

Working in Mechanical Workshop

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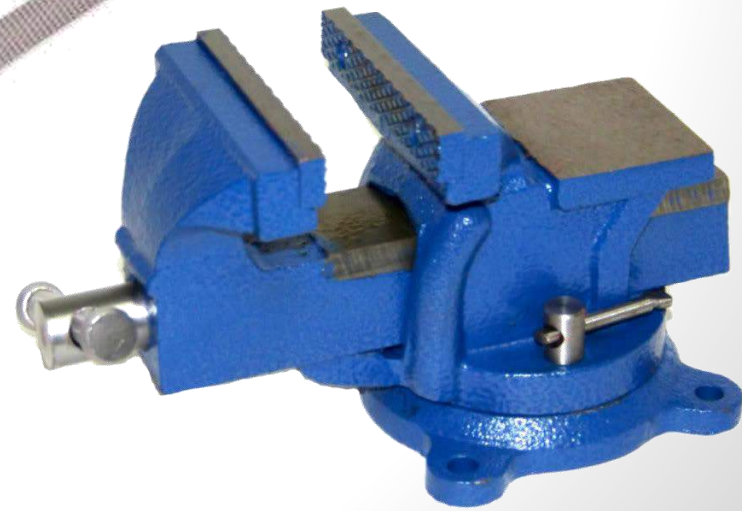


Overview

- Mechanical Workshop
 - Hand Tools
 - Machine Tools
- CAD
- Workshop Safety



**Mechanical workshop is
imperative for Physics.**



Common Hand Tools

Powered Hand Tools

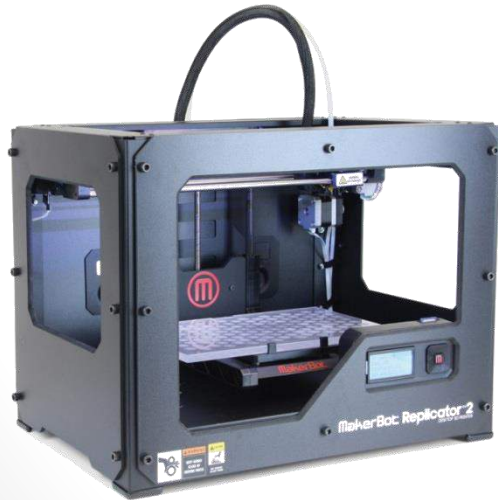




Common Machine



Advanced Machine Tools



Heavy Duty Machine Tools



- Lathe Machine is the mother of all Machine Tools.
- It is used to shape cylindrical objects.
- It can work on both metallic and non-metallic materials.



