Bentley®
Advancing Infrastructure

OpenBridge Designer

Onboarding Guide

Version: 1.0

Released Date: 10-April-2020

Table of Contents

1. About OpenBridge Designer

OpenBridge Designer is a unique application that combines modeling, analysis, and design into one comprehensive bridge product, as it creates a true BIM model of your bridge from the beginning of our project. The application utilizes the modeling capabilities of OpenBridge® Modeler and the analysis and design features of LEAP® Bridge Concrete, LEAP Bridge Steel, and RM Bridge to meet the design and construction needs of both concrete and steel bridges. With this application, you have the advantage of using a single comprehensive package from beginning to end of any bridge design project. You can use one product to create an interoperable physical and analytical model for steel and concrete bridges, which can be utilized throughout the bridge's lifecycle. Using OpenBridge Designer you can:

- Incorporate real-world conditions into your virtual design environment such as point clouds, 3D reality meshes, terrain data, images, and geospatial information to bring real-world settings to your project.
- Integrate roadway geometry information for an accurate bridge model that allows better reporting, quantities estimation, and construction planning.
- Accurate geometry model will be used as analytical model and have interoperability to easily react to the changes.
- Enable users to share project information across teams, locations, and disciplines using DGN's as the common data environment.
- Create annotated plans, elevations and sections using OpenBridge Designer dynamic views capabilities.
- Share realistic visualizations with the public and stakeholders to gather feedback, improve public engagements, and speed project approvals using LumenRT.

1.1 OpenBridge Designer Advantages & Benefits

- Single file format- DGN platform.
- Remembers the relationship elements and components.
- Geometry reports: deck elevation, beam seats, haunches/hogs, pier and camber reports extracted from the 3D model.
- All things are linked, so it provides a common drawing platform for various engineering teams like highways, geotechnical, utilities, drainage etc.
- Clash detection and vertical clearances verification can be done automatically.
- In built Bentley's MicroStation tools available for quick and enhanced drafting.
- As the interface being dynamic, changes in the highway geometry or survey information will be reflected in the bridge project.
- Advance structural analysis with the included LEAP Bridge Concrete, LEAP Bridge Steel and RM Bridge as the user has full flexibility to choose their analytical software based on the project requirement and, design using more than 22 bridge design codes
- Efficient plans production as the drawings are extracted from the bridge 3D model.
- Rebar detailing in 3D and bill of materials reports
- Advance visualization and rendering using LumenRT

1.2 System Requirements for OpenBridge Designer

Operating System	Windows 10 (64-bit) Windows 8 and 8.1 (64-bit) Windows 7 (64-bit)
Processor	Intel® or AMD® processor 1.0 GHz or greater. OpenBridge Designer is not supported on a CPU that does not support SSE2.
Memory	8 GB minimum 16 GB recommended. More memory almost always improves performance, particularly when working with larger models.
Hard Disk	9 GB free disk space (which includes the 5.6 GB install footprint for a complete installation)
Screen Resolution	1600 x 1200 or higher

2. Bridge Products Offering

Upon completion, resource should be able to:

- Have a working knowledge of the bridge products offerings and capabilities.
- Understanding the bridge products licensing options.

2.1 Bridge Products Offering

SL	Topic
1	Bentley Bridge products (Bentley webpage)
2	Bentley Roadway products (Bentley webpage)
3	Product Licensing (Bentley webpage)
4	Bentley Communities-Bridge

3. MicroStation for Civil Designers

Upon completion, resource should be able to:

- Have a working knowledge of the basic MicroStation functionality and how it applies to civil products.

3.1 Introduction to MicroStation CONNECT Edition

SL	Topic	Description	Link
1	Introduction to MicroStation CONNECT Edition Course Introduction	In this video, you will learn about the Introduction to MicroStation CONNECT Edition course	Click Here
2	Welcome to MicroStation	In this video you will learn how to access the Welcome Page, interact with a WorkSpace and WorkSet, open and "brand" MicroStation design file to the active WorkSet and navigate the MicroStation CONNECT user interface.	Click Here
3	The MicroStation CONNECT Edition User Interface	Continuing with our introduction to MicroStation, we find ourselves in need of becoming familiar with the basic layout, tool locations, and functionality found in the MicroStation CONNECT Edition. This video covers that information	Click Here
4	MicroStation for Civil Engineers	This is a learning path series in which you will learn the MicroStation functionality that pertains to the basic practice of Civil Engineers	Click Here
5	Civil Design using MicroStation	This is a learning path series in which you will learn the basics of alignment annotation and manipulation of terrain data.	Click Here
6	MicroStation for Roadway Users	Learn how to create existing geometry, alignments and profiles, so it can later be incorporated into our bridge.	Click Here

