Getting Started with Architecture Engineering and Construction (AEC) Online Course

Prerequisites for Completing the Getting Started with AEC Course

Before undertaking the Getting Started with AEC course, you should:

- o Have access to Caddie software, a recent version, (licenced or evaluation) and an internet connection.
- o Be computer literate and knowledge of using the Windows Operating System.
- o Have a reasonable understanding of drawing and engineering principles.
- o Successfully completed the Getting Started with Caddie Online training course, Caddie Basic classroom course or the equivalent self-taught experience.

Downloading and opening a Caddie Course Exercise

You will become familiar with the structure of the course including the practical exercises requiring you to download and open an example drawing in Caddie and the associated questions linked to them.

- o Where to find the course exercises
- o How to download the Caddie .DWG course files

1. Working in a 3D Environment

- o AEC Commands and keyboard shortcuts
- o WCS and UCS
- o Pan, Zoom and Orbiting
- o 3D views, saving and recalling views
- o Render Modes
- o 2D and 3D flags
- o Modelspace Grid

2. Exploring Walls

- • Inserting Walls
- o Using the Build > Wall command to insert walls
- o Some of the options available in the wall dialogue box

- • Wall Justification
- o Left Justification
- o Centre Justification
- o Right Justification

- • Editing walls using grip points
- o Cyan Triangles
- o Blue Squares
- o Yellow Arrows

- • Editing walls using Object Properties
- o Wall length
- o Wall width
- o Wall justification

- • Inserting a curved wall
- o How to insert a curved wall
- o The additional grip points on a curved wall

- Crossing or abutting walls
  - The effects of the automatic cleanup setting being switched on or off
  - The Cleanup Group assigned to the wall for crossing and abutting walls
  - The Cleanup Radius that is assigned to a wall when two walls abut each other

- Overriding and managing cleanups
  - Using the diagnostic display configuration to view and edit the Cleanup Radii assigned to walls when they abut each other
  - Changing wall cleanup options using Object Properties

- Introducing wall styles
  - Selecting the wall style to use when creating a wall
  - Interrogating and changing the wall style used on an existing wall
  - Tools on the Context Sensitive Menu (CSM) for turning the hatch on and off in a style

- Visualising your walls in three dimensions
  - The eight different 3D views
  - Using a keyboard short cut for top view
  - Orbiting your drawing and the constrained orbit
  - Changing the height of walls
  - Changing the surface hatch of walls.
  - The Render Modes and materials flag on the status bar

- Alternative ways of inserting a wall
  - Quick Wall - when, how and why we use it
  - CSM -> Convert to -> Wall on an existing polyline. For when line work representing walls may already have been drawn
  - Bringing in walls from the catalogue - a graphical library of commonly used predefined styles

3. Exploring Windows, Doors, DWAs - (Door Window Assemblies) and Openings

- Inserting windows
  - Using the Build > Window command to insert windows
  - Some of the options available in the Windows dialogue box

- Editing windows using grip points and Object Properties:
  - The effects of the various grip points:
    - Cyan Triangles
    - Blue Squares
    - Yellow Arrows
  - Using Object Properties to make changes to:
    - Head Height
    - Height
    - Width
    - Measure to

- Anchors
  - Changing the anchors (relationships between the walls and features within them)
  - The effect of the anchors when modifying the wall

- Introducing window styles
  - The styles tab in the windows dialogue box
  - Interrogating a window style
  - Changing basic properties of a window style

- Inserting a door
  - Using the Build > Door command to insert doors
  - Some of the options available in the Door Dialogue Box

- Editing doors using grip points and Object Properties
  - The effects of the various grip points:
    - Cyan Triangles
    - Blue Squares
    - Yellow Arrows
  - Using Object Properties to make changes to:
    - Door height
    - Door width
    - Door head height
    - Measure to
    - Swing angle

- Introducing door styles
  - The Door Dialogue Box for styles.
  - Interrogating a door style
  - Changing basic properties of a door style

- Inserting Door Window Assemblies (DWAs)
  - Using the Build > DWA command to insert a DWA
  - Some of the options available in the DWA dialogue box

