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MECHANICAL ENGINEERING COURSE**

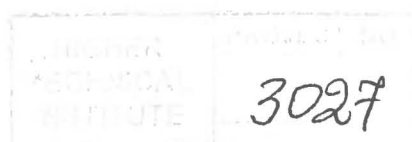
**DIPLOMA PROJECT**

**PART PROGRAMMING ON A C.N.C VERTICAL  
MILLING MACHINE**

**M/861**

**LOUCA DAMIANOS**

**JUNE 1999**



**PART PROGRAMMING ON A  
C.N.C VERTICAL MILLING MACHINE**

By

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Project Report  
Submitted to  
The Department of Mechanical Engineering  
of the Higher Technical Institute  
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For the diploma of  
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in

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3027

***Dedicated to people who support me to  
my attempt for this project***

## ACKNOWLEDGEMENTS

I would like to express my appreciation to my Supervisor Dr. V. Messaritis for his guidance and assistance given throughout the project period.

I would also like to thank both my parents, for all their support throughout my studies and especially my sister for her help to type this project.

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H.T.I



HIGHER TECHNICAL INSTITUTE  
NICOSIA-CYPRUS  
MECHANICAL ENGINEERING DEPARTMENT  
Diploma project 1998/99

Project number: m/861

Title: "Part Programming on a CNC Vertical Milling Machine and  
Design of a Milling Fixture"

Objectives:

1. Study the programming characteristics of the Bridgeport  
IMKII (with TNC155 Heidenhein control) CNC vertical milling  
machine.
2. Write a part program for the manufacture of a component (to be  
decided with the student).
3. Make use of Linear Interpolation, circular interpolation and  
canned cycles.
4. Design a milling fixture to ensure location, support and clamping  
of the component to be manufactured.
5. Test of the above programmed on the Heidenhein Control  
simulation facility.
6. Produce detailed drawing of the manufactured component and  
fixture.

Terms and Conditions

1. All recommendation should be according to ISO.
2. Selection of components for the milling fixture should be  
according to standard components.
3. Professional guidance will be provided.

Student : Damianos Louca ( 3ME2 )  
Supervisor : Dr Vassilios Messaritis  
External Assessor :

## **ABSTRACT**

The main objectives of this project are to study the programming characteristics of the Bridgeport IMK2 (with TNC 155 Heidenhein control) CNC vertical milling machine and write part program for the manufacture of a component.

In order to manufacture the component the design of an appropriate milling fixture to ensure location, support and clamping is essential.

All part programming has to be performed using linear interpolation, circular interpolation, canned cycles and subroutines.

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