



## Autodesk AutoCAD (2D Expert)

*Training details*

### DESCRIPTION

This course is designed for the experienced AutoCAD® user who requires additional training to enhance their productivity. It incorporates the features, commands, and techniques for managing files, creating consistent drawings, connecting to external databases, control drawing standards, extracting data and customizing AutoCAD. This advanced-level course continues to build on the concepts of the AutoCAD Essentials.

### OBJECTIVES:

The primary objective of this course is to teach the student powerful tools and techniques for customizing AutoCAD, file maintenance, collaboration, connecting to external databases, and implementing CAD Standards. With an understanding of these tools, students can streamline the design process when working with the extended design team, have more control over the consistency of their drawings, and customize AutoCAD for their own needs

### TRAINING STRUCTURE:

Autodesk AutoCAD 2D Expert

8 class x 2.5 hours = 20 hours

### COURSE TEXTBOOKS AND OTHER READING MATERIALS

We recommend the following resources:

- Mastering Autodesk AutoCAD
- Autodesk AutoCAD Essentials

### Web Resources:

- <http://www.autodesk.com/products/autocad/overview>
- <http://seek.autodesk.com>

### PREREQUISITES:

- Basic knowledge and skills about using computers
- Engineering background is recommended
- AutoCAD background is a must

### COURSE GRADING:

Attendance 40% Assignments (workshop + 2 projects) 60% To pass the course and receive both Autodesk certificate & CAD MASTERS certificate you should:

- Attend at least 80% of course hours
- Score more than 70% as a total score

## AUTODESK AUTOCAD 2D EXPERT – COURSE OUTLINE

This course including the following:

### **Publish:**

Specifies drawing sheets that you can assemble, reorder, rename, copy, and save for publishing as a multi-sheet drawing set. You can publish the drawing set to a DWF, DWFx, or PDF file or send it to the plotter named in the page setup for hardcopy output or as a plot file. You can save this list of drawing sheets as a DSD (Drawing Set Descriptions) file. Saved drawing sets can replace or be appended to the current list for republishing.

### **e-Transmit:**

With e-Transmit, you can package a set of files for Internet transmission. Drawing files in the transmittal package automatically include all related dependent files such as XREFS and font files.

### **Attributes:**

An attribute is a label or tag that attaches data to a block. The tag is equivalent to a column name in a database table. Attribute information extracted from a drawing can be used in a spreadsheet or database to produce a parts list or a bill of materials. You can associate more than one attribute with a block, provided that each attribute has a different tag. Attributes also can be “invisible.” An invisible attribute is not displayed or plotted; however, the attribute information is stored in the drawing file and can be written to an extraction file for use in a database program.

### **Data Extraction:**

Using the Data Extraction wizard, you can extract property information from objects in drawings, including blocks and their attributes and drawing properties, such as drawing name and summary information. The extracted data can be linked with information in a Microsoft Excel spreadsheet and output to a table or an external file.

### **Fields:**

A field is updatable text that is set up to display data that may change during the life cycle of the drawing. When the field is updated, the latest value of the field is displayed.

### **CAD Standard:**

It is about how you can create a standards file to define common properties in order to maintain consistency throughout your drawing files. Standards define a set of common properties for named objects such as layers and text styles. You or your CAD manager can create, apply, and audit standards in drawings to enforce consistency. Because standards make it easier for others to interpret drawings, standards are particularly useful in collaborative environments, where many individuals contribute to the creation of a drawing.

### **Multi Leaders:**

A leader object is a line or a spline with an arrowhead at one end and a multiline text object or block at the other. In some cases, a short horizontal line, called a landing, connects text or blocks and feature control frames to the leader line. The multileader style can specify formatting for landing lines, leader lines, arrowheads, and content. We should also know how to create, add, remove, align & collect leaders.

### Scale List:

How to determine your own scale list according to your drawing units. It will appear in all commands using scale lists as printing and view ports.

### Dynamic Blocks:

When you add dynamic behavior to a block definition, you add flexibility and intelligence to the block geometry. Instead of being a fixed part of a drawing, a dynamic block reference can be changed or manipulated as you work in a drawing.

### Tables:

A table is an object that contains data in rows and columns. A table object can be created from an empty table or table style. A table can also be linked to data in a Microsoft Excel spreadsheet.

### Design Center:

With Design Center, you can organize access to drawings, blocks, hatches, and other drawing content. You can drag content from any source drawing to your current drawing. You can drag drawings, blocks, and hatches to a tool palette. Source drawings can be on your computer, on a network location, or on a website. In addition, if you have multiple drawings open, you can use Design Center to streamline your drawing process by copying and pasting other content, such as layer definitions, layouts, and text styles between drawings.

### Tool Palettes:

Tool palettes are tabbed areas within the Tool Palettes window that provide an efficient method for organizing, sharing, and placing blocks, hatches, and other tools. Tool palettes can also contain custom tools provided by third-party developers.

### External References:

You can attach an entire drawing to the current drawing as a referenced drawing (xref). With xrefs, changes in the referenced drawing are reflected in the current drawing. Attached xrefs are linked to, but not actually inserted in, another drawing. Therefore, with xrefs you can build drawings without significantly increasing the drawing file size.

### Layer Tools:

A new menu in AutoCAD contains many new tools which make us control layers easier as layer walk, delete, merge & etc....

### Layer State Manager:

You can save layer settings as named layer states., restore, edit, import them from other drawings and files, and export them for use in other drawings.

### Filter & Sort The List of Layers:

You can control which layer names are listed in the Layer Properties Manager and sort them by name or by property, such as color or visibility. A layer filter limits the display of layer names in the Layer Properties Manager and in the Layer control on the Layers toolbar. In a large drawing, you can use layer filters to display only the layers you need to work with.

### Quick Calculator:

With the QuickCalc calculator, an interface that looks and functions like a hand-held calculator, you can perform mathematical, scientific, and geometric calculations, convert units of measurement, manipulate the properties of objects, and evaluate expressions.

### Annotative Objects

Instead of creating multiple annotations at different sizes and on separate layers, you can turn on the annotative property by object or by style, and set the annotation scale for layout or model viewports. The annotation scale controls the size of the annotative objects relative to the model geometry in the drawing.

### Geometric Constrains

You can specify geometric constraints between 2D objects or points on objects. When you later edit the constrained geometry, the constraints are maintained. Thus, using geometric constraints, you have a method of including design requirements in your drawing.

### Dimensional Constrains

Dimensional constraints maintain specified distances and angles between geometric objects or points on objects.

### Action Recorder

You use the Action Recorder to record an action macro. After an action macro is recorded, you save the recorded commands and input to an action macro, which has the file extension ACTM.

### Paper & Model Space (working with layouts)

How to print many views from the same file on many sheets & how to print many scales on the same paper. And many other benefits.

### UCS & WCS

There are two coordinate systems: a fixed system called the world coordinate system (WCS) and a movable system called the user coordinate system (UCS). By default, these two systems are coincident in a new drawing.