- Editing Door Window Assemblies using grip points and Object Properties
  - The effects of the various grip points:
    - Cyan Triangles
    - Blue Squares
    - Yellow Arrows
  - Using Object Properties to make changes to:
    - Head Height
    - Height
    - Width

- Introducing Door Window Assembly Styles
  - The DWA dialogue box for styles
  - Interrogating a DWA style.
  - Changing basic properties of a DWA style

- Inserting openings
  - Inserting an opening
  - Controlling the size and shape of the opening

- Editing openings using grip points and Object Properties
  - The effects of the various grip points:
    - Cyan Triangles
    - Blue Squares
  - Using Object Properties to make changes to:
    - Head Height
    - Height
    - Width
    - Rise

4. Creating Floors Using Slabs
- Inserting slabs
  - The different parameters available when creating a slab
  - Creating a slab from points and an existing polyline

- Editing slabs Inserting a hole in a slab from points and an existing polyline
  - The effects of the various grip points:
    - Blue circles - vertices
    - Cyan rectangles - edge position
    - Cyan triangles - edge overhang, thickness, vertical and horizontal offset
    - Blue square - pivot point
    - Vertical blue square - slab angle

- o Using Object Properties to make changes to:
    - o Thickness
    - o Vertical offset
    - o Horizontal offset
    - o Rise
    - o Run
    - o Slope
    - o Pivot point
    - o Soffit height
- o Adding vertices to a slab outline
- o Modifying slab edges:
    - o Overhang
    - o Angle

- • Adding and removing holes in slabs
- o Inserting a hole in a slab from points and an existing polyline
- o Modifying a hole in a slab
- o Removing a hole from a slab

5. Roofs and Roof Slabs
- • Inserting roofs
- o Using the Build > Roof command to create a roof
- o The options available in the Roof dialogue box

- • Editing roofs using grip points and Object Properties
- o The effects of the various grip points
    - o Blue Squares - for both edges and vertices
- o Using Object Properties to make changes to:
    - o Thickness
    - o Base height
    - o Barge board orientation
- o Using edit roof command to make changes to:
    - o Pitch
    - o Overhang
    - o Base height
    - o Segment type

- • Inserting a roof slab
- o Creating a roof slab from an existing roof
- o Creating a roof using the Build > Roof Slab command

- • Editing roof slabs using grip points and Object Properties
- o The effects of the various grip points:
    - o Blue circles - vertices
    - o Cyan rectangles - edge position
    - o Cyan triangles - edge overhang, thickness, vertical and horizontal offset
    - o Blue square - pivot point
    - o Vertical blue square - roof slab angle
- o Using Object Properties to make changes to:
    - o Thickness
    - o Vertical offset
    - o Horizontal offset
    - o Rise
    - o Run
    - o Slope
    - o Pivot point
    - o Soffit height
- o Adding vertices to a roof slab outline
- o Modifying roof slab edges: (Assigning edge style with soffits and facias will be covered later)
    - o Overhang
    - o Angle

- Adding and removing holes in roof slabs
  - Inserting a hole in a roof slab from points and an existing polyline
  - Modifying a hole in a roof slab
  - Removing a hole from a roof slab

6. Adding Stairs and Railings
- Inserting staircases
  - Using the Build > Stairs command to insert a staircase
  - Some of the options available in the Stairs dialogue box

- Editing staircases using grip points and Object Properties
  - The effects of the grip points:
    - Cyan Triangles
    - Blue Squares
    - Blue Circles
    - Yellow Arrows
  - Using Object Properties to make changes to:
    - Width
    - Height
    - Justification
    - Terminate with
    - Calculation Type
    - Arc Constraint
    - Arc angle
    - Trads per 360°
    - Centre Radius
    - Straight length
    - Riser Count
    - Riser
    - Tread

- Inserting railings
  - Using the Build > Railings command to create a rail
  - The options available in the Railings dialogue box

- Editing railings using grip points and Object Properties
  - The effects of the grip points:
    - Cyan Triangles
    - Blue Squares
    - Yellow Arrows
  - Using Object Properties to make changes to:
    - Rail locations
    - Post locations
    - Railing extensions