3.2 Controlling the Display of Designs for Civil Designers

SN	Topic	Description	Link
1	Controlling the Display of Designs Introduction	Now that you have all the necessary project related references attached, you will need to adjust the display in a more detailed way. You will begin by turning on several levels from the Baseline reference and then setting the Annotation Scale to the desired plan scale.	Click Here
2	Reference Project Related Data	Now that you have created your new file derived from the settings of the seed file, you need to reference in the project related data before you can begin the actual layout of the subdivision and proposed site.	Click Here
3	Control the Display by Setting the Level Display	Now that you have all the necessary project related references attached, you will need to adjust the display in a more detailed way. You will begin by turning on several levels from the Baseline reference and then setting the Annotation Scale to the desired plan scale.	Click Here
4	Control the Display by Setting the View Attributes	Now that you have located the proposed site location and displayed the appropriate levels, you will now create a Display Style, which in turn, you will then match it up to a Display Rule. A display rule is a set of display criteria which is processed on any view of a design model. Display rules allow you to control the symbology, appearance, and display of design elements; this control is based on the property of the element, view, model, reference, or file.	Click Here

5	Clip Volume	Due to the extent of the attached references, the total viewable area is far more than necessary. You will need to limit the range of these graphics that you are viewing by creating a clip volume which will limit an area to be displayed to just around the vicinity of your subdivision.	Click Here
6	Creating a Saved View	Now that you have changed many of the settings relative to the view, to preserve all these, it is a great idea to create what is called a Saved View. A Saved View is a view definition, which includes the level display for both the active model and references, the clip volume, and other view attributes.	Click Here

3.3 Using General Tools in MicroStation CONNECT Edition for the Civil Designer

SN	Topic	Description	Link
1	Using General Tools Course Introduction	This video is an introduction to the Using General Tools course. You will learn what will be covered in the following videos, and in the course itself.	Click Here
2	Basic Tool Operations	MicroStation contains a variety of different types of placement tools. These are meant to accommodate different requirements when working with design geometry. Regardless of the active tool, the same basic principles of tool operation may be applied. In this video you will explore basic tool operation.	Click Here
3	Clean Up Utility Line Geometry	When working with designs, it is inevitable that changes to the design geometry will be required. Attributes such as level, color, line style and weight are easily modified in a variety of ways. Modifications can be applied individually or to multiple elements. In this video you will observe utility line information and make changes to element attributes.	Click Here
4	Verify Your Work	As a member of the site development team, you have been tasked with verifying the preliminary building design to better determine the building placement on the site. This will be done by measuring the proposed building that was obtained from the architect.	Click Here

3.4 Drawing with MicroStation for Civil Designers

SN	Topic	Description	Link
1	Drawing with MicroStation Introduction	This video is an overview for the video series that makes up the course. In this course, you will discover how to create new drawing elements efficiently and accurately using tools such as the Place SmartLine	Click Here
2	Creating the Subdivision Road	In this video you will lay out the roadway centerline for the subdivision utilizing the Place SmartLine tool, aided by AccuDraw for precision placement of the points. Along with that you will also incorporate some of the shortcuts that are built into AccuDraw that make placement more streamlined and efficient.	Click Here
3	Offsetting to Create the Roadway Features	Continuing in the workflow, now that you have constructed the roadway centerline for the subdivision, in this video you will offset this centerline to create roadway features.	Click Here
4	Creating the Proposed Building's Parcel	In this video, you will construct the parcel for the proposed building site with the subdivision.	Click Here
5	Creating the Centerline for the Proposed Building Site	In this final video of the course, you will layout the centerline for the proposed building site	Click Here

