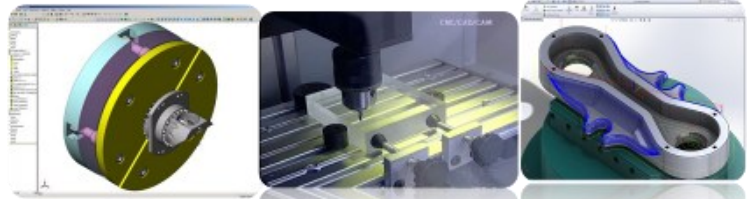


LHP 108 CAD/CAM/CNC/SIM Laboratory Overview



As today's technology requires, the LHP 108 complete Laboratory is made to offer an opportunity to students to understand the full chain of the machine process via automatic control applications. LHP 108 lab course works allow the students the theoretical and practical understanding of the modern CNC machine process, familiarizes the students to the integration of **CAD/CAM and CNC** systems and trains them in the Lathe and Milling process using the Educational Unicorn ML102 **mill and lathe machine** capabilities.

DIDACTIC PROCESS

LHP 108 covers the complete training cycle from **Computer Aided Design** and **Computer Aided Manufacturing** programming to CNC system architecture, CNC machine control, tooling and workpiece production. The Didactic material for this laboratory provides a complete training path of comprehending CAD to CAM to CNC code design process, using practical predefined examples of machining parts which introduce the students to the complete chain of manufacturing.

The documentation supports the training of the students in using the design CAD application and create 3D workpiece models and the steps of the CAM application to transform their CAD output to a CAM file and then to CNC/G&M code, until the end of the manufacturing process, using the educational CNC machines for production. It also teaches the students the Numeric Control programming, allows them to simulate their programs and see the results prior to processing them to the real CNC machine and then follow through the real processing of material. Students are trained and

experiment on a real process of machining components, in a step by step procedure, using consumable work-pieces from different material (wax, teflon, acrylic, wood, copper and other soft metals).

The lab offers advanced CAD capabilities, visualization of a complete process of material, simulation of up to 4 axis process and actual processing capabilities.

UNICORN ML102

Unicorn is a series of educational CNC machines and a component of the LHP 108 laboratory of POLYTECH.

The aim of the Lab is to train students in CAD/CAM/CNC design and Automated production line. Using Unicorn ML102, students can train on Lathe or Mill process in the same equipment as a common platform for both activities or work on the offered configurations for single CNC Lathe or Mill machines using the same didactic platform. The CNC machine is the last phase of the training process in a 3 level course. Each machine is built on an industrial steel frame and enclosure, includes all the safety features as emergency stop, cover protection glass with magnetic switches which pause the operation if cover is not secured, electrical fuses, safety and operational annotations, CNC control hardware and application, CNC simulation software using Industrial machines, machine accessories and operational tools. Dimensions can be customized to users specifications.

It comes with a complete, step-by-step didactic process and operational documentation which links the CAD/CAM/CNC process in projects in order for students to train from start to end in Milling and Lathe process.



Unicorn ML100x series
Milling & Lathe Machines

Unicorn ML102CNC
CNC Control Application

Unicorn CAD/CAM
CAD / CAM/SIM Application

Trainees in Unicorn ML series acquire knowledge and experience in the following topics:

- ◆ CNC automation principles
- ◆ Machine processing Programming
- ◆ Monitoring
- ◆ G&M – codes
- ◆ Control motion in axis
- ◆ G&M Programming
- ◆ Turning Process
- ◆ Milling Program
- ◆ Slot process
- ◆ Profile process
- ◆ Pocket process
- ◆ Drill process
- ◆ Arched process
- ◆ Grooving process
- ◆ Processing in 3 axis
- ◆ Milling asymmetric process in

