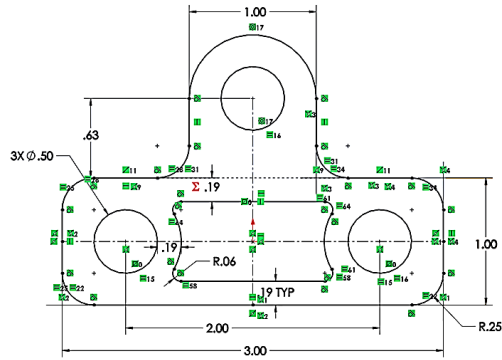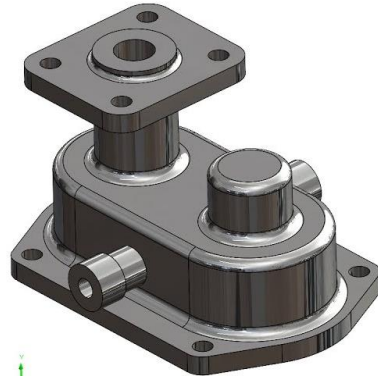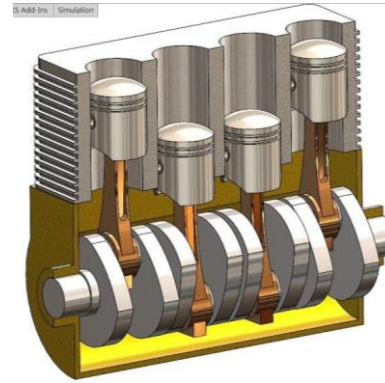**MECHANICAL STREAM**

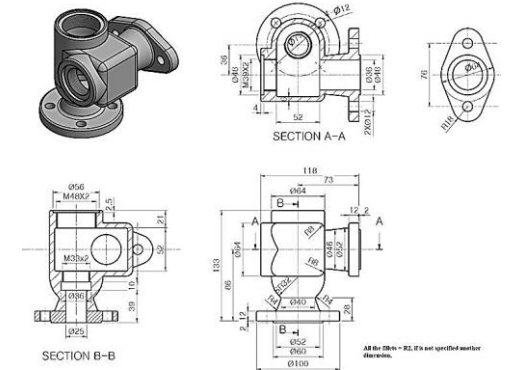# Basic Terminology in Mechanical CAD
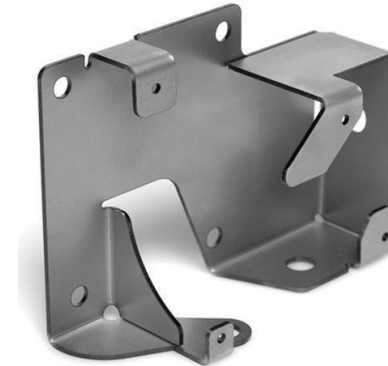

Sketching

Part Design

Assembly

Drawing/Drafting
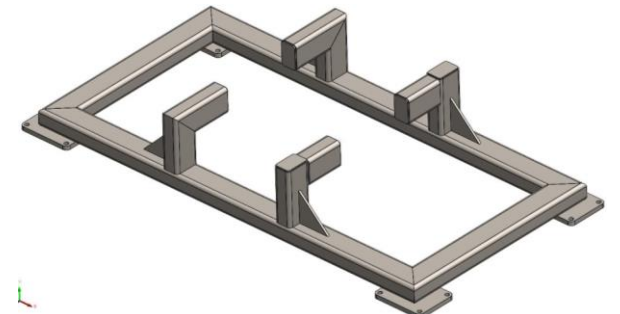

Motion Simulation

Surface Design

Sheet Metal Design

Weldment Design

Popular Software Technologies for
Mechanical Engineers

Popular Software in the field of Mechanical Engineering

Major CAD Software

AUTOCAD
- Use for 2D drawings and 3D modelling
- Most popular tool for 2D drafting