3.5 Manipulating and Modifying Elements for Civil Designers

SN	Topic	Description	Link
1	Manipulating and Modifying Elements Introduction	This video is an overview for the video series that makes up the course. In this course, you will discover how to manipulate and modify existing elements by using the tools in the Manipulate toolbox and the Modify toolbox.	Click Here
2	Move and Rotate	In this video you will begin by bringing in the proposed building footprint. With a setting toggled in the References dialog, you can use the standard Manipulate Element tools to operate on a reference as if it were a element such as a line or a shape. In this case, you will move and rotate the building onto the building pad.	Click Here
3	Copy Parallel	In this video you will begin the layout of your proposed site plan by utilizing the Copy Parallel tool to construct curb lines and parking stalls. You can use this tool when you want to move or copy an element, or portion of an element, parallel to the original.	Click Here
4	Copy	In this video you will continue using the Copy Parallel tool to layout the parking lot features but will also start utilizing the Copy Element tool as well. Here you will use along with it, AccuDraw for precision placement.	Click Here
5	Fillet and Trim	In this video, you start to use some of the Modification tools such as the Construct Circular Fillet tool to further layout out the proposed site plan. You will also use trimming tools such as Trim to Intersection and Trim Multiple to clean up extra line work.	Click Here
6	Mirror	The Mirror tool can be used to mirror elements about a horizontal line, a vertical line, or a user-defined line, or about the element center. In this video, you will utilize the Mirror tool to create a mirrored copy of the geometry that you've created thus far to quickly generate the other half of the site.	Click Here
7	Shorten Elements with Trim to Element	The Trim to Element tool lets you extend or shorten an open element, or multiple open elements simultaneously, to their intersection with one other element.	Click Here
8	Break Element	Break Element is used to remove unwanted portions of elements. In this section, continue to create the proposed curbing near the entrances. Then you will utilize the Break Element tool to break up the continuous line work of the curbing at the proposed site and subdivision's entrances in order to then create the curb returns	Click Here
9	Construct Chamfer	To construct a chamfer between two lines or adjacent segments of a line string or shape, you can use the Construct Chamfer tool. In this video you will use the Construct Chamfer to clean up the property line at the entrance of the subdivision.	Click Here

3.6 Working with Cells for Civil Designers

SN	Topic	Description	Link
1	Working with Cells Course Introduction	This video is an introduction to the Working with Cells course.	Click Here
2	Place Landscaping Cells	Placing symbols, or cells, is performed using the Place Active Cell tool. There are a variety of settings to control size, rotation, and AccuDraw can also be useful in aligning cells correctly. In this video you will place landscaping cells on the proposed site plan.	Click Here

3	Creating Site Development Symbols	Symbols provide the ability to place objects in your designs that may be used to identify specific features without the need to recreate these graphics each time they are used. In MicroStation, symbols are known as cells and are stored in cell libraries. In this video a cell library will be created, and cells added to the library.	Click Here
4	Landscape and Lighting Cells	In the previous video, cells were created for a bollard, wheel stop, accessibility symbol and more. Those cells will now be used to embellish the proposed site design.	Click Here
5	Placing Drainage Symbols	The Proposed Site Plan is almost complete. To complete the cell placement, drainage symbols need to be added to the drainage system and bollards placed next to the dumpster pad. In this video you will use the Place Active Line Terminator command to place drainage cells.	Click Here
6	Updating Existing Cells	The End Wall cell requires several modifications. Extra lines need to be removed and intersections cleaned up. This cell, however, has already been used in the proposed site design. In this video the cell will be edited and the existing instances of the cell in the site plan updated.	Click Here
7	Document a Cell Library	Documenting the content of a cell library is often a necessary task but can be a tedious process that is prone to errors and update issues. If new cells are added or the graphics of a cell are updated, the documentation needs to be updated as well. In this video we will “document” a cell library using Place Cell Index	Click Here

4. OpenRoads Designer for Bridge Engineers

Upon completion, resource should be able to:

- Have a working knowledge of the basic OpenRoads Designer functionality and how it applies to bridge products.
- How to review alignments, profile, terrain, super elevation and, plans etc.
- Also user should able to produce plan, profile, section and elevation drawing.

4.1 Introduction to OpenRoads Designer

SL	Topic	Description	
1	QuickStart for Terrain Display	Learning path on the manipulation of the different display options for the given survey information.	Click Here
2	Using and Editing Terrain Models	Sometimes, terrain information needs to be edited. This training will show you the basics of editing and properly using the terrain information for your bridge project.	Click Here
3	QuickStart for OpenRoads Designer Geometry	Create roadway geometry information using the tools also included in OpenBridge Modeler.	Click Here
4	QuickStart for OpenRoads Designer Drawing Production	OpenRoads and OpenBridge use similar plans production tools.	Click Here

