

# Advanced InRoads V8i

## Prerequisites:

Know how to create and triangulate a DTM, know how to create cross sections, know how to create horizontal and vertical alignments, know how to create a template, know how to set up and run Roadway Designer.

## Introduction

Overview: what the course will cover and what you will be able to do upon completion of the course

## Optimizing DTMs

### Concepts

- DTM points and input types
- Optimizing DTMs
- Using Named symbologies and Feature styles to create intelligent DTMs
- Feature selection filters

### Examples

- Creating a DTM from multiple sources, using features
- Creating and optimizing a DTM from breaklines
- Correcting problems in surfaces

## Geometry

### Concepts

- Using Elements to create alignments
- Cogo commands
- ICS Files used to create alignments
- Using geometry styles to your advantage
- Creating and annotating Event Points
- Using XML reports to create Deed descriptions

### Examples

- Horizontal Elements
- Creating ics input files
- Creating and assigning styles

## Cross Sections and Profiles

### Concepts

- Creating utility features
- Showing features on profiles
- Annotating profiles
- Cutting sections with features
- Skewed sections
- Custom sections
- Sections on sheets
- Adding surfaces, components and/or features to existing cross sections
- Annotating sections
- End-area volumes

## Examples

- Creating utility features, including creating names symbologies and feature styles
- Showing features in profiles
- Annotating using intelligent notes
- Cutting sections in sheets, showing features automatically
- Modifying features in plan, updating in sections
- Adding new features to existing sections
- Annotating features in sections

## Typical Sections

### Creating Templates

- Efficient use of components to create templates
- Components that are 'linked' to other components with parent/child relationships
- Using constraints to your advantage
- Using display rules to control when a component is used

### Examples

- Creating template from existing components
- Creating components from scratch
- Adding a concrete liner only when a ditch is present
- Automatically adding a barrier when median narrows
- Using display rules to change components under certain conditions

### End Conditions

- What targets are available and when to use them
- How to use end condition criteria to create complex sideslopes
- Setting the priorities of end conditions

### Examples

- Benching in sideslopes
- Intersecting multiple surfaces
- Keeping sideslopes within right-of-way
- Toe-of-slope ditches
- Using multiple end conditions in the same template

## Corridor Modeling

### Roadway Designer

- Using parametric constraints to vary a template 'on-the-fly'
- Point controls and how they can reduce the number of templates needed
- Editing your design at individual stations
- Editing templates within the IRD file
- Using end condition exceptions: overrides, changing end conditions for a station range and setting a backbone only range

### Examples

- Changing one occurrence of a template in the IRD file
- Modifying the sideslopes of an individual template drop
- Setting a backbone-only range for a bridge
- Changing the end conditions for a station range without changing the template drops
- Smoothing abrupt changes in end conditions

### Multiple Corridors in Roadway Designer

- Creating alignments for intersection returns
- Setting up multiple corridors in one IRD
- Using target aliasing to intercept another corridor
- Using clipping options to combine corridors into one surface

### Examples

- Creating multiple corridors for an intersection
- Modeling multiple corridors to create one surface for an intersection
- Creating multiple corridors for a divided highway and exit ramp

### Overlay Tools

- Cross Slope Optimization and Adjusted Verticals
- Using components for overlays
- Using components for leveling and milling

### Feature-based Modeling

- Using design surface tools to create a surface
  - Generate Longitudinal
  - Generate Sloped Surface
  - Templates (end conditions) for sideslopes
- Surface editing tools
  - Editing breaklines (fillet, trim, partial delete, etc.)
  - Deleting points, triangles, linear features and portions of a surface
- Creating master proposed surfaces with merge and wire-frame model concepts
- “Cleaning up” features in surface
- Modeling a pond without templates

### Site Modeler

- Setting up a Site Modeler Project
  - Projects vs. Sites vs. Surfaces; what roles they play
  - Site Options
- Wizards for pads and ponds
- Creating Site Modeler Elements
- Using Define Section (similar to a ‘template’)
- Dynamic update of sites

### Review / questions and answers