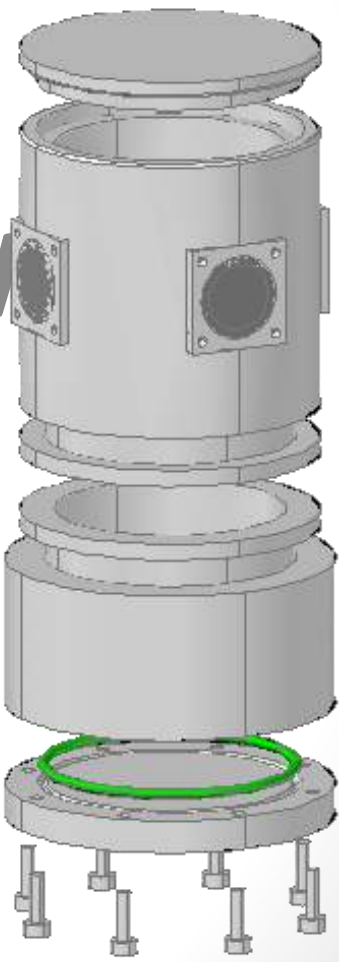
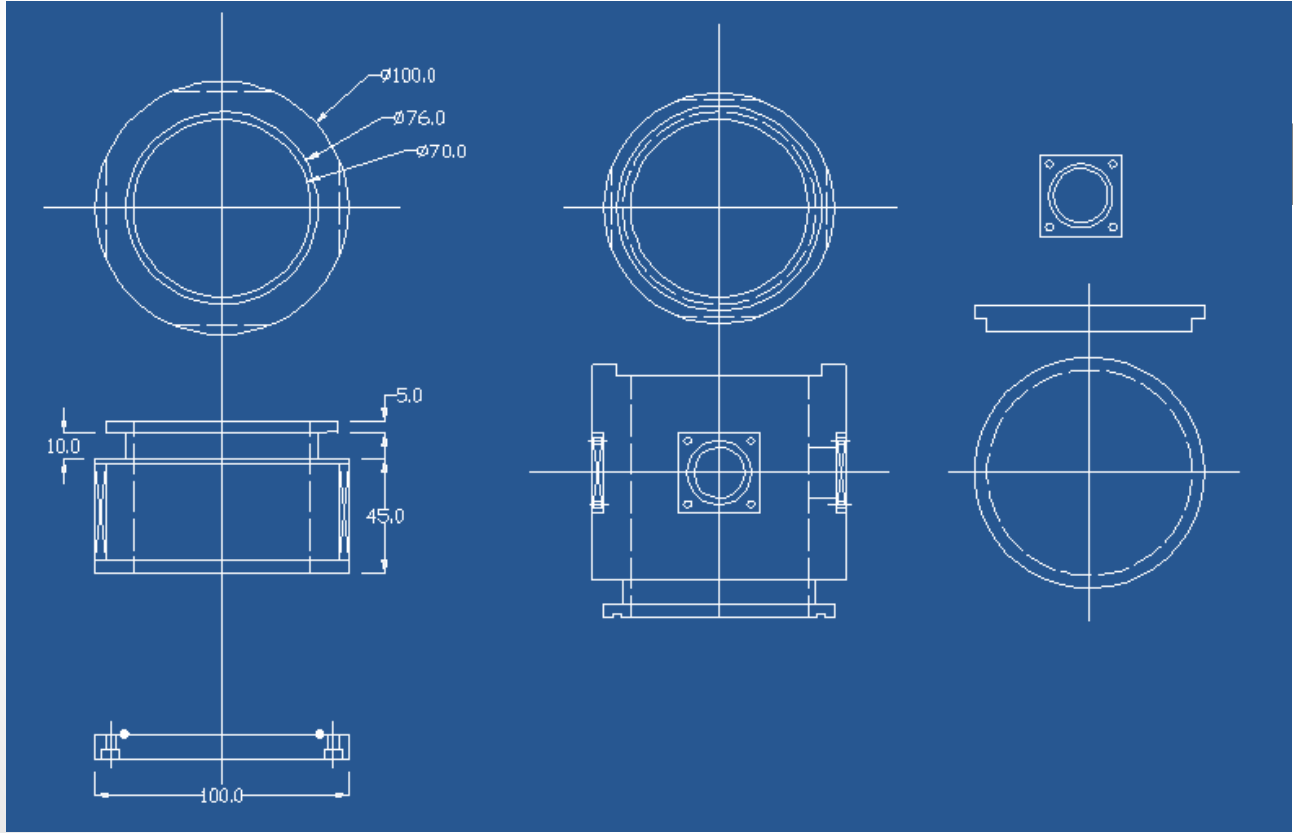
- “Computer Numerical Control” Lathe machine is an advanced version of the classical lathe machine.
- It takes input as special computer language, called G and M codes.
- It is much precise, efficient and faster than the classical lathe machine.
- Its primary usage is in mass production process.



