

**WELCOME
TO
(20A03101P)
ENGINEERING GRAPHICS LAB**

ANANTH@an

Computer Aided Drafting:

Introduction to AutoCAD:

Basic drawing and editing commands:

line, circle, rectangle, erase, view, undo, redo, snap, object editing, moving, copying, rotating, scaling, mirroring, layers, templates, polylines, trimming, extending, stretching, fillets, arrays, dimensions.

Orthographic Projections:

**Systems of projections, conventions
and application to orthographic
projections - simple objects**

Isometric Projections:

Principles of isometric projection-

Isometric scale; Isometric views:

lines, planes, simple solids

INTRODUCTION TO COMPUTER AIDED DRAFTING SOFTWARE PACKAGES

Computer Aided Designing and Drafting (CADD)

- CADD is an electronic tool that enables us to make quick and accurate drawings.
- CADD has number of advantages over drawings created on a drawing board.
- Electronic drawings can be modified quite easily and can be represented in a variety of formats.
- CADD extends its power to yet another branch of engineering called computer aided manufacturing (CAM).
- CADD and manufacturing program are often integrated into one system called CAD-CAM. This system import CADD drawings into CAM program to automate the manufacturing process.

INTRODUCTION TO COMPUTER AIDED DRAFTING SOFTWARE PACKAGES

Computer Aided Designing and Drafting (CADD)

- When the design is finalized, the drawings are brought into a CAD-CAM system that uses numerical data from the CADD drawing for actual manufacturing.
- There is separate category of programs called Computer Aided Engineering (CAE) that can use CADD drawing for engineering analysis.
- The CAE programs have a number of applications in Structural Design, Electronics, Civil Engineering, Mechanical Engineering and Electrical Engineering.
- The Mechanical engineer can test a machine assembly and also a prototype electronic model and test it without building a physical model.

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Expectations form CADD

We can do amazing things with CADD that we never thought possible while creating drawings with pen or pencil. The following are some of the important capabilities that make CADD a powerful tool.

- Presentations
- Flexibility in editing
- Unit and accuracy levels
- Storage and access for drawings
- Sharing CADD drawings

Presentations

There are a number of ready-made presentations symbols available in CADD that can be used to enhance the look of drawings. In addition to prepare impressive presentations on paper, we can use CADD to make an on – screen presentations. Advanced CADD programs ever allow us to create an animated image.

Flexibility in editing

CADD allows us to work with great accuracy. If we need to create highly accuracy geometric shapes, CADD is the answer. It can help avoid time-consuming mathematical calculations.

Unit and accuracy level

We can work with as high precession as $1/1000$ th of an inch.

Storage and access of drawing

- A computer electronic filing system has the following advantages over the traditional filing system.
- It is quick and convenient to organize CADD drawing in a computer.
- It enables us to create a highly organized environment.
- An electronic drawing never gets old and faded.

Sharing CADD Drawing

- The electronic drawing can be shared by a number of users, allowing them to Co-ordinate projects and work as a team.
- This is accomplished by connecting different computer via a network.

About AutoCAD

AutoCAD is a Computer Aided Design (CAD) program used by just about every Engineering and Design office in the world. Although there are alternative CAD packages, AutoCAD is by far the most widely used system. Autodesk's AutoCAD is the industry leader in CAD packages. Used by Civil Engineers, Architects, **Mechanical** and Electrical Engineers, **Electronics**, Aeronautical Engineers plus many other disciplines.

There have been several versions of AutoCAD over the years, with each new version introducing new and more powerful features than its predecessor. The latest version of AutoCAD (at the time of writing) is AutoCAD 2011.

About AutoCAD

Any courses, whether through community colleges or online universities, that are related to Engineering or Architecture should be considered incomplete if they do not introduce students to AutoCAD.

Accurate, scale drawings can be created and published using AutoCAD powerful features. 3D 'models' can also be created giving the designer absolute control over the design from start to finish. The computerized model can be viewed through a 360° angle, and even 'rendered' with a texture on screen to give an idea of the finished product.