

AutoCAD 2D/3D Training Program

Who can do?

- Fresh University Graduates and like to get the knowledge of CAD.
- Already working mechanical, civil, electrical engineers, architects who are willing to update and learn the new methodologies of AutoCAD 2D and 3D.
- Who want to be good and reputable jobs in the market and are like to enhance their skills in AutoCAD Software.

**100,000+ Students
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1997

**Program is
offered by**

**3D EDUCATORS
INTL**
22 Years of
Excellence in
Training &
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People the
only Asset
that Appreciates**



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Course Outline

This Course is comprehensively designed for engineers, who are concerned with the civil, architect, mechanical & electrical. The course will cover the detail interactive trainings on computers. Where at 3D EDUCATORS have the state of art labs with well-equipped latest and updated computers.

- Complete tools of AutoCAD
- Designing on 2D and 3D
- 3D Modeling and Techniques
- Working with Files and Objects
- Transforming Objects
- Overview Lab

Inauguration

The Training Program will be inaugurated by a senior member of 3DEducators.

Program Structure

No of classes per week	01 - Class
Duration of each class	02 - Hour
Total Duration	40 Hours

Other Learning Activities

Classroom Assignments	02
Presentations by Trainees	01
Total Labs	08
Final Project	01

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AutoCAD 2D

Files

New	Creates a new drawing file:
Open	Opens an existing drawing file:
Close	Closes the drawing file:
Partial Load	Loads additional geometry into a partially opened drawing:
Save	Quickly saves the current drawing:
Save As	Saves an unnamed drawing with a file name or renames the current drawing:
Export	Saves objects to other file formats:
Page Setup	Displays the Page Setup dialog box:
Plotter Manager	Provides access to the Add Plotter wizard and the Plotter Configuration
Editor Plot Style Manager	Provides access to the Add Plot Style Table wizard and the Plot Style Table Editor:
Plot Preview	shows how the drawing will look when it is printed or plotted:
Plot	Plots a drawing to a plotting device or file:

DRAWING UTILITIES

Audit	Evaluates the integrity of a drawing:
Recover	Repairs a damaged drawing:



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PURGE

All	Removes all unused objects from the drawing database:
Layers	Removes unused layers from the drawing database:
Line Types	Removes unused linetypes from the drawing database:
Text Styles	Removes unused text styles from the drawing database:
Dimension Styles	Removes unused dimension styles from the drawing database:
Multi Line Styles	Removes unused multiline styles from the drawing database:
Blocks	Removes unused blocks from the drawing database:
Plot Styles	Purges the plot styles you specify by name:
Shapes	Removes unused shapes from the drawing database:
Send Drawing Properties	Faxes or emails the current drawing file Sets and displays the properties of the current drawing:
Drawing	Lists the most recently opened drawings; select a drawing to quickly open it
Exit	Quits the application; prompts to save documents

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Edit

Undo	Reverses the most recent operation:
Redo	Reverses the effects of the previous UNDO or U command:
Cut	Copies objects to the Clipboard and erases the objects from the drawing:
Copy	Copies objects to the Clipboard:
Copy with Base Point	Copies objects to the Clipboard with a base point:
Copy Link	Copies the current view to the Clipboard for linking to other OLE applications:
Paste	Inserts data from the Clipboard:
Paste as Block	Pastes objects from the Clipboard as a block:
Paste as Hyperlink	Pastes a hyperlink to the selected object:
Paste to Original Coordinates	Pastes objects to the same coordinates as in the original drawing:
Paste Special	Inserts data from the Clipboard and controls the format of the data:

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OLE Links
Find

Updates, changes, and cancels existing OLE links:
Finds, replaces, selects, or zooms to specified te

View

Redraw
Regen
Regen All

Refreshes the display of all the viewports:
Regenerates the drawing and refreshes the current viewport:
Regenerates the drawing and refreshes all viewports:

ZOOM

Real time
Previous
Window
Dynamic
Scale
Center
In
Out
All
Extents

Zooms in realtime:
Zooms to display the previous view:
Zooms to display an area specified by a rectangular window:
Zooms to display the generated portion of the drawing:
Zooms with a specified scale factor:
Displays a window specified by a center point and height:
Increases the apparent size of objects in the current viewport:
Decreases the apparent size of objects in the current viewport:
Zooms to display the entire drawing in the current viewport:
Zooms to display the drawing extents:

PAN

Point

Moves the drawing display in the current viewport:
Moves the view of the drawing by the specified distance:

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Left	Moves the drawing to the left:
Right	Moves the drawing to the right:
Up	Moves the drawing up:
Down	Moves the drawing down:
Aerial View	Opens the Aerial View window:
Named Views	Creates and restores views:

DISPLAY

On	Controls the visibility and placement of the UCS icon:
Origin	Forces the icon to appear at the origin of the current Coordinate system:

ATTRIBUTE DISPLAY

Normal	Displays visible attributes; hides invisible attributes:
On	Makes all attributes visible:
Off	Makes all attributes invisible:
Text Window	Opens the AutoCAD text window:
Toolbars	Displays, hides, and customizes toolbars:

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Inserts

Block	Inserts a block or another drawing:
External Reference	Attaches an external reference to the current drawing:
Raster Image	Attaches a new image to the current drawing:

LAYOUT

New Layout	Creates a new layout with page settings and plotting device information:
Layout from Template	Inserts a new layout based on an existing layout template:
Layout Wizard	Starts the Layout wizard to designate page and plot settings for a new layout:
3D Studio	Imports a 3D Studio file:
ACIS File	Imports an ACIS file:
Drawing Exchange Binary	Imports specially coded binary files:
Windows Metafile	Imports a Windows metafile:
Encapsulated PostScript	Inserts an Encapsulated PostScript file into the current drawing:
OLE Object	Inserts a linked or embedded object:

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Xref Manager	Controls external references to drawing files:
Image Manager	Inserts images in many formats into an AutoCAD drawing file:
Hyperlink	Attaches a hyperlink to a graphical object or modifies an existing hyperlink:

Format

Layer	Manages layers and layer properties:
Color	Sets the color for new objects:
Linetype	Creates, loads, and sets linetypes:
Lineweight	Sets the current lineweight, lineweight display options, and lineweight units:
Text Style	Creates or modifies named styles and sets the current style for text in your drawing:
Dimension Style	Creates and modifies dimension styles:
Plot Style	Sets the current plot style for new objects, or the assigned plot style for selected objects:
Point Style	Specifies the display style and size of point objects:
Multiline Style	Manages styles for multiple parallel lines:
Units	Controls coordinate and angle display formats and determines precision:
Thickness	Sets the current 3D thickness:
Drawing Limits	Sets and controls the drawing boundaries:
Rename	Changes the names of named objects:

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Tools

Spelling Checks spelling in a drawing:
Quickly creates selection sets based on filtering criteria:

DISPLAY ORDER

Bring to Front Forces selected objects to be displayed in front of all other objects:
Send to Back Forces selected objects to be displayed behind all other objects:

Bring Above Object Forces selected objects to be displayed in front of a reference object:

Send Under Object Forces selected objects to be displayed behind a reference object:

INQUIRY

Distance Measures the distance and angle between two points:
Area Calculates the area and perimeter of objects or of defined areas:
Mass Properties Calculates and displays the mass properties of regions or solids:
List Displays database information for selected objects:

ID Point Displays the coordinate values of a location:
Time Displays the date and time statistics of a drawing:



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Status	Displays drawing statistics, modes, and extents:
Set Variable	Lists or changes the values of system variables:
Properties	Controls properties of existing objects:
AutoCAD	Runs AutoCAD Design Center:
Design Center	

DISPLAY IMAGE

View	Displays a BMP, TGA, or TIFF image:
Save	Saves a rendered image to a file:
Move UCS	Moves the defined UCS: UCS MOVE
Drafting	Specifies settings for Snap mode, grid, and polar and object snap tracking
Customize	Loads partial menu files:
Menus	
Options	Customizes the AutoCAD settings:

Draw

Line	Creates straight line segments:
Ray	Creates a semi-infinite line:
Construction	Creates an infinite line:
Multiline	Creates multiple parallel lines:

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Polyline	Creates two-dimensional polylines:
3D Polyline	Creates a polyline with straight continuous linetype line segments in three-dimensional space:
Polygon	Creates an equilateral closed polyline:
Rectangle	Draws a rectangular polyline:

Arc

3 Points	Creates an arc using three points:
Start, Center, End	Creates an arc using the start point, center, and endpoint:
Start, Center, Angle	Creates an arc using the start point, center, and included angle:
Start, Center, Length	Creates an arc using the start point, center, and length of chord:
Start, End, Angle	Creates an arc using the start point, endpoint, and included angle:
Start, End, Direction	Creates an arc using the start point, endpoint, and starting direction:
Start, End, Radius	Creates an arc using the start point, endpoint, and radius:
Center, Start, End	Creates an arc using the center, start point, and endpoint:

