HIGHER TECHNICAL INSTITUTE MECHANICAL ENGINEERING COURSE

DIPLOMA PROJECT

PERFORMANCE MEASUREMENTS AND PRODUCTIVITY IMPROVEMENTS IN AN INDUSTRY

M/903

BY: STAYROS STAYROU

HINE 2000

HIGHER TECHNICAL INSTITUTE

8

MECHANICAL ENGINEERING DEPERTMENT

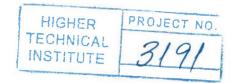
DIPLOMA PROJECT

PERFORMANCE MEASUREMENTS AND PRODUCTIVITY IMPROVEMENTS IN AN INDUSTRY

M/903

STAVROS STAVROU

JUNE 2000



PERFORMANCE MEASUREMENTS AND PRODUCTIVITY IMPROVEMENTS IN INDUSTRY

8

by

Stavros Stavrou

Project Report Submitted to

the Department of Mechanical Engineering

of the Higher Technical Institute

Nicosia Cyprus

in partial fulfilment of the requirements

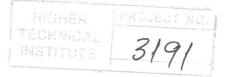
for the diploma project of

TECHNICIAN ENGINEER

in

MECHANICAL ENGINEERING

June 2000



OBJECTIVES

1. The Student has to find a place in Manufacturing Industry or a Department to measure existing Productivity.

8

2. He has to suggest ways of improving and therefore increasing the Productivity.

TERMS AND CONDITIONS

1. The student has to use a real manufacturing case in Cyprus industry.

TABLE OF CONTENTS

TABLE OF CONTENTS	
Title page	
Objectives	
Terms and Conditions	
Table of Contents	
Acknowledgements	
Summary	
Chapter One Introduction	
Purposes of the Project	
1.1 Productivity challenge	
1.2 Productivity measurements	
1.3 Productivity variables	
1.4 Productivity and the Service Sector	
Chapter Two Operation Layout	
2.1 Objectives of layout	
2.2 Types of layout	
2.3 Repetitive and Product-oriented layout	
2.4 Operation layout	
Chapter Three Production Analysis	
3.1.1 Types of production	
3.1.2 Job Shops	
3.1.3 Batch production	
3.1.4 Mass production	
3.2.1 Time Studies	
3.2.2 Time measurements	

3.3 Assembly Line Balancing 3.4 Production Analysis

÷

Chapter Four Production Economics	10
4.1 Production Economics	48
4.2 Cost in manufacturing	48
4.3 Break-even analysis	51
4.4 Unit cost of production	54
Chapter Five Solutions	50
5.1 Types of Solutions	58
5.2 Changes in operation layout	58
5.3 Line Balancing	59
5.4 Personnel Policies	63
5.5 Automation	67
Chapter 6 Conclusions	69
	57

8

Conclusions

Bibliography

Acknowledgements

I would to thank my supervisor Dr. Andreas Stasis, for his help during this semester and for his guidance to finished this project.

8

Also, I would METALCO HEATERS and especially Mr George Demetriou, for their cooperation.

Stavros Stavrou 3rd year Mechanical

SYMMARY

PERFORMANCE MEASUREMENTS AND PRODUCTIVITY IMPROVEMENTS IN INDUSTRY By Stavros Stavrou

The objectives of these project was to determine the productivity of an existing industry in Cyprus and suggest ways for its improvement.

After an introduction in chapter two is shown the existing layout of the companies and the procedure which must followed for the production of each product.

The analysis of the measurements is shown in chapters three and four. In chapter three are analysed the time measurements and in chapter four are shortly analysed the costs measurements. In both cases the conclusion are determined through the charts and in time measurements are given and the line balancing diagrams,

Finally in the chapter five are given some solution such as changing of layout, some personnel policies, and the use of automation and why is used.

In chapter six I give my conclusions from these experience which was very interesting and some personal thoughts for what is happening here in Cyprus today.