



Andhra Pradesh State Skill Development Corporation



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AutoCAD(CIVIL)

Introduction to AutoCAD



INTRODUCTION TO THE COURSE

INTRODUCTION TO AUTOCAD

WHAT IS AUTOCAD? (AUTODESK COMPUTER AIDED DRAFTING)

AUTOCAD introduces as a term is a 2-D and 3-D computer-aided drafting software application used in architecture, construction, and manufacturing to assist in the preparation of blueprints and other engineering plans.

AutoCAD was initially derived from a program called Interact, which was written in a proprietary language.

The first release of the software used only primitive entities such as polygons, circles, lines, arcs, and text to construct complex objects.

Later, it came to support custom objects through a C++ application programming interface.

The modern version of the software includes a full set of tools for solid modelling and 3-D. AutoCAD also supports numerous application program interfaces for automation and customization.

DWG (drawing) is the native file format for AutoCAD and a basic standard for CAD data interoperability. The software has also provided support for Design Web Format (DWF), a format developed by Autodesk for publishing CAD data.

COMPUTER-AIDED DRAWING/DRAFTING (CAD)

Computer-Aided Drawing/Drafting is a process of preparing a drawing of an object on the screen of a computer.

There are various types of drawings required in different fields of Engineering and Science.

- * In the field of Mechanical Engineering, the drawing of machine components and layouts is prepared.

- * In the field of Civil Engineering plans and layouts of buildings are prepared.

- * In all other fields of engineering use of a computer is made for drawing and drafting.

HISTORY OF AUTOCAD

The company was founded in 1982 by John Walker, who was a co-author of the first versions of AutoCAD.

AutoCAD was derived from a program that began in 1977 and then released in 1979 called Interact CAD, also referred to in early Autodesk documents as Micro CAD, which was written prior to Autodesk's (then Marinchip Software Partners) formation by Autodesk cofounder Michael Riddle.

AUTOCAD is available in 14 languages

FORMAT FILES OF AUTOCAD

CAD files may contain 2D or 3D designs. They are generated by CAD software programs, which can be used to create models or architecture plans. 2D CAD files are often referred to as drawings, while 3D files are often called models, parts, or assemblies.

Common CAD file extensions include .DWG, .DXF, .DGN, and .STL.



CAD SOFTWARES

The CAD software is an interpreter or translator which allows the user to perform a specific type of application or job related to CAD.

Following are the various types of software used for drafting:

- *AUTOCAD
- *PRO-E
- *IDEAS
- *CATIA
- *FLUENT
- *HYPERMESH
- *ABACUS

LIMITATIONS OF CAD

- It requires a large amount of computer memory
- The size of the software package is large.
- skill and judgment are required to prepare the drawing

ADVANTAGES OF AUTOCAD SOFTWARE

- AutoCAD software saves huge time; saving time is equal to earn more income by more output.
- It is simple enough software with the real user-friendly interface, it is easy to grasp and it can provide you the basic exposure, it is very beneficial in designing 3D.
- It reduces the time for the new designs, and the products can be created more quickly.
- AutoCAD software is helpful; it has a large set of parts and features that you can choose for your designs.
- It offers powerful and quick dimensions, you can use the simplified tools, you can generate the dimensions to control and expand only the important variables for manufacturing easily.
- AutoCAD software reduced the manufacturing time, the documentation can be printed in various forms for multiple users.
- It presents ease of document reproduction and cloning, and it offers the visualization of the complex technical elements.
- AutoCAD software offers the quality of the designs; it presents the clarity of the documentation.
- It is easier to apply the new ideas; it can be more accurate than hand-drawn designs.
- It reduces the human error, you can save and edit the ideas, and it makes it easier and cheaper to modify your design.

DISADVANTAGES OF AUTOCAD SOFTWARE

- AutoCAD software is not so suited for 3D as it has fewer options, It cannot be used in the complex designs.
- If you are into heavy assembly work don't rely on this software, it cannot be used in Complex Programming.
- A large amount of memory and speed is required, Training and equipment are very costly.
- AutoCAD software needs the time & the cost of implementing the system.
- It needs time & cost of training the people to use it, so, it is very expensive in training.
- It needs the time & the cost of migrating legacy drawings into AutoCAD format.
- AutoCAD software consumes large amounts of computer processing power.



- It requires high-quality computer hardware that can be costly; it requires the advanced manufacturing devices which are very expensive.
- It is not easy for first-time users to learn the software, In addition to the cost of training personnel.