

## Level 3 Award in 2D Computer Aided Design

This training course aims to cover a wide range of 2D drawing and editing commands and routines to aid the application and modification of the CAD software. The learner will become familiar with the necessary techniques required to produce and edit drawings of medium complexity and prepare the drawings for output to hard copy.

*For details of the training units for this course, please see overleaf.*



The cost for the CAD Level 3 course is **£1330.00** and consists of 7 full days training (7.5 hours per day), 1 day 'mock' exam and 1 day City & Guilds examination. If you exceed this timescale then you will be expected to pay the daily rate of **£140.00** for any additional training. If you do not pass the City & Guilds examination, and wish to sit it again, then you will be expected to pay the daily rate plus **£50.00** towards the examination costs.

To register your interest, or find out more, call freephone **0808 2000 129** or email your contact details to [enquiries@cadcentreuk.com](mailto:enquiries@cadcentreuk.com)

# There are thirteen learning outcomes from this training course.

## 1. Use a layering system and different line type styles

*The learner will be able to:*

1. Import a number of line type styles for use within a CAD drawing and manipulate the scale of the line type
2. Create a number of new layers for use with a CAD drawing
3. Change and manipulate the properties of a layer, such as colour and line type
4. Demonstrate the use all the available layer controls to change the status of the layer
5. Produce a 2D CAD drawing using a range of line types and layers
6. Set up and use simple multiple viewing areas within the same drawing window to see different aspects of a drawing

## 2. Define and use a system for grouping objects to form blocks or libraries

*The learner will be able to:*

1. Create a block/symbol from a previously drawn component consisting of multiple entities
2. Save a created block/symbol independently of the drawing for use within a different drawing
3. Insert a block/symbol into a drawing from within the original drawing and from external source
4. Convert an inserted block/symbol back into its original constituent parts
5. Create and insert attributed blocks/symbols into a CAD drawing
6. Attach an external drawing to the current drawing

## 3. Produce isometric drawings within the 2D environment

*The learner will be able to:*

1. Set up the 2D drawing environment to aid the production of an isometric drawing: e.g. using drawing aids
2. Produce an isometric drawing within the 2D CAD environment using a range of techniques
3. Create isometric circles for use on an isometric drawing

## 4. Define and use an adjustable co-ordinate system based on user requirements

*The learner will be able to:*

1. Create a new user co-ordinate system (UCS)
2. Locate a new UCS position in relation to an existing drawn entity
3. Manipulate the UCS icon to follow any new origin position
4. Rotate the UCS about its own origin
5. Name and save multiple UCSs and switch between them

## 5. Use complex dimensioning routines

*The learner will be able to:*

1. Set up a new user defined dimension style, including the following:  
i) manipulate the properties of lines and arrows, ii) manipulate the properties (including style and size) of text used, iii) alter scale and location of where dimension lines and text are placed, iv) set the appropriate units (including alternative) for the dimensioning, relating to the drawing to be produced, v) modify tolerance settings as appropriate
2. Adjust the set up and style of the dimensions, as appropriate, whilst dimensioning a drawing
3. Carry out the following dimensioning techniques:  
i) aligned, ii) angular, iii) baseline, iv) continued, v) labelling/leaders, vi) positioning of centre marks
4. Update any existing dimension to take on the properties of the new dimension style

## 6. Use different drawing spaces and complex multi viewing areas

*The learner will be able to:*

1. Set up a drawing space in order to layout a drawing ready for printing
2. Create a number of different drawing space layouts, to illustrate different parts of a drawing
3. Create multiple view areas within the same layout to show different aspects of a drawing
4. Toggle between different types of space in order to make alterations to a drawing, as appropriate
5. Apply a range of standard scales to the different view areas which when printed can be measured

## 7. Produce hard copies of drawings

*The learner will be able to:*

1. Activate the plot function and select the appropriate plotter for the task and check that the plotter configuration is correct
2. Set up the appropriate plot settings for the drawing that is to be printed, including:  
i) paper size, ii) units, iii) orientation, iv) scale, v) plot area, vi) positioning
3. Produce a hardcopy of the drawing from a range of different available drawing spaces and to a range of different scales
4. Produce hardcopies of a drawing from a range of different multiple drawing space layouts and to scale.

## 8. Use a means of pre-command object selection in order to carry out editing processes

*The learner will be able to:*

1. Apply the use of the CAD software to list the details of an existing entity
2. Apply the use of the CAD software to provide information about the distance between two existing points and the length of a line
3. Apply the use of the CAD software to provide information about the location of a specific point on the X, Y axis
4. Apply the use of the CAD software to calculate the area of a specific shape
5. Apply the use of the technique to draw points to divide a line into a number of segments
6. Apply the use of the technique to draw points to measure and locate specific distances along a line

## 9. Use a means of pre-command object selection in order to carry out editing processes

*The learner will be able to:*

1. Demonstrate the use an appropriate method to select objects prior to command input
2. Activate defining points on an object that will allow the following editing commands to be carried out:  
i) stretch, ii) move, iii) rotate, iv) scale, v) mirror
3. Demonstrate the use of both keyboard entry and mouse control to carry out the editing commands

## 10. Change the properties of a number of drawn entities

*The learner will be able to:*

1. Apply the use of appropriate commands to edit and modify the following properties of entities:  
i) colour, ii) layer location, iii) line type, iv) line type scale, v) text contents, style, height, justification, vi) size of lines and circles
2. Transfer the actual properties of one drawn entity to another, therefore inheriting those properties.

## 11. Edit blocks/symbols and hatched areas

*The learner will be able to:*

1. Remove previously drawn single entities from a block/symbol that has already been created and used on a drawing that will also redefine all other previously inserted blocks/symbols
2. Add new entities to a block/symbol that has already been created and used on a drawing that will also redefine all other previously inserted blocks/symbols
3. Ensure that future block/symbol insertions have adopted any edited changes
4. Modify a block/symbol that has been saved separately and save the changes made
5. Modify an existing hatch pattern in terms of colour, angle, style and scale

## 12. Modify continuous lines formed by a connected sequence of lines or arcs

*The learner will be able to:*

1. Edit an existing line to adopt a new width
2. Edit an existing line to add an additional segment
3. Edit an existing line to join two lines together
4. Convert existing entities to form a line
5. Edit an existing line to add and remove a spline or curve fit
6. Apply an alternative line type to a line

## 13. Use a method to remove unused items and rename other items logically

*The learner will be able to:*

1. Delete the following unused items from a drawing  
• blocks/symbols • layers • line types • text styles • dimension styles
2. Rename the following items found within a drawing  
• blocks/symbols • layers