4.2 Terrain

SN	Topic	Description	Link
1	Introduction to Terrain Display	An overview of terrain models and terrain display, and a review of the ribbon interface.	Click Here
2	Displaying Terrain Features and Changing Contour Intervals	Learn how to toggle on and off the display of terrain features and change contour intervals using the context sensitive menu and the Properties window.	Click Here
3	Using Feature Definitions to Display Terrains	Learn how to set and change the terrain model feature definition to control how the terrain is displayed.	Click Here
4	Referencing a 3D Terrain Model to a 2D Project File	Learn how to create a 2D project file and reference in a 3D terrain model, set the terrain active, and view the 2D and 3D models.	Click Here
5	Using Override Symbology and Element Templates	Learn how to control the display of a referenced terrain model with element templates and display styles.	Click Here
6	Label Contours and View Background Map	Learn how to add manual contour labels and display a background map with streets and aerial imagery.	Click Here
7	Label and Analyze Terrain Points	Learn how to manually label and analyze terrain points.	Click Here
8	Viewing and Clipping LIDAR Data	In this video, you will learn how to extract a project specific POD from a larger LiDAR data set and save it to a separate file.	Click Here
9	Filtering and Editing LIDAR Data	In this video, you will learn how to use the Ground Extraction tools to filter a large majority of unwanted shots and manually edit the rest to produce a final Terrain Model.	Click Here

4.3 Using and Editing Templates

SN	Topic	Description	Link
1	Welcome and Workspace Setup	This lecture introduces the basic theory behind templates and demonstrates how to setup the proper civil training workspace required for the exercises in this course.	Click Here
2	Review and Edit a Template	Learn how to open and navigate the Create Templates dialog to review and edit existing templates, review and modify point properties, and examine point constraints.	Click Here
3	Assemble a New Template Backbone from Existing Components	Learn how to create a new template by assembling existing components already in the template library.	Click Here

4	Using the Template Library Organizer	Use the Template Library Organizer to copy templates from the standards template library to the project template library.	Click Here
5	Adding End Conditions to a Template	Add a fill ditch end condition.	Click Here
6	Modify a Template to Meet Project Needs	Learn to modify a template with a good “backbone” and replace the end conditions to meet project specifications which include a fill ditch solution when limited right of way is available for desirable slope selections to intersect the existing ground.	Click Here
7	Introduction to Templates	Introduction to Template Points, Components and Constraints	Click Here
8	Create a Single Lane Pavement Component	In this exercise, you will learn how to create a simple 12-foot lane component as well how to create parametric constraint labels	Click Here
9	Create a Two-Lane Pavement Component	In this exercise, you will learn how to create a two-lane component by inserting a new point and using a vector offset to control the directional slope of that point.	Click Here
10	Create a Simple Curb	In this exercise, you will learn to create a simple curb component.	Click Here
11	Define Shoulder Rollover Locks	In this exercise, you will learn how to add to a Rollover Lock to a shoulder to set a maximum grade break between the shoulder and the pavement.	Click Here
12	Create a Widening Template that Matches Existing Pavement Slope	In this exercise, you will learn how to create a widening template that matches the existing pavement slope.	Click Here
13	Create a Median Barrier	In this exercise, you will learn how to create a barrier and ensure that it remains a minimum height above both the left and right pavement edges.	Click Here
14	Create Display Rules to Display and Undisplay Median Barrier and Median Ditch	In this exercise, you will learn to create a template that will display a median ditch when the median width is 20’ or greater and only display the median barrier when the median width is less than or equal to 20’. You will accomplish this by using Component Display Rules.	Click Here

4.4 Drawing Production - Plan-Profile

SN	Topic	Description	Link
1	Creating Plan Sheets	Learn how to create plan and double plan sheets.	Click Here
2	Creating Plan and Profile Sheets	Learn how to create plan and profile sheets.	Click Here
3	Deleting Sheets and Named Boundaries	Learn to delete sheets and named boundaries.	Click Here
4	Creating Rectangular Plan and Profile Sheets	Learn to create plan and profile sheets using rectangular plan named boundaries.	Click Here
5	Create Plan and Profile Sheets in Separate Files	Learn how to create drawing and sheet models in separate files from the named boundaries.	Click Here
6	Create Single Plan Roll Sheets	Learn how to create long or roll plots that include the whole project length.	Click Here
7	Place Labels	Learn how to add manual annotations with the Place Label tool.	Click Here
8	Sheet Index	Learn what the sheet index is and how it can be used.	Click Here

4.5 Drawing Production - Cross- Sections

SN	Topic	Description	Link
1	Introduction to Cross Sections	An overview of the sheet creation process and an introduction to creating cross section sheets.	Click Here
2	Creating Cross Sections	An in-depth look at creating cross section sheets including different size cross sections for different areas of the project.	Click Here
3	Updating and Annotating Cross Sections	Learn how cross sections and annotations are updated when the design model changes.	Click Here

5. Bridge Solutions - Beginner

5.1 Workspace Overview

Upon completion, resource should have a preliminary overview

- how Bentley products allow for the setup of a customized environment: CADD standards, design guidelines and BIM workflows for a specific organization.