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Center, Start, Angle

Creates an arc using the center, start point, and included angle:

Center, Start, Length

Creates an arc using the center, start point, and length of chord:

Continue

Creates an arc tangent to the last line or arc drawn:

Circle

Center, Radius

Creates a circle using a specified radius:

Center, Diameter

Creates a circle using a specified diameter:

2 Points

Creates a circle using two endpoints of the diameter:

Creates a circle using three points on the circumference:

Tan, Tan, Radius

Creates a circle tangent to two objects with a specified radius:

Tan, Tan, Tan

Creates a circle tangent to three objects:

Donut

Draws filled circles and rings:

Spline

Creates a quadratic or cubic spline (NURBS) curve:

Ellipse

Center

Creates an ellipse using a center point:

Axis, End

Creates an ellipse or an elliptical arc:

Arc

Creates an elliptical arc:

Creates a block definition from objects you select:

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Base Sets the insertion base point for the current drawing:
Define Creates an attribute definition:
Attributes

Point

Single Point Creates a single point:
Multiple Point Creates multiple points:
Divide Places evenly spaced point objects or blocks along the length or
perimeter of an object:
Measure Places point objects or blocks at measured intervals on an object:

Hatch Fills an enclosed area or selected objects with a hatch pattern:
Boundary Creates a region or a polyline from an enclosed area:
Region Creates a region object from a selection set of existing objects:

Multiline Text Creates multiline text:
Single Line Text Displays text on screen as it is entered:

Dimension

QDIM Quickly create dimension arrangements:
Linear Creates linear dimensions:
Aligned Creates an aligned linear dimension:

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Ordinate	Creates ordinate dimensions:
Radius	Creates radius dimensions for circles and arcs:
Diameter	Creates a diameter dimension for circles and arcs:
Angular	Creates an angular dimension:
Baseline	Creates a linear, angular, or ordinate dimension from the baseline of the previous dimension or a selected dimension:
Continue	Creates a linear, angular, or ordinate dimension from the second extension line of the previous dimension or a selected dimension:
Leader	Quickly creates a leader and leader annotation:
Tolerance	Creates geometric tolerances:
Center Mark	Creates a center mark for circles and arcs:
Oblique	Makes the extension lines of linear dimensions oblique:

Align Text

Home	Moves dimension text back to its default position:
Angle	Rotates dimension text to an angle:
Left	Left justifies dimension text:
Center	Centers dimension text:
Right	Right justifies dimension text:
Style	Creates and modifies dimension styles:
Override	Overrides dimension system variables:
Update	Updates dimensions so they use the most current dimension style settings:

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Modify

Properties Controls properties of existing objects:
Match Copies the properties from one object to one or more objects:
Properties

OBJECT

External Reference

Bind Binds individual dependent symbols of an xref to a drawing:
Frame Controls the visibility of the xref clipping boundaries:
Image

Adjust Controls the image display of the brightness, contrast, and fade values of images:

Quality Controls the display quality of images:

Transparency Controls whether background pixels in an image are transparent or opaque:

Frame Controls whether AutoCAD displays the image frame or hides it from view:

CLIP

Image Creates new clipping boundaries for an image object:

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Xref	Defines an xref or block clipping boundary and sets the front or back clipping planes:
Viewport	Clips viewport objects:
Hatch	Modifies an existing hatch object:
Polyline	Edits polylines and three-dimensional polygon meshes:
Spline	Edits a spline object:
Multiline	Edits multiple parallel lines:

ATTRIBUTE

Single	Edits the variable attributes of a block:
Global	Changes attribute information independent of its block definition:
Text	Edits text and attribute definitions:

IN-PLACE XREF AND BLOCK EDIT

Edit Block or Xref	Selects a block or xref for in-place editing:
Add Objects	Transfers objects from the host drawing to the REFEDIT working set:
Remove Objects	Transfers objects from the REFEDIT working set to the host drawing:
Save Back Changes to Reference	Saves REFEDIT working set changes:



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Discard	Discards REFEDIT working set changes:
Changes to Reference	
Erase	Removes objects from a drawing:
Copy	Duplicates the objects you select:
Mirror	Creates a mirror image copy of objects:
Offset	Creates concentric circles, parallel lines, and parallel curves:
Array	Creates multiple copies of objects in a pattern:
Move	Displaces objects a specified distance in a specified direction:
Rotate	Moves objects about a base point:
Scale	Enlarges or reduces objects equally in the X, Y, and Z directions:
Stretch	Moves or stretches objects:
Lengthen	Lengthens an object:
Trim	Trims objects at a cutting edge defined by other objects:
Extend	Extends an object to meet another object:
Break	Erases parts of objects or splits an object in two:
Chamfer	Bevels the edges of objects:
Fillet	Rounds and fillets the edges of objects:
Explode	Breaks a compound object into its component objects:

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COURSE CONTENTS FOR MODULE II

AutoCAD 3D

Surfaces

2D Solid	Creates solid-filled polygons:
3D Face	Creates a three-dimensional face:
3D Surfaces	Creates three-dimensional surface objects using a dialog box
Edge	Changes the visibility of three-dimensional face edges:
3D Mesh	Creates a free-form polygon mesh:
Revolved Surface	Creates a revolved surface about a selected axis:
Tabulated Surface	Creates a tabulated surface from a path curve and a direction vector:
Ruled Surface	Creates a ruled surface between two curves:
Edge Surface	Creates a three-dimensional polygon mesh:

Solid

Box	Creates a three-dimensional solid box:
Sphere	Creates a three-dimensional solid sphere:
Cylinder	Creates a three-dimensional solid cylinder:
Cone	Creates a three-dimensional solid cone:

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- Wedge Creates a 3D solid with a sloped face tapering along the X axis:
- Torus Creates a donut-shaped solid:
- Extrude Creates unique solid primitives by extruding existing two-dimensional objects:
- Revolve Creates a solid by revolving a two-dimensional object about an axis:
- Slice Slices a set of solids with a plane:
- Section Uses the intersection of a plane and solids to create a region:
- Interference Creates a composite 3D solid from the common volume of two or more solids:

Setup

- Drawing Generates profiles and sections in viewports created with the SOLVIEW command:
- View Creates floating viewports using orthographic projection to lay out multi-and sectional view drawings of 3D solid and body objects:
- Profile Creates profile images of three-dimensional solids:

3D operations

- 3D Array Creates a three-dimensional array:
- Mirror 3D Creates a mirror image copy of objects about a plane:
- Rotate 3D Moves objects about a three-dimensional axis:
- Align Aligns objects with other objects in 2D and 3D:

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3D Modify

Solid Editing

Union	Creates a composite region or solid by addition:
Subtract	Creates a composite region or solid by subtraction:
Intersect	Creates solids or regions from the intersection of solids or regions:
Extrude Faces	Extrudes selected faces on a solid object to a specified height or along a path:
Move Faces	Moves selected faces on a solid object to a specified height or distance:
Offset Faces	Equally offsets faces on a solid object by a specified distance or point:
Delete Faces	Deletes or removes faces, including fillets or chamfers on a solid object:
Rotate Faces	Rotates one or more faces on a solid object around a specified axis:
Taper Faces	Tapers faces on a solid object with a specified angle:
Color Faces	Changes the color of individual faces on a solid object:
Copy Faces	Copies faces on a solid object as a region or a solid body:

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Color Edges Changes the color of individual edges on a solid object:
Copy Edges Copies 3D edges on a solid object as an arc, circle, ellipse, line, or spline:

Imprint Imprints geometry on a face of a solid object:
Clean Removes all redundant edges and vertices on a solid object:
Separate Separates 3D solid objects with disjointed volumes into independent 3D solid objects:
Shell Creates a hollow, thin wall with a specified thickness on a solid object:
Check Validates a 3D solid object as a valid ACIS solid:

View report

Named Viewports Displays layout options for named viewports:

New Viewports Opens a new viewport using a specified name:
1 Viewport Returns the drawing to a single viewport view, using the view from the active viewport:
2 Viewports Divides the current viewport in half:
3 Viewports Divides the current viewport into three viewports:
4 Viewports Divides the current viewport into four viewports of equal size:

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Polygonal Viewport Creates an irregularly shaped viewport defined by specifying points:

Object Specifies a closed polyline, ellipse, spline, region, or circle to convert into a viewport:

Join Combines two adjacent viewports

3D View

Viewpoint Presets Sets the three-dimensional viewing direction:

VPOINT Displays a compass and tripod for defining a view direction in model space:

Plan View

Current UCS Displays the plan view of a user coordinate system:

World UCS Displays the plan view of the World Coordinate System:

Named UCS Displays the plan view of a previously saved user coordinate system:

Top Sets the view point to top: VIEW TOP

Bottom Sets the view point to bottom: VIEW BOTTOM

Left Sets the view point to left: VIEW LEFT

Right Sets the view point to right: VIEW RIGHT

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Front	Sets the view point to front: VIEW FRONT
Back	Sets the view point to back: VIEW BACK
SW Isometric	Sets the view point to southwest isometric: VIEW SWISO
SE Isometric	Sets the view point to southeast isometric: VIEW SEISO
NE Isometric	Sets the view point to northeast isometric: VIEW NEISO
NW Isometric	Sets the view point to northwest isometric: VIEW NWISO
3D Orbit	Controls the interactive viewing of objects in 3D:
Hide	Regenerates a three-dimensional model with hidden lines suppressed:

Orthography Arc

Preset	Manages defined user coordinate systems:
Top	Specifies the Top UCS orientation:
Bottom	Specifies the Bottom UCS orientation:
Left	Specifies the Left UCS orientation:
Right	Specifies the Right UCS orientation:
Front	Specifies the Front UCS orientation:
Back	Specifies the Back UCS orientation:

New UCS

World	Sets the UCS to the World Coordinate System: UCS W
Object	Defines a new coordinate system based on a selected object: UCS OB
Face	Defines a new coordinate system based on a selected face: UCS FA

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View Establishes a new coordinate system with the XY plane parallel to the screen: UCS V

Origin Defines a new UCS by shifting the origin: UCS O

Z Axis Vector Defines a UCS using a positive Z axis extrusion method: UCS ZAXIS

3 Point Specifies the new UCS origin and the direction of the X and Y axes: UCS 3

X Rotates the current UCS about the X axis: UCS X

Y Rotates the current UCS about the Y axis: UCS Y

Z Rotates the current UCS about the Z axis: UCS Z

Apply Applies current UCS to a selected viewport: UCS APPLY

Shade

2D Wireframe Set viewport to 2D wireframe:

3D Wireframe Set viewport to 3D wireframe:

Hidden Set viewport to hidden line:

Flat Shaded Set viewport to flat shaded:

Gouraud Shaded Set viewport to Gouraud shaded:

Flat Shaded, Edges On Set viewport to flat shaded, edges on:

Gouraud Shaded, Edges On Set viewport to Gouraud shaded, edges on:

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Render

Render	Creates a photorealistic or realistically shaded image of a three-dimensional wire frame or solid model:
Scene	Manages scenes in model space:
Light	Manages lights and lighting effects:
Materials	Manages rendering materials:
Materials	Imports and exports materials to and from a library of materials:
Library	
Mapping	Maps materials onto objects:
Background	Sets up the background for your scene:
Fog	Provides visual cues for the apparent distance of objects:
Landscape New	Adds realistic landscape items, such as trees and bushes, to your drawings:
Landscape Edit	Edits a landscape object:
Landscape Library	Maintains libraries of landscape objects:
Preferences	Sets rendering preferences;
Statistics	Displays rendering statistics:
Named UCS	Manages defined user coordinate systems:



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ONLINE LIVE CLASSES FACILITY AVAILABLE

- Instructor Led Training
- Real Time Presentations
- Interactive Classes
- Complete Notes and Other Stuff shall be provided through our Secure Student Login Member's Area
- For Online Live Classes, you may please download the Admission Form through our website <http://www.3deducators.com>. Fill it properly and attached the required document along with Picture and send back to info@3deducators.com with scanned fee submitted voucher in the bank.
- For Pakistan you may submit the fee at any MCB Branch with the title of "3D EDUCATORS-TRAINERS & CONSULTANTS".
- If you are outside Pakistan then you may transfer via Bank to Bank or any western union, Fast Track, Money Gram or else International Transfer Body.
- After Admission, if you don't have GMAIL Account then you are requested to kindly make one GMAIL Account and shared it info@3deducators.com. Then further correspondence shall be made by our institute official.
- Extra Bandwidth Charges shall be incurred.

DISTANCE NOT MATTER

You can join in the live classes Sessions of 3D EDUCATORS – TRAINERS & CONSULTANTS from anywhere of the world.

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PRECAUTIONARY MEASURES

- During Classes, you are requested to make sure that you are in isolated room, where no noise should be there except your voice.
- Kindly Switch Off your Cell Phone during the class, because it will disturb the quorum of class.
- If you have taken the admission in the course online lonely, then ethically it is recommended and suggested that you alone in the class.
- Recording of Lectures are not allowed at your end.

This world is emerging and growing in the 21st Century very rapidly because of latest and remarkable technologies and its advancement. Due to advancement of technology, we 3D EDUCATORS offer Live Interactive class sessions

3D EDUCATORS believe on Information Technology and its systems. Now you can also avail this facility at your home.

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