SOLIDWORKS
- Most popular in Product Industries.
- Used majorly by medium & small industries.
- User friendly and easy working

CATIA
- Exceptional surfacing capabilities.
- Used by most of the Automobile companies for body design.
- Used in Aero space Engineering

SIEMENS NX
- Except aero space used everywhere extensively
- Power full modules of Sheet metal, CAM & Mold design

creo
- Strong user based world wide in component designs.
- Good features of large Assembly, piping & sheet metals
- Enhanced Mold design

Fusion 360
- Can do modeling, manufacturing & Analysis in a single software.
- Works on Cloud Platform
- Good for simple operations only

Major CAM Software

SWAN SOFT CNC SIMULATOR

- ✓ CNC Programming is the coding done manually to define toolpath using the G-codes and M-codes for CNC machines.
- ✓ SSCNC is a CNC simulator in which we can simulate our CNC program.

SolidCAM

- ✓ Best CAM Solution for efficient & profitable CNC-Programming,
- ✓ Integrated with SOLIDWORKS & Autodesk Inventor, with full toolpath associativity.

AUTODESK ARTCAM

- ✓ CAD CAM application for Artistic work
- ✓ Easy interface
- ✓ Aimed for artisan rather than engineers
- ✓ Majorly used by sign making, jewelers, wood working, sculpture industries.

SIEMENS NX CAM

- ✓ Product of Siemens purchased from Unigraphics
- ✓ Direct integrity with NX CAD
- ✓ Encapsulate all machining options up to 5 axis.
- ✓ Contains online postprocessing library
- ✓ Much Lesser programming time.

Other popular CAM Software   **Mastercam**   **edgecam**   **AUTODESK POWERMILL**
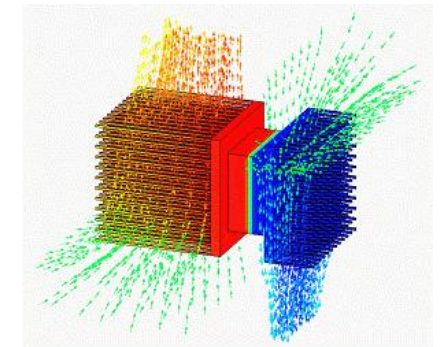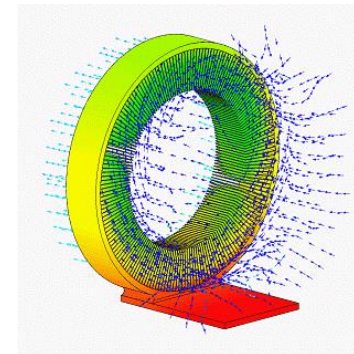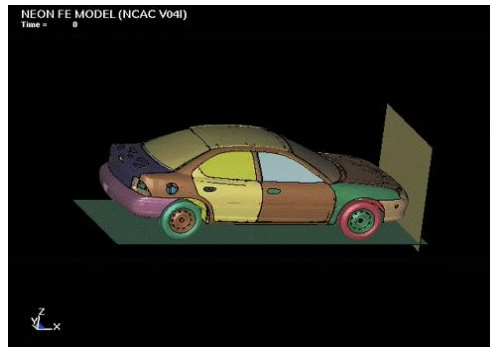
Major CAE Software

Ansys WORKBENCH

- ✓ Easy working and work on GUI method facility of import CAD model directly
- ✓ World's most used and popular software
- ✓ Known for accurate results and quick update
- ✓ Contains all modules of
  - ✓ Structure
 - ✓ Thermal
  - ✓ Modal
  - ✓ Optimization etc.