SL	Topic	Description	Link
1	Workspace Development Overview	Cursory review of why you need a Workspace and how Bentley recommends you setup base standards, company/department standards, and project standards to ensure maximum flexibility to share WorkSpaces. You will also learn how to use the Workspaces delivered with OpenRoads and OpenBridge.	Click Here
2	Demonstration of Workspace Setup	A demonstration of using the Workspace delivered with OpenRoads Designer (as it also applies to OpenBridge) to create a new base standards Workspace and a Project environment.	Click Here

5.2 Introduction to OpenBridge Designer

Upon completion, user should be able to:

- Have an introductory knowledge of the OpenBridge products: OBM, LEAP and RM Bridge.
- Understand OpenBridge workflow and its interaction with other Bentley solutions

SL	Topic	Description	Link
1	Overview of Beam methodology	In this video, learn how OpenBridge Designer creates a true BIM model.	Click here
2	Prestressed Girder Bridges	Learn how to create a prestressed girder bridges using Open bridge modeler	Click here
3	Apply design Loads	In this video, you will learn how to Apply the design loads and design the prestressed cables in Leap bridge concrete.	Click here
4	Reports and detailing	How to create report and drawing for deliverables	Click here
5	Visualization of model	In this video, you will how you can use the 3D bridge model for visualization through LumenRT.	Click here
6	QuickStart for OpenBridge Modeler	In this course, you will learn the tasks related to modeling a precast girder, steel I-girder and a segmental bridge using OpenBridge Modeler.	Click Here
7	Seismic Design Using Bentley Bridge Software	Join us to review the latest development in LEAP Bridge Concrete and LEAP Bridge Steel that incorporates Multi-modal seismic methodology using the Response Spectra formulation and response spectra, time history and pushover analysis with RM Bridge.	Click Here
8	ProConcrete Workflow with OpenBridge Designer-Part 1	This lecture shows how ProStructures interacts with OpenBridge Designer for rebar detailing and quantity calculations.	Click Here
9	ProConcrete Workflow with OpenBridge Designer-Part 2	This lecture shows how ProStructures interacts with OpenBridge Designer for rebar detailing and quantity calculations.	Click Here

10	ProConcrete Workflow with OpenBridge Designer-Part 3	This lecture shows how ProStructures interacts with OpenBridge Designer for rebar detailing and quantity calculations.	Click Here
5	Plans Production with OpenBridge Designer	During this session we will discuss all of the details, tips, and tricks to setup the drawing seeds used by the new OpenBridge Designer and how to create drawings of the bridge plan/profile, superstructure and substructure.	Click Here
6	Bentley Bridge Connect Edition Special Interest Group	Learn or review various topics discussed during Bentley Bridge SIG meetings through On-Demand videos. For a schedule of upcoming live SIG meetings, visit Bentley Events on www.Bentley.com.	Click Here

5.3 OpenBridge Modeler- Beginner

Upon completion, resource should be able to:

- Have a working knowledge of OpenBridge Modeler.

SL	Topic	Description	Link
1	Introduction to OpenBridge Modeler	In this course, you will learn the tasks related to modeling a precast girder, steel I-girder and a segmental bridge using OpenBridge Modeler.	Click Here
2	Review OpenBridge Designer and OpenBridge Modeler playlist in YouTube	Access to our bridge channel in YouTube	Click Here

5.4 RM Bridge - Beginner

Upon completion, resource should be able to:

- Have a working knowledge of RM Bridge.
- He should be able to design different type of simple bridge.

SL	Topic	Description	Link
1	RM Bridge Cross section creation	In this training, we will be creating a cross section for the main girder of a bridge. Even though it is a simple section, we will review the characteristics that make RM Bridge sections a powerful parametric tool for modeling any kind of bridge cross section.	Click Here
2	RM Bridge Modeler	This course is the first one of a series of three, RM Bridge Modeling, Analyzer Part I and Analyzer Part II. We will create the structure model for the bridge structure, define nodes, materials and support conditions in preparation for further analysis.	Click Here
3	RM Bridge Analyzer Part 1	This training is the second in a series of three. In RM Bridge Analyzer Part 1, we will continue the work initiated in the RM Bridge Modeler and define the constructions stages of the bridge, self-weight and traffic loads, tendon geometry, load combinations and creep and shrinkage effects.	Click Here
4	RM Bridge Analyzer Part 2	This training is the third in a series of three. In RM Bridge Analyzer Part 2, we will continue the work from RM Bridge Analyzer Part 1 and define traffic, wind and temperature loads, calculate forces and stresses, and perform design code checks.	Click Here
5	RM Bridge Wizard Training for a Hollow Box Bridge	This training covers the creation of a model, analysis and design for a hollow box bridge using the RM Bridge Wizard.	Click Here
6	FEM Composite with RM Bridge	In this course, you will learn how to model a composite bridge with a concrete deck and steel beams using RM Bridge, then perform the analysis using FEM methodology.	Click Here
7	RM Bridge Seismic Analysis – Response Spectra Analysis	In this training focuses on the calculation of seismic forces using the Response Spectra method.	Click Here
8	RM Bridge Seismic Analysis – Pushover Analysis	In this course, you will learn about the calculation of the seismic response of a bridge structure using the Pushover analysis method.	Click Here