CNC Programing

Example of a CNC program
written in G and M Codes

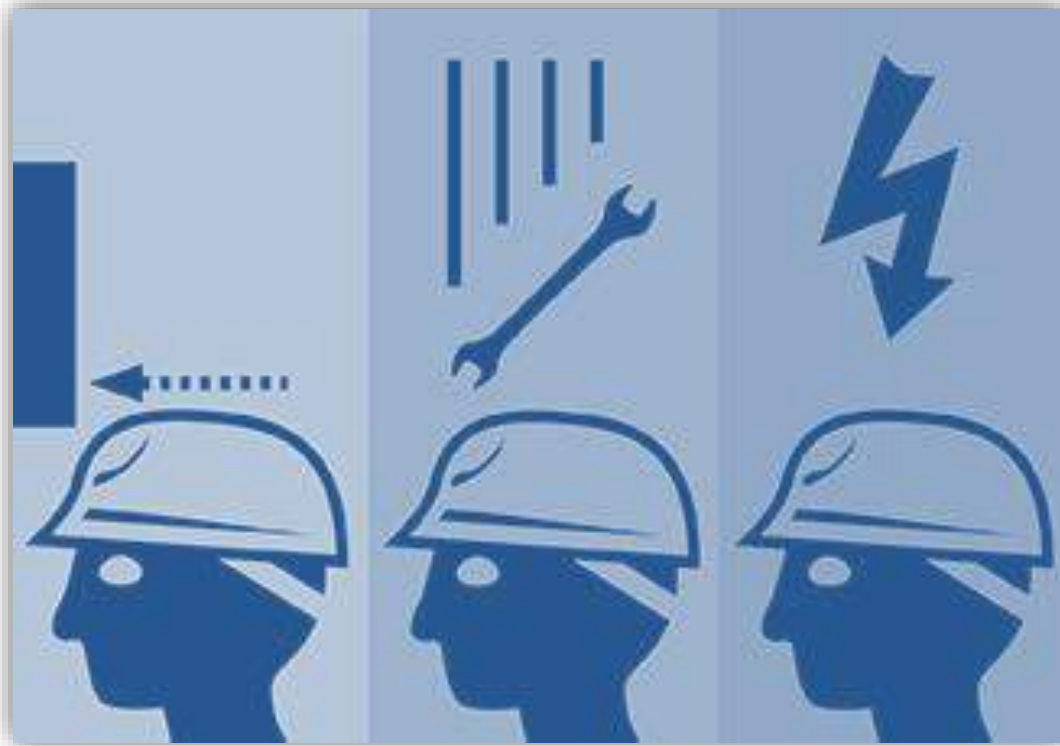
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O0077
N0005 G28 U0.0 W0.0;
N0010 T0202;
N0020 G97 S1500 M03;
N0030 G00 X50.0 Z1.0 ;
N0040 G71 U1.0 R2.0;
N0050 G71 P0060 Q00 U0.5 W0.2 F0.2;
N0060 G01 X13.0;
N0070 X15.0 Z-1.0;
N0080 Z-30.0
N0090 X23.0
N0100 X25.0 Z-50.0;
N0110 X50.0;
N0120 G70 P0060 Q0110 S2500 F0.1;
N0130 G28 U0.0 W0.0,
N0140 M30
```



What are PPE?



Head Protection



Safety helmets protect the head against falling and flying objects, edges in tight places etc.

Eyes Protection



Hearing Protection



Arm and Hand Protection



Foot and Leg Protection



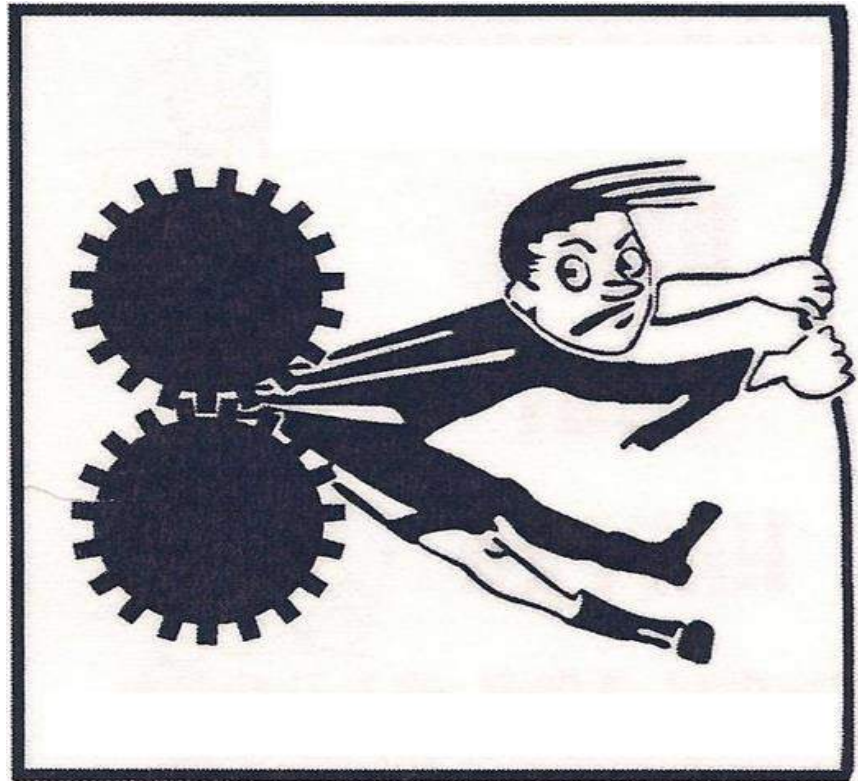
Protective Clothing



Loose Clothing Hazard

Caution! These things are extremely dangerous for personal safety in the workshop.

- **Loose Dressing**
- **Neckties**
- **Wrist watch**
- **Jewelry**
- **Loose Hair**



The End