

Be | Careers Network

Online Course Library Excerpts – V8i Recommended Course Descriptions

<http://becareers.org>

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Bentley[®]
Sustaining Infrastructure

Welcome

This catalog has been specially prepared to provide you with a glimpse into the wealth of online courses made available to all Be Careers Network Academic subscribers. There are over 800 courses available via the [Bentley LEARN Server](#), Bentley's hosted learning management system. The courses cover Bentley products that span all the design and engineering disciplines related to creating and sustaining today's infrastructure.

Accessing the contents of this catalog

What you see here are the descriptions of recommended courses as presented in the Bentley LEARN Server. You can find each of these courses on your own via the [Bentley Institute Learning Paths](#) or by using the Bentley LEARN Server's [Advanced Search](#) tool. While browsing this document in **Adobe Acrobat Reader** if you find a course of interest you can quickly jump to it by clicking on the course name. Should you wish to register for the course of interest—provided your school has a Bentley Academic Subscription and you have a valid Bentley SELECT login—click the “Login to Register” link on the course description page and login.

For more information on how you can find, register and take Bentley's online classes, a short series of how-to videos have been prepared. Click [this link](#) or the picture to access the videos.

Once you have signed up you can start taking the course by clicking the [My Registered Training](#) link on the left side of the page, locate the course and click Launch to “launch” the selected course. You can stop and restart any of the online courses at your convenience. The Bentley LEARN Server always remembers where you left off and provides to you the ability to pick up where you left off. Keep in mind there is no time limit on this and that you control the order in which you take the various chapters found in most of the courses.



If you have any questions, don't hesitate to contact your Be Careers Network Account Manager, your school's site administrator or email us at becareers@bentley.com.

Regards.

The entire Be Careers Network team

About the Be Careers Network

Be Careers Network brings software-supported infrastructure curricula into academic institutions through tailored programs and partnerships, to help produce career-ready engineers and architects. We support educators and students through software, blended learning techniques, and more. Together with academic institutions and industry professionals, Bentley cultivates the skills necessary for career-ready AEC professionals—for Academic programs encompassing Architecture, Geospatial, Plant design, and Civil, Structural and Hydraulic Engineering. By supporting schools, BE Careers helps sustain the AEC industry with knowledgeable students and graduates.

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Introduction to MicroStation V8i

OnDemand eLearning: Hands-on

Hours: **8**

Description

Products Covered: MicroStation

Target Audience: Administrator; Analyst; Application Developer; Architect; Architectural Designer; Architectural Engineer; Civil Engineer; Civil Engineering Technician; Construction Site Worker; Consultant; Designer; Design Engineer; Drafter; Electrical Designer; Electrical Engineer; Facility Manager; GIS Market Analyst; GIS Specialist; Hydraulics Engineer; Imaging Specialist; Instrumentation Drafter; Instrumentation Engineer; Manager; Mechanical Engineer; Mechanical Engineering Designer; Naval Engineer; Pipe Stress Engineer; Piping Designer; Piping Drafter; Planner; Plant Administrator; Plant Engineer; Process Engineer; Product Designer; Project Manager; Site Developer; Structural Designer; Structural Engineer; Structural Engineering Technician; Surveyor

This is a one-day course on the basics of MicroStation. You will be introduced to the basic drafting features and tools of MicroStation, including installation and printing. The course consists of a combination of short (less than 15 minute) videos followed by hands-on written lecture and student exercises.

Objectives

After completing this course, you will be able to:

- Install MicroStation
- Use the Interface of MicroStation V8i
- Apply basic drafting principles
- Be able to create printed output

Details

Course Prerequisites:

- None

Topics

- | | |
|---|--|
| <ul style="list-style-type: none"> • Installation • General Concepts • Drawing in MicroStation • User Interface • Menus • Changing Elements • Input of Precise Geometric Data • Groups • Levels • Multi-Lines | <ul style="list-style-type: none"> • Text • Cells • Patterns and Crosshatching • Dimensioning • Bringing it all together • Printing your Drawing |
|---|--|