5.5 Leap Bridge Concrete

Upon completion, resource should be able to:

- Have a working knowledge of LEAP Bridge Concrete.

SL	Topic	Description	Link
1	Leap Bridge Concrete - LRFD	In this course, bridge designers will learn to use LEAP Bridge Concrete for the LRFD design standard. You will develop a 3D model of the structure, analyze and design the superstructure and substructure, as well as generate reports of the designed bridge. Additional topics covered include generation of sheets, how to manage ABC Datasets and how to properly configure the libraries in LEAP Bridge.	Click Here

5.6 Leap Bridge Steel

Upon completion, resource should be able to:

- Have a working knowledge of LEAP Bridge Steel

SL	Topic	Description	Link
1	Leap Bridge steel – 2 Span Straight I - Girder	This course teaches steel bridge modeling for a straight 2 span I girder bridge. The analysis and design capabilities powered by Bentley LEAP Steel technology are also presented.	Click Here
2	Leap Bridge steel – 3 Span Curved I - Girder	This course teaches steel bridge modeling for a curved 3 span I girder bridge. The analysis and design capabilities powered by Bentley LEAP Steel technology are also presented.	Click Here
3	Leap Bridge Steel Design	This Learning Path teaches the analysis and design of a steel bridge using LEAP Bridge Steel.	Click Here
5	Importing Road Geometry	This lecture teaches how to import alignments and profiles, review the imported geometry and define a roadway.	Click here
6	Parametrically Define superstructure component	you will learn to define the Support Locations and Deck Slab, set Girder Locations and define Girder Member, define Cross Frames, Stiffeners, Shear Connectors and Appurtenance Locations	Click here
7	Define substructure	This lecture teaches how to review and modify the structures piers and abutments.	Click here
8	Review analysis Option	This lecture teaches the deck pouring sequence for stage construction and the default loads placed on the structure and how to perform the analysis.	Click here
9	QuickStart for Structural Engineers using LEAP Steel Design -Practice workbook	This step by step practice workbook describes a method for Hands on training on Leap Bridge steel design	Click here

5.7 ProConcrete for Bridges

Upon completion, resource should be able to:

- Have a working knowledge of ProConcrete

SL	Topic	Description	Link
1.	Introduction to Pro-concrete, Concrete Modelling- Columns and Beams	Basic understanding of concrete Modelling for Beams and Columns	Click Here
2.	Introduction to Pro-concrete, Concrete Modelling- Footing	Basic understanding of concrete Modelling for Footing	Click Here
3.	Introduction to Pro-concrete, Concrete Modelling- Panels	Basic understanding of concrete Modelling for Panels	Click Here

4.	Introduction to Pro-concrete, Concrete Modelling- Slabs and models	Basic understanding of concrete Modelling for Slabs and models	Click Here
5	Object based parametric Rebar modeling- Footing	This course shows how to use the Object Based Parametric Rebar Modeling tools in ProConcrete for Footing	Click Here
6	Object based parametric Rebar modeling- Columns	This course shows how to use the Object Based Parametric Rebar Modeling tools in ProConcrete for Columns	Click Here
7	Object based parametric Rebar modeling- Beams	This course shows how to use the Object Based Parametric Rebar Modeling tools in ProConcrete for columns	Click Here
8	Object based parametric Rebar modeling- Walls and Panels	This course shows how to use the Object Based Parametric Rebar Modeling tools in ProConcrete for walls and Panels	Click Here
9	Object based parametric Rebar modeling- Slabs	This course shows how to use the Object Based Parametric Rebar Modeling tools in ProConcrete for Slabs	Click Here
10	Object based parametric Rebar modeling- Other Models	This course shows how to use the Object Based Parametric Rebar Modeling tools in ProConcrete for other models	Click Here
11	Object based parametric Rebar modeling- Practice Workbook	Practice workbook showing step by step procedure of Object Based Parametric Rebar Modeling tools in Pro-Concrete	Click here

6. Bridge Solutions - Advanced

6.1 Workspace Setup

Upon completion, resource should know

- The insights of workspace creation and how-to setup a functional workspace.