7. Structural Members
- Inserting a structural member
  - Using the Build > Structural Member command to insert a member
  - Some of the options available in the Structural Members dialogue box

- Editing Structural members using grip points and Object Properties
  - The effects of the grip points:
    - Cyan Triangles
    - Blue Squares
  - Using Object Properties to make changes to:
    - Start Offset
    - End Offset
    - Roll
    - Justification

- Creating you own Structural Members
  - Creating a multi-component Structural Member using existing node shapes
  - Creating your own node shapes from polylines
  - Defining the offset and combining components along the length of the Structural Member

8. Mass Elements
- Creating mass elements
  - Using the Build > Mass Element command
  - The options available in the Mass Element dialogue box

- Editing mass elements using grip points and Object Properties
  - The effects of the grip points:
    - Cyan Triangles
    - Blue Squares
  - Using Object Properties to make changes to:
    - Height
    - Width
    - Depth
    - Radius
    - Rise
    - Profile
    - Type
    - Style

9. Plans, Sections and Elevations
- Creating Sections and Elevations
  - Using the quick section to create both sections and elevations
  - Editing and regenerating sections, individual and multiple
  - Filtering objects when creating sections and elevations

- Creating Horizontal Sections (plans)
  - Using the Quick section to create a horizontal section
  - Creating a viewport showing a horizontal section of the model
  - When to use quick section or a viewport to present your section

- Enhancing the presentation of horizontal sections and elevations
  - Using sub-divisions to give depth to your sections and elevations
  - Converting AEC sections to 2D linework

10. Levels
- Overview of levels
  - The levels configuration dialogue box
  - The parameters defined for a level
  - Adding new levels for different storeys
  - Adding a level to give an overall view of the model

- Creating a building using levels
  - Creating x Inserting AEC walls from a polyline on a specific level
  - Copying objects between levels
  - Inserting AEC windows and doors on a specific level
  - Inserting slabs on a specific level
  - Adding a roof on a specific level
  - Adding railings, columns, and dimensions on a specific level
  - Creating viewports to show specific levels of the building

11. Spaces
- Working with spaces
  - Creating and configuring spaces
  - Modifying spaces using grip points and object properties
  - Scheduling spaces
  - Adding and scheduling multi-view blocks to spaces
  - Automatic updating of space and symbol schedules
  - Editing Spaces using Object Properties and Grip Points
  - Creating a zone and zone schedule

12. Scheduling
- Creating schedules
  - Using schedule tags to identify objects
  - Accessing the scheduled objects directly from the table
  - Manually and automatically updating scheduled tables
  - Simple scheduling of blocks and attributes using tables

13. Catalogue
- Using the catalogue
  - Hiding and showing the catalogue
  - Downloading additional catalogues
  - Inserting blocks, patterns, and styles from the catalogue
  - Adding content to the catalogue

14. Presenting Your Model
- Presenting your model
  - Exporting your model as a picture
  - The different Render Modes that can be viewed and printed using viewports
  - Further enhancing your model using the Visual Image Output (VIO) photorealistic rendering
  - Using the Visual Image Output (VIO) Photorealistic Rendering for a Walkthrough of Your Model

During the 14 Modules of the course, you will complete 50 lessons and associated questions including 17 exercises.

The course can be completed in one or multiple sessions and is equivalent to a half day classroom course. The duration will vary as individuals may take longer depending on their availability to study as well as their knowledge and skill level before starting the course. On average learners have completed the course within 25 hours of study with the maximum time taken of 66 hours.

You will have access to the course for 12 weeks from your enrolment date in which to complete the course. Once you have successfully completed and received a certificate for the course you will have unlimited access to revisit the course.

Accreditation for SACAP registered professionals

Getting Started with Caddie AEC has been assessed and evaluated by the South African Institute of Architectural Technologists (SAIAT), a South African Council for the Architectural Profession (SACAP) recognised voluntary organisation, as a Category 1 Continuing Professional Development (CPD) event for SACAP registered professionals.

SACAP registered professionals can earn 4 credits towards their CPD with a Certificate of Achievement for Getting Started with Caddie AEC