

Objectives

In the project for this first chapter, you will be asked to answer some questions. These simple questions have been compiled from *Chapter 1*, with the objective to let the student review the basic issues relating to *Computerized Numerical Control (CNC)*.

Applications

Modern machine shops of any size have greatly benefitted from CNC machines and technology. Although the main types of machines used in industry are CNC machining centers and CNC turning centers (lathes), there are many other machines with CNC systems. In tool and die shops, EDM is a very common machines, in companies that specialize in fabricating, CNC equipment particular to that industry can be found - shears, punches, benders, breaks, etc. Also in fabricating, a number of other CNC machines, such as waterjet cutters, lasers, flame cutters, etc., are common. In woodworking, CNC routers have become popular machine tools.

It is not an overstatement to say that CNC has revolutionized the manufacturing industry in general, and machine shops of any size in particular. Modern developments are adapted into both machine tools and the controls systems. This is a technology on the move, with a very bright future.

Overview

CNC Programming is a vital part of the *Computerized Numerical Control* field. The 'computer' in this case is a special purpose computer used to control variety of machining operations and is an integral part of the control system. CNC process itself is nothing more than all aspects of CNC applications put together. We deal with several, basically independent, environments, such as the machine tool, the control system, the tooling, the work holding, the part, and the drawing. How they interact and work together forms the CNC process.

Typical CNC process has two main parts - programming and machining. To develop a high quality CNC part means a lot more than just write a few lines of program code. It is a process involving several stages, from study of the drawing, to the actual machining - and many smaller steps between. The CNC programmer may not do all the work alone, but his or her involvement is equally important at all levels. Machining uses the completed CNC program - once or many times.

The purpose of the projects and exercises for this chapter - and the other chapters as well - is to provide some measure of accomplishment. Note the references below show *two* recommended chapters to study, although the quiz relates to the first chapter only. Why is the reference to the last chapter - *Chapter 54* - included at the beginning? Many programmers have embraced CAD/CAM to make part programs, and quite likely. However, even when using CAD/CAM solutions, the knowledge and thorough understanding of the manual methods is essential.

References



CNC Programming Handbook - Chapter 01 Numerical Control
Chapter 54 CNC and CAD/CAM