SL	Topic	Description	Link
1	Workspace Design for OpenRoads and OpenBridge. OpenRoads Designer Workspace Setup: Step 1, 2, 5 and 7	Setup of roadway and bridge workspaces.	Click Here
2	Worskpaces Advanced Series. OpenRoads Designer Workspace Setup: Step 1, 2, 5 and 7	A deeper look of workspace setup, custom annotations, drawing and sheet seeds.	Click Here

6.2 Step 1 - Understanding Feature Definitions

SN	Topic	Description	Link
1	Exploring Feature Definitions and Symbologies	Gain a general understanding of the types and organizational structure of the OpenRoads Designer CONNECT Edition features and their symbologies.	Click Here
2	Point Feature Definition and Symbology Properties	Gain a general understanding of a Point feature definition and corresponding properties.	Click Here
3	Linear Feature Definition and Symbology Properties	Gain a general understanding of a Linear feature definition and corresponding properties.	Click Here
4	Alignment Feature Definition and Symbology Properties	Gain a general understanding of an Alignment feature definition and corresponding properties.	Click Here
5	Mesh Feature Definition and Symbology Properties	Gain a general understanding of a Mesh feature definition and corresponding properties.	Click Here
6	Terrain Feature Definition and Symbology Properties	Gain a general understanding of a Terrain feature definition and corresponding properties.	Click Here
7	Superelevation Feature Definition and Symbology Properties	Gain a general understanding of a Superelevation feature definition and corresponding properties.	Click Here
8	Surface Template Feature Definition and Symbology Properties	Gain a general understanding of a Surface Template feature definition and corresponding properties.	Click Here
9	Corridor Feature Definition and Symbology Properties	Gain a general understanding of a Corridor feature definition and corresponding properties.	Click Here
10	Linear Template Feature Definition and Symbology Properties	Gain a general understanding of a Linear Template feature definition and corresponding properties.	Click Here

6.3 Step 2 - Preparing the folder structure

SN	Topic	Description	Link
1	Understanding the Workspace Folder Structure	Learn the basics behind the delivered folder structure and how to implement your specific standards.	Click Here
2	Creating a Customized Network Workspace Environment	Learn how to develop your customized workspace for a network environment.	Click Here
3	Preparing the Server Folders	Learn how to prepare your server folder structure for standards migration.	Click Here

6.4 Step 5 – Annotation

SN	Topic	Description	Link
1	Creating Text Styles	Discover the Text Styles included in the delivered workspace and their requirements for creating Text Favorites and Annotation Groups.	Click Here
2	Creating Element Templates	Discover the Element Templates included in the delivered workspace and their requirements for creating Annotation Groups. In addition, learn how to copy Element Templates to your DGNLib.	Click Here
3	Understanding MicroStation Text Favorites	Learn how Text Favorites are created and their functionality.	Click Here
4	Understanding OpenRoads Labeler	Learn the basic functionalities of the OpenRoads Designer CONNECT Edition Labeler.	Click Here
5	Creating Annotation Cells	Learn how to create the Annotation Cells used for the OpenRoads Designer CONNECT Edition Labeler.	Click Here
6	Creating Dimension Styles	Learn how to create the Dimension Styles used for the OpenRoads Designer CONNECT Edition Labeler.	Click Here
7	Introduction to Annotation Groups	Discover all of the aspects of Annotation Groups such as the different types, properties, and how to create.	Click Here
8	Annotation Group Importing and Exporting	Learn how to import and export Annotation Groups from one DGNLib to another.	Click Here
9	Modifying the Features to use Annotation Groups	Learn how to modify the Feature Symbologies to include the Annotation Groups for sheet creation.	Click Here

6.5 Step 7 – Drawing Production Sheet

SN	Topic	Description	Link
1	Drawing Seed Creation	Learn how to create the seed DGN libraries to use for drawing production - plan, profile, and cross section dgn files.	Click Here
2	Sheet Seed Creation	Learn how to create the sheet seed file to use for all sheets.	Click Here
3	Adding Configuration Variables	Learn which configuration variables to modify for your specific seed file names.	Click Here
4	Border Cell Library	Learn how to develop the title block cells.	Click Here
5	Creating Plan or Profile Start Seed	Learn how to create the seed file to use for all plan and or profile sheet combinations.	Click Here
6	Creating Plan-Plan Sheet Definition DGNLib	Learn how to create the seed file for creating plan-plan combination sheets.	Click Here
7	Creating Plan Sheet Definition DGNLib	Learn how to create the seed file for creating plan only sheets.	Click Here
8	Creating Profile Sheet Definition DGNLib	Learn how to create the seed file for creating profile only sheets.	Click Here
9	Creating Profile-Profile Sheet Definition DGNLib	Learn how to create the seed file for creating profile-profile combination sheets.	Click Here
10	Creating Plan and Profile Sheet Definition DGNLib	Learn how to create the seed file for creating plan-profile combination sheets.	Click Here
11	Creating Cross Section Start Seed	Learn how to create the seed file to use for cross section sheets.	Click Here
12	Creating Cross Section Sheet Definition DGNLib	Learn how to create the seed file for creating cross section sheets.	Click Here

