

**HIGHER TECHNICAL INSTITUTE**

**ELECTRICAL ENGINEERING DEPARTMENT**

**DIPLOMA PROJECT**

**DEVELOPMENT OF A FORCE MEASURING SYSTEM**

by

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**DEVELOPMENT OF A FORCE MEASURING SYSTEM**

***PROJECT REPORT SUBMITTED BY  
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**DEDICATED TO  
MY PARENTS**

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# ABSTRACT

TITLE: Development of a Calibrated Force Measuring Instrument.

The purpose of this project is to develop, construct, test and calibrate an electronic facility suitable for measuring the force exerted on a load cell.

The report begins with the explanation of a DOT/BAR display driver and investigation of the load cell.

Based on the block diagram of the FORCE MEASURING SYSTEM appropriate circuit were investigated, constructed and tested according to the project requirements.

This requirements are:

1. To design and construct an Analogue to Digital converter based on the 7107 I.C.
2. To design and construct a circuit in order to detect and store the peak value of a continuously changing signal.
3. Construction of a power supply.
4. Construction of a digital display.

# INTRODUCTION

This project deals with the development of a force Measuring Instrument. It is used for measuring the force exerted on a load cell. Therefore the accuracy should be high enough. The output of the load cell is sensed by a sample and hold circuit. Finally the total force can displayed on a seven segment display.

The project is divided into seven chapters in the first three chapters a brief description is given for power supply circuits, DOT/BAR display drivers and for load cells.

In chapter four, design and construction is given for an A/D converter, as well as for display drivers.

In chapter five lots of circuits have been investigated in order to select the one that could hold the peak value of a continually changing signal.

Chapter six deals with construction, results and conclusions. In the last chapter appendices are given.