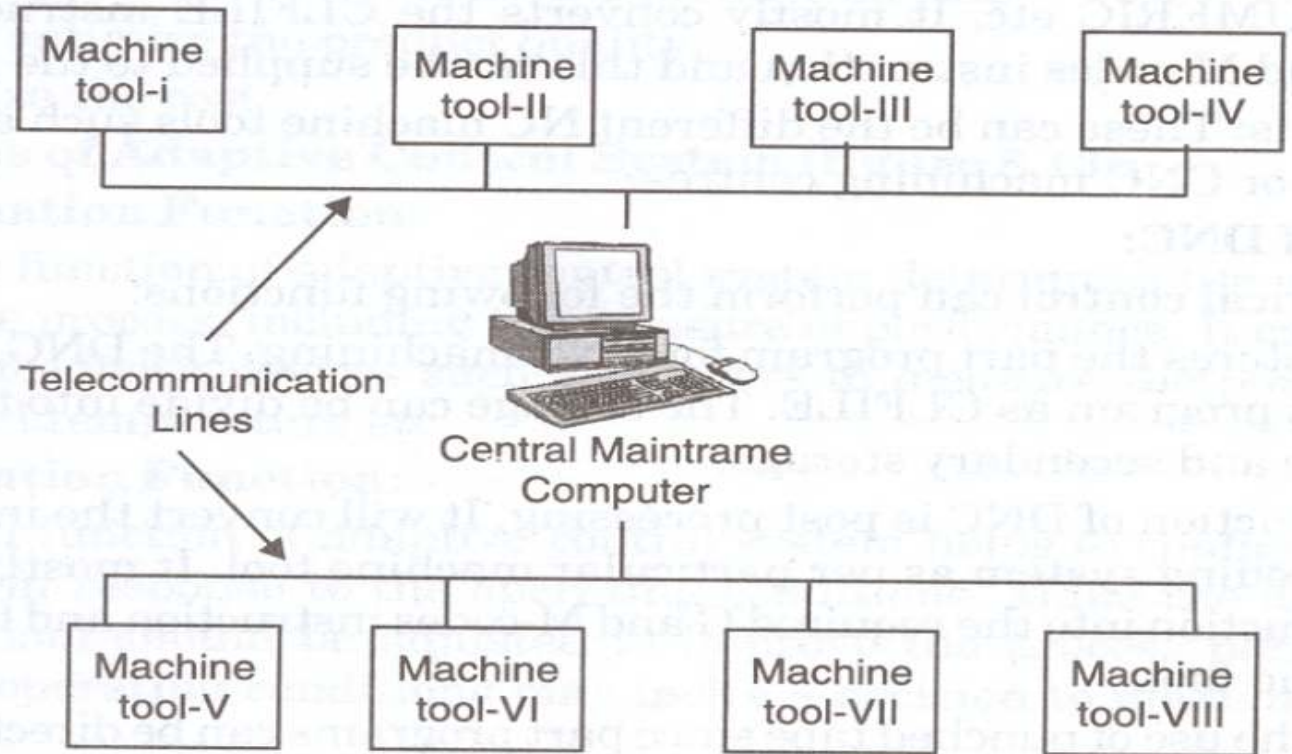# LECTURE # 9

TOPIC OF DISCUSSION

DIRECT NUMERIC CONTROL (DNC) OF MACHINE TOOL

DIRECT NUMERIC CONTROL-DNC

- It is a system where several machines are directly controlled by a central mainframe computer
- In this system the operator has access to the central mainframe computer through a remote terminal

- The tape reader is eliminated and part program is directly transmitted from the computer memory

COMPONENTS OF DNC

- DNC system consists of following components

  ❖ Centrl or Mainframe computer

  ❖ Bulk Memory

  ❖ Telecommunication Lines

  ❖ Post Processor

  ❖ Machine Tools

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COMPONENTS OF DNC

- ***Central Computer***

  The main function of a central computer is to call or send the part program to the individual machines through transmission lines

- ***Bulk Memory***

  It can store all the part programs

- ***Telecommunication Lines***

  The comunication between the central computer and all machine tools takes place through these telecommunications lines

- ***Post processor***

  It will convert the instruction into a particular coding system as per particular machine tool. It converts the instruction into required G & M codes

- ***Machine Tools***

  These can be the different NC machine tools such as NC milling, NC lathe etc. or CNC machining centre

FUNCTIONS OF DNC

- DNC systems store the part program for CNC machining

- It acts as post processor

- It eliminates the use of punched tape since part program can be directly transferred from DNC to CNC

- The other function of DNC is data collection and report writing. Data in the form of tool usage, machine utilization and machining cycle time is collected to access the performance in shop

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ADVANTAGES OF DNC

- It provides the greater flexibility to improve or alter the method
- It eliminates the use of punched tapes and tape readers
- It has more computational capability because of the use of software rather than hard-wired devices
- It collects process and reports the production performance data from NC machines
- It provides central control of machine tools
- It increases the productivity and save time
- It provides the convenient storage of NC part program in computer files