

5- Automated storage/retrieval-

6- Automated machine tool-

7- Automated inspection sys-

8- CAD/CAM-

CAD-

-CADD-

-CAE-..to support basic error checking, analysis,
optamisation, manufacturability.

CAM-

-CNC

-DNC

-Robots

-FMS

-AMHsys

-AS/AR

CAD+CAM=CIM

-MIS

-CAP/CAPP

The Role of Computers in manufacturing:-

It is classified into two groups:-

- 1) Computer monitoring & control of the manufacturing process.
- 2) Manufacturing support applications, which deals with the preparations for actual manufacturing & post manufacturing process.

Numerical Control :- defined as a form of programmed automation in which the process is controlled by numbers, letters and symbols.

- In NC, a program of instructions is designed for a particular job. When the job changes, the program of instructions is changed.
- This capability to change the program for new jobs gives flexibility to NC.
- NC technology has been applied to a wide variety of operations (e.g. inspection, sheet metal press working, welding). But principal applications are in metal machining processes.

Basic Components of an NC System

- (1) Program of instructions
- (2) Controller unit, (Machine Control Unit, MCU)
- (3) M/C tool or other controlled process

The program of instructions serves as input to the controller unit, which in turn commands the machine tool or other process to be controlled.

Program of instructions :-

The program of instructions is - the detailed step-by-step set of directions, which tells m/c tool what to do. It is coded in numerical/symbolic form on some type of input medium (Punched cards, magnetic tape) that can be interpreted by the controller unit.

There are two other methods of input to the NC system

- The first is by manual entry of instructional data to the controller unit. This method is called manual data input, abbreviated MDI.

This is appropriate only for relatively simple jobs where the order will not be repeated.