Course ID: 12d – 2C3

Two Day – Advanced Civil Design

Summary:

These courses introduce people to the advanced tools of 12d Model Software for Civil Engineering projects.

These courses are intended to be taken over a number of months as the participant's use of 12d Model Software increases and have been designed to produce a competent and flexible employee, able to under take various engineering project roles.

Prerequisites:

Experience in 12d Model with completion of the Two Day – Intermediate Civil Design training (12d – 2C2) is required.

Course Contents:

Estate Road Design

This session covers the use of the 'Create Roads' options in 12d Model, and the concept of 'Continuous Design'.

12d Model's 'Create Roads' option will automatically create road strings, cross sections, kerb returns, and cul-de-sac heads for a layout of Local (Estate / Subdivision) Roads. The 'Continuous Design' functionality enormously enhanced in Version 9 of 12d Model allows the road network to be completed quickly and effectively.

Participants will:

- Review of Road Creation in 12d Model - specifically:
  - Using a 'Shared' tin of the survey in your design project
  - Loading templates from a template library
  - Review of road grading techniques using the Super Alignment (I.P. methods only).
  - The Apply Many function in Version 8
  - Creating and grading fillets (wings / kerb returns).
  - Triangulating the design, and producing finished contours.
- Designing a network of Estate Roads using the 'Create Roads' function.
- Changing the fillet radii for the major road intersections
- Adding cul-de-sac heads

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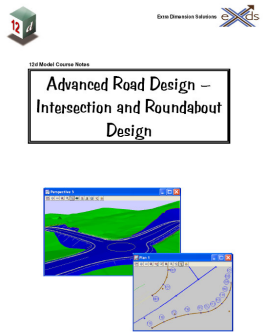
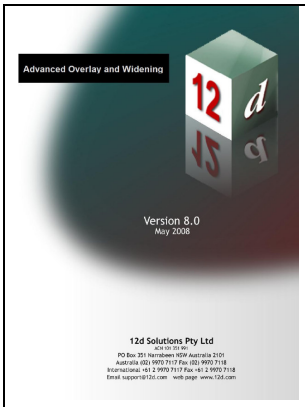
	• Adding road widening and changing of design templates. • Changing a road width to allow for a new bus bay, changing the intersection kerb returns. • Automatically creating/updating the design tin and contours. • Using the new V8 Chains functionality to update Chainage labelling, Long Section, Cross Section and Kerb Return plotting.
	**Advanced Road Design Techniques** Participants will: • Create a simple fillet as a kerb return on one side of a tee intersection. • Use a macro to create a 3 centred curve on the other side of the intersection. • Use the automatic kerb return function to grade the kerb returns. • Apply templates to the kerb returns to complete the intersection. • Triangulate the design strings and inspect the intersection in Perspective view. • Modify the main road vertical alignment through the intersection, and regrade. • Shade the triangulation based on road grade. Check for areas of poor drainage.



Overlay and Widening

This session is intended to provide guidance through the tools to produce effective overlay and widening of existing road networks, to minimise costs and scrutinises various alternate options.

Participants will:

- Gain an understanding as to why & when, we use the Decisional Template.
- Create a simple Decisional Template to ensure a project sub-grade remains dry.
- Create coding to ensure 12d automatically generates a table drain when in cut.
- Work through a Decisional Template used to create benching in a deep cutting area and the calculation process 12d model performs.
- Modify a Decisional Template to use different batter treatments given various known strata surfaces (Eg. in rock batter slope 1 in 1, in clay batter 1 in 4).

Please note the content for all EXDS training is the use of 12d Model Software. EXDS does not teach civil and surveying principles.

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