



FINAL PROJECT REPORT

DIPLOMA KEJURUTERAAN MEKANIKAL

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EDUCATIONAL TENSILE TESTER

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Thank you once again to all. We hope that this report will be fairly accessed.

ABSTRACT

Alhamdulillah, thanks to Allah for giving us strength to complete this final project, titled **EDUCATIONAL TENSILE TESTER** as scheduled. Without patience and commitment from the group members, this project would not be ready on time. Sacrifices on time, energy and money that are given all this while will be returned back by finishing this project.

Hopefully, everything that we present in this report are capable to give some useful knowledge to all parties especially the students of mechanical engineering. We also hope from this starting point, it will give some guidance and maybe some improvement until the true objectives are achieved. Lastly, may what we hope for will come true and will be blessed from Allah so it will give us benefit.

INTRODUCTION

Many materials in mechanical engineering, when in service, are subjected to forces or loads. For examples include the aluminum alloy from which an airplane wing is constructed and the steel in an automobile chassis. In such situations it is necessary to know the characteristics of the materials and to design the member from which it is made such that any resulting deformation will not be excessive and fracture will not occur.

The mechanical behavior of a material reflects the relationship between its response and deformation to an applied load or force. The important mechanical properties in mechanical engineering are strength, hardness, ductility and stiffness.

The mechanical properties of materials can be obtained by testing the materials in carefully designed laboratory experiments. The materials are subjected to tensile, compressive, shear or bending tests. All these experiment are so important in mechanical engineering for knowing if the material are justified to the specification, ensure the parameters of a certain design and to make sure the side effect of the materials when the materials are use in design.

The behavior of an axially loaded member is very important to engineering designers. Testing an axial loaded member will provide some information on the modulus of elasticity, yield, stress, ultimate stress, etc. In this project we designed a new Educational Tensile Tester. Our test machine is suitable to use by engineering students as the first experiment in strength of materials subject. The cost to develop the test machine is very much cheaper than those available in the market. This machine can also be marketed to Polytechnic and universities.