



The Digital Skills Standard

# ICDL Professional

# 2D DESIGN

Syllabus 1.5



## Syllabus Document

**Purpose**

This document details the syllabus for ICDL 2D Design. The syllabus describes, through learning outcomes, the knowledge and skills that a candidate for ICDL 2D Design should possess. The syllabus also provides the basis for the theory and practice-based test in this module.

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# ICDL 2D Design

This module is aimed at second- and third-level students commencing study in fields related to the architectural, engineering, and construction sectors, who wish to certify their 2D Computer Aided Design (CAD) skills to an independent international standard. It is also suited to those who may work in these sectors already in a non-technical capacity and who wish to acquire or certify 2D Design skills.

## Module Goals

Successful candidates will be able to:

- Use a two-dimensional design application to create and save new drawings, import and export drawings.
- Use layers and levels.
- Create objects and elements, use selection tools, and manipulate objects and elements.
- Use inquiry commands, e.g. to measure distances, angles, areas.
- Set and modify properties; create and modify text and dimensions.
- Use blocks and cells; create, edit, and use objects from a cell library; embed or link to objects using OLE.
- Prepare outputs for printing or plotting.

CATEGORY	SKILL SET	REF.	TASK ITEM
1 Getting Started	1.1 First Steps	1.1.1	Open (and close) a CAD application.
		1.1.2	Open one, several drawings.
		1.1.3	Create a new drawing.
		1.1.4	Set drawing units/working units; metric, imperial.
		1.1.5	Set drawing limits.
		1.1.6	Set, display grid and snap/grid lock.
		1.1.7	Create a drawing using an existing specified template/seed file.
		1.1.8	Save a drawing as a template/seed file.
		1.1.9	Save a drawing to a location on a drive.
		1.1.10	Save a drawing under another name.
		1.1.11	Switch between open drawings.
		1.1.12	Display, hide built in toolbars.

CATEGORY	SKILL SET	REF.	TASK ITEM
		1.1.13	Close a drawing.
		1.1.14	Use available Help functions.
	<i>1.2 Navigating</i>	1.2.1	Use zoom/magnification tools.
		1.2.2	Create named/saved views, set/recall named/saved views.
		1.2.3	Use pan tool.
		1.2.4	Use redraw, regen/update tools.
	<i>1.3 Using Layers/Levels</i>	1.3.1	Create layers/levels and assign properties.
		1.3.2	Modify the properties/attributes of a layer/level.
		1.3.3	Make a layer/level current or active.
		1.3.4	Modify levels/layers status: on, off, freeze, thaw, lock, unlock.
	<i>1.4 Drawing Exchange</i>	1.4.1	Export a drawing in another file type: .dxf, .dwg, .wmf, .dwt/.pdf.
		1.4.2	Import a dxf, dwg file into a drawing.
<b>2 Main Operations</b>	<i>2.1 Create Objects/Elements</i>	2.1.1	Apply co-ordinate systems: absolute, relative/rectangular, polar.
		2.1.2	Draw a line, rectangle/block, polyline/smartline.
		2.1.3	Draw an arc, polygon, circle, ellipse, donut.
		2.1.4	Draw a spline/point curve.
		2.1.5	Create a hatch.
		2.1.6	Divide objects/points along an element.
		2.1.7	Use snapping tools.
	<i>2.2 Selection Tools</i>	2.2.1	Select single, multiple objects.
		2.2.2	Use window/fence selection tools.
		2.2.3	Use grips/handles.
		2.2.4	Select by property/attribute, layer/level.

CATEGORY	SKILL SET	REF.	TASK ITEM
	<i>2.3 Manipulate Objects/Elements</i>	2.3.1	Copy objects/elements within, between drawings as objects/elements, as a block.
		2.3.2	Move objects/elements within a drawing, between drawings.
		2.3.3	Delete objects/elements.
		2.3.4	Rotate objects/elements.
		2.3.5	Scale objects/elements.
		2.3.6	Mirror objects/elements.
		2.3.7	Stretch objects/elements.
		2.3.8	Offset/copy parallel objects/elements.
		2.3.9	Create arrays/patterns of objects/elements.
		2.3.10	Trim objects using other objects/elements.
		2.3.11	Break/partially delete objects.
		2.3.12	Explode/drop objects/elements.
		2.3.13	Extend, lengthen objects/elements.
		2.3.14	Apply chamfers.
		2.3.15	Apply fillets.
		2.3.16	Edit polylines/complex elements.
		2.3.17	Convert objects/elements to polylines/complex elements.
	<i>2.4 Using Inquiry Commands</i>	2.4.1	Measure distances, angles.
		2.4.2	Measure areas.
	<i>2.5 Properties</i>	2.5.1	Change layer/level properties/attributes of objects/elements.
		2.5.2	Match properties/attributes between objects/elements.
		2.5.3	Set, change linetype/linestyle, line weight, colour of objects/elements.
	<i>2.6 Annotation (text and dimensions)</i>	2.6.1	Insert, edit text.

CATEGORY	SKILL SET	REF.	TASK ITEM	
<b>3 Advanced Features</b>	<i>3.1 Using Blocks/Cells</i>	2.6.2	Create, set, edit text styles.	
		2.6.3	Change style, font for text objects.	
		2.6.4	Add dimensions.	
		2.6.5	Create, set, edit dimension styles.	
		2.6.6	Change style, font for dimension objects.	
		2.6.7	Insert geometric tolerance.	
		3.1.1	Create blocks/cells.	
	3.1.2	Insert blocks/cells in a drawing.		
	3.1.3	Create a wblock.		
	3.1.4	Create a cell library.		
	3.1.5	Create, edit attributes/tags.		
	3.1.6	Insert objects/elements, files from a library.		
	3.1.7	Extract/report, attributes/tags from a block/cell e.g. to create a parts list.		
	<i>3.2 Using OLE</i>	3.2.1	Embed/link a file and display as an object.	
		3.2.2	Add a hyperlink to an object.	
	<b>4 Outputs</b>	<i>4.1 Plot/Print Options</i>	4.1.1	Use model space, paper space/design model, sheet model.
			4.1.2	Create, use, modify layouts/sheet models.
4.1.3			Create, use, scale different viewports/views.	
4.1.4			Add a titleblock.	
4.1.5			Select a printer/plotter.	
4.1.6			Add and use a plot style/pen table.	
4.1.7			Plot/print all, part of a drawing to scale, fit to page.	