MANUFACTURING - CNC LAB

CNC Programming (Computer Numerical Control Programming) is utilized by manufacturers to create program instructions for computers to control a machine tool. CNC is highly involved in the manufacturing process and improves automation as well as flexibility.

CNC is a subtractive manufacturing process which typically employs computerized controls and machine tools to remove layers of material from a stock piece known as the blank or work piece and produces a custom-designed part.

Description

The Computer Numerical Control (CNC) Laboratory consists of LMW VJ 55 Vertical Machining Centre (VMC), SMARTURN and Siemens Simulation controllers for programming. The CNC laboratory aims to enhance the student's knowledge in development of practical knowledge on CNC machines and the lab caters the skills necessary for the development of a mechanical engineer pursuing further studies and a career in manufacturing area.

Objective of course

The main objective of Manufacturing CNC lab is to teach students to understand the basic concepts of computer numerical control (CNC) machine tool, machining methods and CNC programming. The Lab has Production model Smart turn CNC lathe and JV55 vertical machining center CNC milling machines with CAM simulation software's like, SINUTRAIN with Siemens controllers (828D,808D) for programming simulation, Unigraphics NX10 (CAM). After completing this course, students will be able to:

- Present an overview of CNC and describe its applications in different fields
- Outline the basic principles associated with CNC and demonstrate common Machining techniques.
- Introduce the advanced capabilities of CNC to increase productivity.
- Use effectively CAD/CAM systems in order to produce the final NC code for the manufacturing of various mechanical parts and carry out exchange of data between CAD and CAM systems.

Features of the Laboratory

CNC Machine Lab Consists of CNC Turning Centre and 3 Axes CNC Vertical Milling Machine with closed loop servo motor control fitted with Industrial Control Panel with further option of linking to CAD/CAM Manufacturing System.

Significance of the Laboratory

CNC Turning Numerical control programming and Milling Control Programming on Siemens simulation controllers. After successfully completing the Course of CNC Controllers, Participants will be able to perform the activities on CNC Turning Machine and also Milling Machine.

List of Machinery Available

1. Model Smart turn CNC lathe
2. JV55 vertical machining Center
3. Siemens simulation controllers