POLITEKNIK
MALAYSIA
MUKAH

MINI STEAM POWER PLANT

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POLITEKNIK MUKAH

SESSION: JUNE 2017

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This report is submitted to the Department of Mechanical Engineering in partial full filament of the requirements for graduation Diploma in Mechanical Engineering

PROJECT REPORT VERIFICATION

This report entitled "**MINI STEAM POWER PLANT**" has been submitted and reviewed as to meet the conditions and requirements of project writing.

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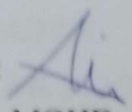
"We declare that this report is our own work except each piece that we have explain the source"

1. Signature : 
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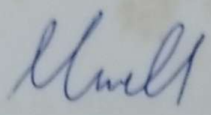
2. Signature : 
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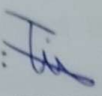
3. Signature : 
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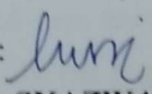
4. Signature : 
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We, are the third year Diploma in Mechanical Engineering students, located at KM 7.5 Jalan Oya, 96400 Mukah. (Will be referred to as Polytechnic).

1. We admit that the project above the intellectual property contained inside is the work/design by us without taking or copying any intellectual property from any party.

2. We have agreed to hand over the ownership of the intellectual property of said project to Polytechnic to ful fill the requirement in order to be awarded Diploma in Mechanical Engineering.

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Our Project Supervisor, Date: 24/11/2016

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Therefore, we were and are grateful to many people for the help either direct or indirect in writing this technical report.

Thank you.

ABSTRACT

This Mini Steam Power Plant project is specially designed for Mukah Polytechnic students who take thermodynamic subjects only in Mechanical Engineering only. This project is carried out during experiential activities in learning time as this project can help to improve understanding of the Rankine cycle process. In addition, this project has 4 main component available from the Rankine cycle process. Among the 4 main component are boiler, radiator, pump and turbine. In the boiler section, there are some important things that need to be there such as safety gauge and pressure gauge to prevent any accidents it is not expected during the experiment. The type of boiler used is a water tube boiler because this type is easy to obtain from such things as pressure cooker and water heater. This boiler uses gases to heat the water in it to produce the compact is then discharged to the electric generating part of the turbine. From the turbine spinning due to high pressure punch to each turbine blades then the resulting electric current proves that the bulb can be lit during this process occurs. At the same time, the process of gas switching to water is called as condenser is in progress and from this process the water will be channeled to the radiator to cool the high temperature water. then the water will be discharged to the water storage tank and then sent back to boiler by aquarium pump.This experimental project has dimension 1m x 1m x 1m.In conclusion, this Mini Steam Power Plant project has safety features because the boiler is made of anti-rust stainless steel. Previously, students still do not understand the cycle Rankine because they studied the theory and did not experiment with the lack of materials to experiment.

ABSTRAK

Projek Loji Kuasa Mini Steam ini direka khas untuk pelajar Politeknik Mukah yang mengambil mata pelajaran termodinamika hanya dalam Kejuruteraan Mekanikal sahaja. Projek ini dijalankan semasa aktiviti pembelajaran dalam masa pembelajaran kerana projek ini dapat membantu untuk meningkatkan pemahaman proses kitaran Rankine. Di samping itu, projek ini mempunyai 4 komponen utama yang boleh didapati daripada proses kitaran Rankine. Antara 4 komponen utama ialah dandang, radiator, pam dan turbin. Di dalam bahagian dandang, terdapat beberapa perkara penting yang perlu ada di sana seperti tolok keselamatan dan tolok tekanan untuk mengelakkan sebarang kemalangan yang tidak dijangka semasa eksperimen. Jenis dandang yang digunakan ialah dandang tiub air kerana jenis ini mudah diperolehi dari hal-hal seperti periuk tekanan dan pemanas air. Dandang ini menggunakan gas untuk memanaskan air di dalamnya untuk menghasilkan padat kemudian dilepaskan ke bahagian penjanaan elektrik turbin. Dari turbin berputar kerana punch tekanan tinggi untuk setiap bilah turbin maka arus elektrik yang dihasilkan membuktikan bahawa mentol boleh dinyalakan semasa proses ini berlaku. Pada masa yang sama, proses pemancaran gas ke air dipanggil sebagai kondensor sedang berjalan dan dari proses ini air akan disalurkan ke radiator untuk menyejukkan air suhu tinggi. maka air akan dilepaskan ke tangki simpanan air dan kemudian dikembalikan ke dandang oleh pam akuarium. Projek eksperimen ini mempunyai dimensi 1m x 1m x 1m. Dalam kesimpulannya, projek Loji Kuasa Mini Steam ini mempunyai ciri-ciri keselamatan kerana dandang dibuat keluli tahan karat anti karat. Sebelum ini, pelajar masih tidak memahami peringkat Rankine kerana mereka mempelajari teori dan tidak bereksperimen dengan kekurangan bahan untuk bereksperimen.

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