

HIGHER TECHNICAL INSTITUTE

MECHANICAL ENGINEERING COURSE

DIPLOMA PROJECT

**PART PROGRAMMING OF A
CNC VERTICAL MILLING MACHINE
AND DESIGN OF A MILLING FIXTURE**

M/1022

ANDREAS MOUTTOTOS

JUNE 2006

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By
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ABSTRACT

The main objectives of this project are to study the programming and machining characteristics of the cnc milling machines and exactness the Bridgeport 1MKII with the TNC Heidenhein control. Also few words are mentioned about the programming, safety, cutting tools, languages of the CNC and finally more specific words about the milling machines.

The main part of this project is the part programming for the manufacture of the component with the help of the fixture.

**HIGHER TECHNICAL INSTITUTE
NICOSIA – CYPRUS
MECHANICAL ENGINEERING DEPARTMENT**

DIPLOMA PROJECT 2005/2006

Project Number: M/1022

Title: “Part programming on a CNC vertical milling machine and design of a milling fixture”

Objectives:

1. Study the programming and machining characteristics of the Bridgeport IMKII (with TNC 155 Heidenhein control) CNC vertical milling machine.
2. Produce detail drawings of the components to be manufactured.
3. Design a milling fixture to ensure location, support and clamping of the component to be manufactured. Detailed drawings of the proposed fixture must be prepared.
4. List the procedure to be followed for machining each of the two components.
5. Write a part program for the manufacture of each component.
6. Make use of Linear Interpolation, circular interpolation and canned cycles.
7. Test of the above programme on the Heidenhein Control simulation facility.
8. Construction of designed milling fixture and manufacturing of components selected on the CNC milling machine.

Terms and Conditions:

1. All recommendations should be according to ISO.
2. Selection of components for the milling fixture should be according to standard components.

III

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Supervisor : Dr Vassilios Messaritis

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