

Course Title: **Advanced Road Design Introduction**

Course Code: **ARD-1**

Duration: **2 Days**

Courseware Description

This course is for existing Land Desktop or Civil 3D users who are involved in the design and documentation of roads.

Objectives

This course is for Autodesk Land Desktop or Civil 3D users, introducing them to the powerful features of Advanced Road Design

Who Should Attend

This courseware is designed for new users of Civil 3D and Advanced Road Design.

Prerequisites

It is recommended that students have a working knowledge of:

- Students should have completed the **Civil 3D Introduction (CIV-1)** course or have equivalent experience using Civil 3D.
- Microsoft® Windows® XP or Microsoft® Windows® 2000

NSW	QLD	VIC	WA	New Zealand
Level 1	Engineering House	Level 4	Bldg B, Level 1, Suite 3	Unit 1
255-259 Pacific Hwy	Level 3, 447 Upper Edward St	37-41 Prospect St	661 Newcastle St	74 France St
North Sydney NSW 2060	Brisbane QLD 4000	Box Hill VIC 3128	Leederville WA 6007	Auckland 1001 New Zealand

Course Outline

INTRODUCTION

- Demonstration of software + sample outputs.

PRELIMINARIES

- Review of Digital Terrain Models.
- Land Desktop commands for Horizontal Curves + Spirals.
- Defining and editing Horizontal Alignments.

BASIC ROAD DESIGN

- Creating Typical Section templates for Rural Roads / Urban Roads / Kerb Returns etc.
- Designing and editing the Vertical alignment + setting Parameters for cut and fill batters Subsoil Stripping etc.
- Volume Calculations / Reports for Cross sections, Vertical Curves, Strings etc.

PLOTTING / SETOUT (no DXF!)

- Plotting cross sections / Long Sections – Plotting Contours / String-lines on Plan View.
- Labelling Strings with Chainages / Level / Point number at various spacings (fractional, equal, chainage)
- Generating set-out tables and COGO points based on Chainage & Offset / Radial and Point Co-ordinate methods.
- As part of the standard course, we alter the basic road design at this stage to illustrate how easy it is to regenerate all section and plan views.

COMPLEX ROAD DESIGN

- Designing Kerb returns and Cul-de-Sacs.
- Using the interactive tools to generate contours dynamically while editing the vertical grading on Kerb Returns / Cul-de-Sacs.
- Using Multi String Design for Bus Bay Widening and Road Reconstruction.
- Advanced Road Design also has specific Roundabout Design Tools, which are covered in a specific Complex Road Design course. This also goes into more detail on re-construction (Design Constraints, matching levels by grade/offset etc).

DRAINAGE (Based on Australian Rainfall & Runoff (AR&R))

- Setting the drainage parameters – rainfall and runoff / intensities, libraries of Pipes + Pits and adding new elements if necessary.
- Defining Catchments and Catchment Types. Defining the drainage Network and connecting the pits to the catchment areas.
- Specifying the Downstream pit and calculating the levels and diameters for the Pipe network.
- Editing parameters and levels in the grading design window.
- Plotting the finished design in Long Section and Plan as well as the HGL calculations.

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