6.6 OpenBridge Designer - Advanced

Upon completion, resource should be able to:

- Create the advanced functional component as per project requirement
- He can use this capability of OpenBridge Modeler for proper 3D modelling of any arbitrary shape.

SL	Topic	Description	Link
1	2D constraint in MicroStation- What is parametric modelling?	This course covers an idea about parametric cell modelling	Click here
2	2D constraint in MicroStation- Basic of constraints	This course you will learn about the basic of constraints and degrees of freedom	Click here
3	2D constraint in MicroStation- Imposing constraints	In this video you will learn how to impose a constraint.	Click here
4	2D constraint in MicroStation- Auto constraints tool	This video explains about different tools available in MicroStation for auto constraint	Click here
5	2D constraint in MicroStation- Practice workbook	Practice workbook and data set for Hands on training	Click here
6	Animating 3D constraint	You will learn how to animate solids assembled with 3D constraints.	Click here
7	Advanced Topics	More detailed about 3D constraint on Advanced modelling	Click here
8	3D constraint- Practice workbook	Practice workbook and data set for Hands on training	Click here
9	Parametric modelling- Place active cell	You will learn the process of placing active cell	Click here
10	Parametric modelling- Introduction to working with 3D files	You will learn about 3D Warehouse; Solids Modeling; and Variables.	Click here
11	Parametric modelling- Working with 3D files	you will learn about importing 3D files, using SketchUp, and working with 3D Warehouse	Click here
12	Parametric modelling Introduction	This video is an introduction to the topics of Parametric Modeling; Variants; and Material Mapping.	Click here
13	Parametric modelling	This video continues the discussion on Parametric Modeling; Variants; and Material Mapping.	Click here
14	Parametric modelling wrap-up	This video wraps up the discussion on Parametric Modeling; Variants; and Material Mapping.	Click here
15	Future-Proof your 3D parametric models Video	In this lecture we will learn how 2D and 3D geometric constraints, dimensional constraints, help in capturing design intent coupled with solids and surface modeling workflows, can make modeling easier, faster, and more flexible.	Click here
16	Future-Proof your 3D parametric models Video- Workbook	In this lecture we will learn how 2D and 3D geometric constraints, dimensional constraints, help in capturing design intent coupled with solids and surface modeling workflows, can make modeling easier, faster, and more flexible. -	Click here
17	Creating Substructure Functional Components in OpenBridge Modeler	This course demonstrates how to create 3D parametric solids using constraints and solids modeling tools found in OpenBridge Modeler for the modeling of piers and abutments.	Click Here

6.7 RM Bridge Advanced

Upon completion, resource should be able to:

- Have a comprehensive view of the advanced capabilities of RM Bridge.
- User should be able to use the advance analysis capabilities of RM in a live project.

SL	Topic	Description	Link
1	Cable Stayed Bridges	Review training examples inside RM Bridge	Inside RM Software
2	Rolling Stock Analysis	Review training examples inside RM Bridge	Inside RM Software

3	Steel Design with RM Bridge	Review training examples inside RM Bridge	Inside RM Software

7. Online Resources for OpenBridge Designer

SL	Resource Detail	Description	Link
1	File a new Service request	Use this link to create new service request regarding product issues, problems & any questions	Click Here Example: Log a Service Request
2	Product Downloads	Use this link to download latest builds	Click Here
3	OpenBridge Designer Youtube Channel	Various channels on Youtube.com for various workflows & steps by step videos. Please subscribe to these channels to get new workflows & videos	Bentley OpenBridge Bentley Institute
4	Bentley Communities & Forums	This is the place to access the information and expert's advice on different topics for Bridge products. You can also post your issue or query related to modelling, analysis and design of Bridge.	Click Here
5	Guide for License Activation	How to activate products under Subscription Entitlement Service	Click Here
6	User Projects Example	Project examples using OpenBridge Designer	Click Here