

UNIVERSITI TEKNOLOGI MALAYA

SHAH ALAM



FINAL YEAR PROJECT REPORT
DIPLOMA IN MECHANICAL ENGINEERING
(AUTOMOTIVE)

EXPERIMENTAL DESIGN OF BEAM
UNDER FLEXURAL LOADING

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(In the name of Allah S.W.T, The Merciful, The Beneficent, Allah the Almighty.)

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Chapter 1: Introduction

1.0) Design Principle

Beam is a device that is used in many constructions in the world. For our final project, we design how to measure a stress and deflection of beam. In our test to find the stress, we use Wheatstone Bridge Circuit. This circuit will be discussed in chapter 4. We must know how to design this “ experimental Design of Beam under Flexural loading.” with rigidly and can measure the beam without any failure. So, we should know the procedure before we can start our project. It is important to know the procedure for design to ensure that our project is success.

1.1) Mechanical Engineering Design

Mechanical design means the design of things and systems of a mechanical nature machines, products, structures, devices, and instruments. For the most part, mechanical design utilizes mathematics, the materials sciences, and engineering mechanics sciences.

Mechanical engineering design includes all mechanical designs, but it is a broad study because it includes all the disciplines of mechanical engineering, such as the thermal-fluids sciences, too. Aside from the fundamental sciences that are required, the first studies in Mechanical