INFRAMINDS
ENGINEERING..DESIGN..SOLUTIONS

Bentley
Training Partner

ROADWAY MODELING AND DESIGN USING OPENROADS DESIGNER AS PER IRC – COURSE CONTENT

Inframinds
1, Vemana Business Incubation Centre- Vemana Institute of Technology, Mahayogi Vemana Road,
Koramangala 3rd Block, Bengaluru – 560034,
Mobile: +1(214) 9195734, +91 8007814999, grd@inframinds.in

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1. INTRODUCTION TO OPENROADS DESIGNER

This module is an introduction to the capabilities of the OpenRoads Designer software for existing GEOPAK, InRoads, and MXROAD OpenRoads Technology users.

The participants will learn how to:

- ✓ *Create a new file & the best practice required based on the workflow.*
- ✓ *Use the seed file & its importance in creating a new file as per the workflow.*
- ✓ *Create a new file using the India Kit.*
- ✓ *Use help options.*
- ✓ *Review backstage & use project explorer.*
- ✓ *Cross check – workspace-workset*
- ✓ *Use the standard workflow in ORD.*

2. BASICS OF MICROSTATION FOR ROAD DESIGNERS

This module will cover the required basics of MicroStation connect edition to use OpenRoads Designer handily.

The participants will learn how to:

- ✓ *Set up views, review levels and use levels display manager.*
- ✓ *Use Accudraw, referencing methods, draw lines, modify linewidth and line type, draw objects, move, erase, copy, array, text box, text box with leaders, select objects using levels, drawing scale.*

3. TERRAIN MODELLING (SURVEY DATA PROCESSING)

This module will cover how to create a terrain (DTM/DEM) using the survey data, display terrain model features including the boundary, triangles, and contours using feature definitions, and how to modify the default display parameters. This will also cover how to label terrain contours, spot elevations and slopes.

The participants will learn how to:

- ✓ *Create terrain by Graphical filter method with a CAD file*
- ✓ *Create terrain model from Ascii/CSV file.*
- ✓ *Export terrain model.*
- ✓ *View referenced topo map in 3D view.*
- ✓ *Switch on background map.*
- ✓ *Setup Geo-coordinates.*
- ✓ *Assigning feature definition to terrain modelling.*
- ✓ *Adding features such as points, lines & removing existing features to edit terrain.*
- ✓ *Change contour intervals & set as active terrain.*
- ✓ *Annotate contour.*
- ✓ *Create Mass Haul Diagram.*

4. GEOMETRIC DESIGN

This module covers how to create, edit, review & annotate horizontal and vertical alignment using the OpenRoads Designer Geometry tools.

The participants will learn how to:

- ✓ *Reference and use the terrain model created in the previous module required for geometry.*
- ✓ *Use feature definition & geometry commands.*
- ✓ *Create a Horizontal Alignment (HA) by Complex by PI & Complex by element method.*
- ✓ *Check the properties of the HA and Name the HA.*
- ✓ *Annotate the HA & assign station equation to the HA.*
- ✓ *Editing Major & minor ticks for station chainage.*
- ✓ *Assign & review the design standards as per IRC related to HA.*
- ✓ *Use the civil message center.*
- ✓ *Modify the HA using table editor.*
- ✓ *Modify the HA using text manipulators & drag handles.*
- ✓ *Generate horizontal reports.*
- ✓ *Open profile view along the plan view.*
- ✓ *Switch on the existing profile of the alignment in profile view using the terrain model.*
- ✓ *Create vertical geometry by Complex by PI & Complex by element method.*
- ✓ *Working with multiple vertical geometry.*
- ✓ *Check the properties of the HA and Name the HA.*
- ✓ *Review design standards.*
- ✓ *Modify the profile using table editor for vertical geometry.*
- ✓ *change vertical exaggeration for profile.*
- ✓ *Provide vertical offsets*
- ✓ *Set active profile and generate vertical reports.*
- ✓ *Assign Sight Visibility & generate reports.*

5. CORRIDOR MODELLING & SUPERELEVATION

This module covers how to create a Corridor using the template library and 3D model for a roadway project. This module also covers how to create and assign superelevation to a Corridor.

The participants will learn how to:

- ✓ *Reference and use the terrain model & geometry files created in the previous modules which are required for corridor modeling & superelevation.*
- ✓ *Create a new corridor and set feature definition based on the importance & phase of the project.*
- ✓ *Review and assign existing templates from the template library.*
- ✓ *Set parametric constraints for the existing assigned templates.*
- ✓ *Review dynamic cross sections, open multiple views, and 3D view of the corridor.*
- ✓ *Use different types of view transparency.*
- ✓ *Assign & calculate superelevation.*
- ✓ *Generate SE reports.*
- ✓ *Use drive through video in 3D view.*

6. CORRIDOR MODELLING QUANTITIES

This module covers the various tools and methods to extract and compute quantities from the created corridor model.

The participants will learn how to:

- ✓ *Generate corridor component quantities.*
- ✓ *Review quantities.*
- ✓ *Export the abstract of quantities.*
- ✓ *Export detailed quantities at regular intervals.*

7. TEMPLATES

This module covers the various tools and methods to create a two-lane roadway cross section template as per IRC SP 73.

The participants will learn how to:

- ✓ *Define the points, components and end conditions in a template.*
- ✓ *Create & test a new road template using the template editing tool.*

8. DRAWING PRODUCTION

This module covers the drawing production activities like plan, profile sheets & cross-section sheets of a roadway project.

The participants will learn how to:

- ✓ *Reference the required files and sheets to create named boundaries. Generate civil plan-profile- cross sections sheets.*
- ✓ *Generate plan and profile in single sheet.*
- ✓ *Generate plan and profile in alternate sheets.*
- ✓ *Annotate drawing models.*
- ✓ *Publish / Plot the deliverables to pdfs.*

9. SPECIAL TOPICS

This module if covered with few special topics that is required at exceptional cases to deliver the project.

The participants will learn how to:

- ✓ *Work beyond Center Line Geometry -Horizontal & Vertical.*
- ✓ *Use templates for structures like VUP, toll plazas, crash barriers etc.*
- ✓ *Use Civil Cells and editing civil cells for intersections*
- ✓ *Create a 4-lane road template (with service road) for built up section as per IRC -84.*
- ✓ *Use Overlay Stripping & Widening templates.*
- ✓ *Customize drawing sheets (title sheets) as per your organization standard*

10. GENERAL INSTRUCTIONS

- This training is a virtual hands-on training, WebEx link will be sent to the participants on their registered email-ids.
- The trial license of the software will be issued for a period of 30-days for practicing purposes (non-commercial use) will be issued to the participants, the license to be installed on their personal laptops only.
- There is no evaluation process for the participants to accomplish the certificates, after successful completion of training, the participants will receive the certificates through email, tentative processing time for the certificates is two working days after completion of training.
- The training material and dataset will be sent to the participants on email.