ANSYS FLUENT

- ✓ Used for Fluid analysis
- ✓ Contains modules of
  - ✓ Fluent
  - ✓ CFD

MATLAB

- ✓ Product of MathWorks, highly appreciated for R&D
- ✓ Provide 42 modules solvers for every branch of engineering
- ✓ Based on programming, provide equation solver

AUTODESK
REVIT MEP

AC & ventilation piping

- ✓ used for planning & installing HVAC, electrical & Plumbing in buildings.
- ✓ Works on BIM (Building information Modelling)
- ✓ It is used to Plan
  - ✓ **M**echanical - HVAC- Heating, Ventilation ducts, Air conditioners, fire fighting etc.
  - ✓ **E**lectrical – Lightening, Power, Circuits, Voltage, TV, Communication etc.
  - ✓ **P**lumbing – Water Supply & Sewerage
- ✓ Direct Associativity with REVIT Architecture & Structure.
- ✓ Works can be coordinate simultaneously with all working agencies like Architect, Structure designing, contractor, estimation, electrical, air-conditioning, plumbing & Sanitary engineers
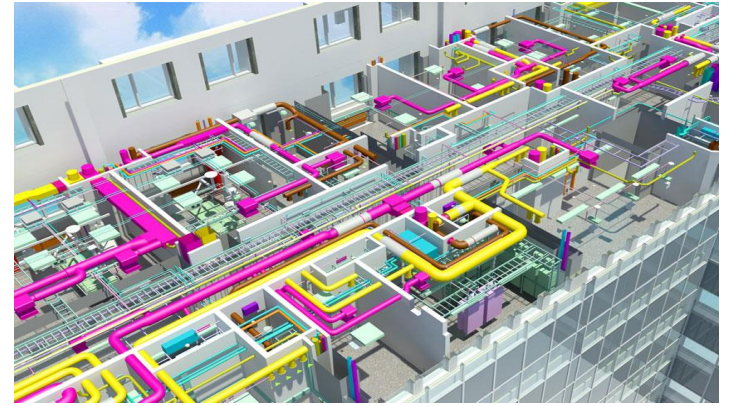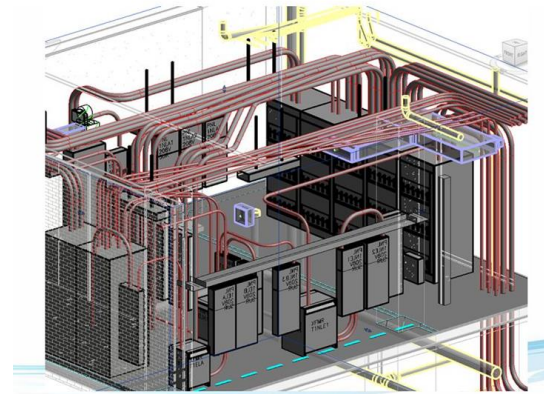
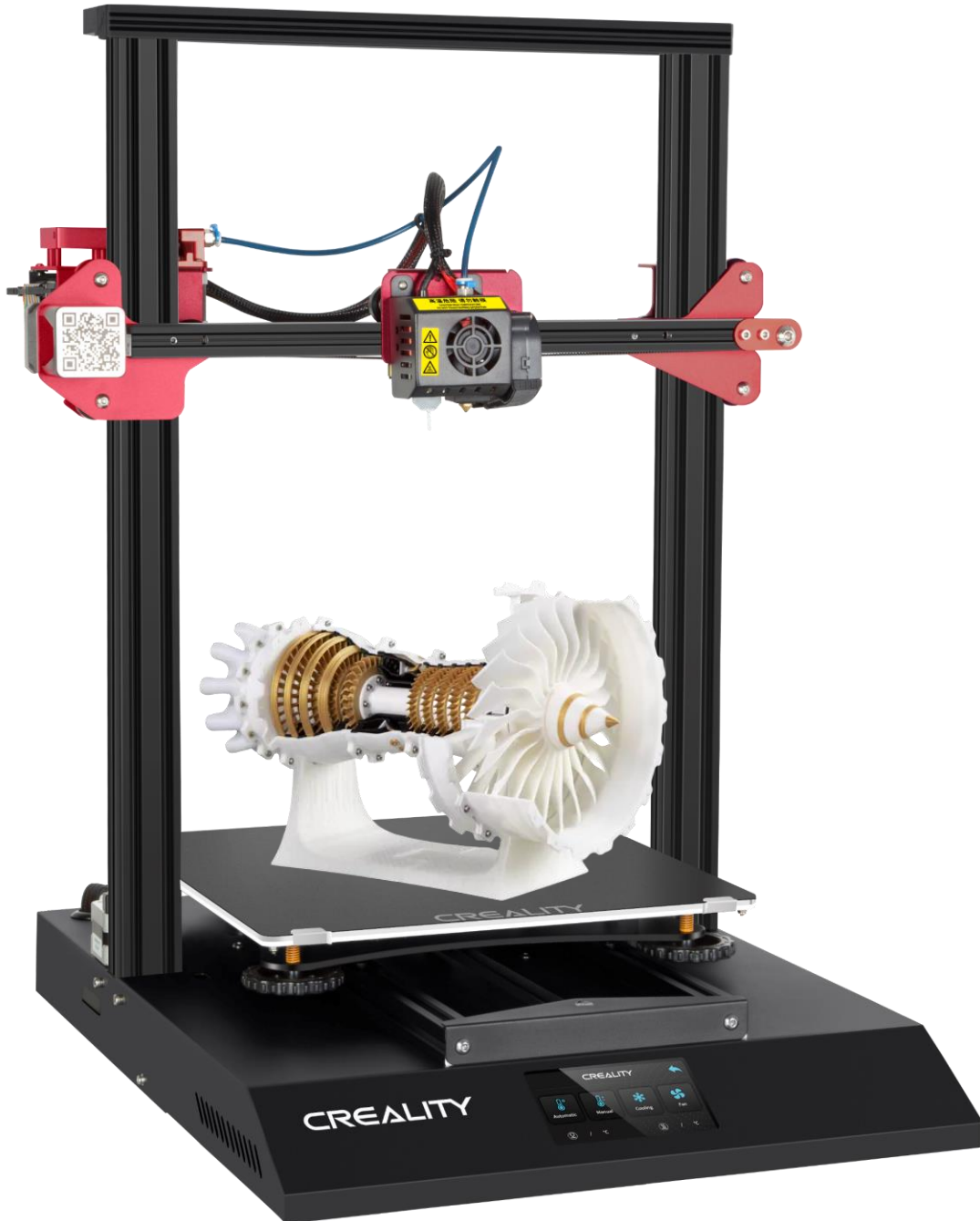Electrical Layout
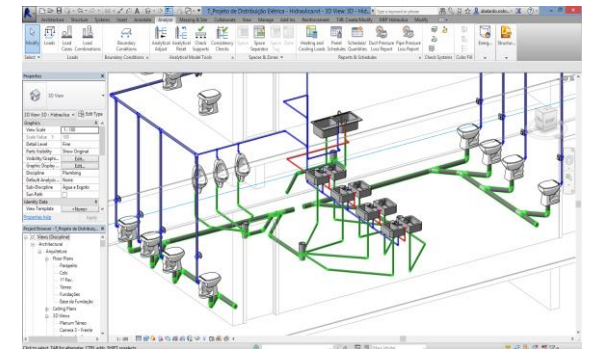
Plumbing & Sanitary

3D PRINTING

3D printing, also known as additive manufacturing, is a process of creating three-dimensional objects by layering materials on top of each other.

This technology involves the use of a 3D printer, which reads digital blueprints created using computer-aided design (CAD) software and then deposits successive layers of material to create the final product.

The 3D printer reads the design file and builds the object layer by layer using a variety of materials such as plastics, metals, ceramics, and even living cells.

3D printing has many applications in various industries, including manufacturing, aerospace, automotive, medical, and fashion.

Thank you