel is one of the needs for the sustainable development, energy conservation, efficiency, management and environmental preservation. Many research activities were developed in order to study the internal combustion engines with alternative fuels. Acetylene is one of the tested fuels. Studies reveal that acetylene gas produced from lime stone (CaC_2) is renewable in nature and exhibits similar properties to those of hydrogen. It is well known that acetylene is a high flammable and explosive compound. The compounds that produce acetylene gas are abundantly available in nature. So this acetylene gas to suggest it as alternate fuel because it has potential to replace the fossil fuels. The paper investigates working of SI engine on acetylene with minor changes required to be done thus, reducing the running cost and minimum pollutant emission.

This makes it fit for use on economic and environment standard. Acetylene aspiration reduces smoke, soot formation, and exhaust temperature. So it is more effective and eco-friendly alternative fuel option. Running a SI Engine on acetylene, it is possible to achieve acceptable engine performance and very low pollutant emissions. A 4-stroke single cylinder overhead cam with 100cc displacement engine is chosen for the prototype. The acetylene gas is produced on board and stored in a storage tank.

So, now in this project we Fabricate a prototype with single cylinder spark ignition engine and sending acetylene gas as a fuel into it and perform evaluation of engine performance using parameters like engine speed , brake power, brake specific fuel consumption, brake thermal efficiency and so on.