MicroStation V8i Essentials

OnDemand eLearning: Hands-on

Hours: **32**

Description

Products Covered: MicroStation

Target Audience: Administrator; Analyst; Application Developer; Architect; Architectural Designer; Architectural Engineer; Civil Engineer; Civil Engineering Technician; Construction Site Worker; Consultant; Designer; Design Engineer; Drafter; Electrical Designer; Electrical Engineer; Facility Manager; GIS Market Analyst; GIS Specialist; Hydraulics Engineer; Imaging Specialist; Instrumentation Drafter; Instrumentation Engineer; Manager; Mechanical Engineer; Mechanical Engineering Designer; Naval Engineer; Pipe Stress Engineer; Piping Designer; Piping Drafter; Planner; Plant Administrator; Plant Engineer; Process Engineer; Product Designer; Project Manager; Site Developer; Structural Designer; Structural Engineer; Structural Engineering Technician; Surveyor

The MicroStation V8i Essentials course is designed for the new MicroStation user and builds a solid foundation in the concepts, tools and features found in the MicroStation drawing environment. In this hands-on course, students are already using MicroStation by page four of the course guide. Starting with setting up a drawing and concluding with plotting, students walk through a typical workflow using the tools and features of the latest version of MicroStation. Interspersed throughout are real-world design problems solved using the concepts learned to that point in the course. Various engineering disciplines are represented in the form of hands-on exercises. This offering is taught using MicroStation V8i.

This course uses the MicroStation Examples files as the course data set. These files are available:
When you install MicroStation.

From the Bentley Library (<http://selectservices.bentley.com/en-US/Support/Downloads+And+Updates/Bentley+Library/>)

Objectives

At the end of the course students will be able to:

- Create and edit 2D designs using established design standards in a production environment
- Have a solid understanding of MicroStation

Details

Course Prerequisites:

- None

Topics

- Course Overview
- Welcome to MicroStation
- Working with Views
- Precision Input with AccuDraw
- Drafting with MicroStation
- Element Creation Tools
- Working with Existing Elements
- Modifying Existing Elements
- Annotating Designs
- Organizing Design Data
- Organizing Project Data
- Creating Printed Output
- Design Labs

NOTE: [This course is also available as twelve, one hour video lectures.](#)

MicroStation V8i for CAD Users

OnDemand eLearning: Hands-on

Hours: **24**

Description

Products Covered: MicroStation

Target Audience: Administrator; Analyst; Application Developer; Architect; Architectural Designer; Architectural Engineer; Civil Engineer; Civil Engineering Technician; Construction Site Worker; Consultant; Designer; Design Engineer; Drafter; Electrical Designer; Electrical Engineer; Facility Manager; GIS Market Analyst; GIS Specialist; Hydraulics Engineer; Imaging Specialist; Instrumentation Drafter; Instrumentation Engineer; Manager; Mechanical Engineer; Mechanical Engineering Designer; Naval Engineer; Pipe Stress Engineer; Piping Designer; Piping Drafter; Planner; Plant Administrator; Plant Engineer; Process Engineer; Product Designer; Project Manager; Site Developer; Structural Designer; Structural Engineer; Structural Engineering Technician; Surveyor

This course is designed for experienced CAD users who want to transition existing CAD knowledge to MicroStation skills. To ease the transition to MicroStation, parallel references are continually given, showing how MicroStation handles operations familiar to the CAD user. Subjects covered range from the initial setup of a new design file, to incorporating existing data from non-MicroStation CAD products. Plotting and other output considerations are covered, including PDF creation.

This course uses the MicroStation Examples files as the course data set. These files are available:
When you install MicroStation

From the Bentley Library (<http://selectservices.bentley.com/en-US/Support/Downloads+And+Updates/Bentley+Library/>)

Objectives

After this course users will be able to:

- Apply MicroStation to the design process for creation, editing, referencing and plotting
- Recognize issues surrounding translation files to and from MicroStation

Details

Course Prerequisites:

- Experience with another CAD product

Topics

- Welcome to MicroStation
- Working with Views
- Designing with MicroStation
- AccuDraw
- Element Creation
- Additional Attributes
- Levels
- Working with Existing Elements
- Modifying Elements
- Annotating Drawings
- Organizing Design Data
- Organizing Project Data
- Printing Overview
- The Print Dialog Box
- Design Problem

MicroStation V8i for Advanced Users

OnDemand eLearning: Hands-on

Hours: **24**

Description

Products Covered: MicroStation

Target Audience: Administrator; Analyst; Application Developer; Architect; Architectural Designer; Architectural Engineer; Civil Engineer; Civil Engineering Technician; Construction Site Worker; Consultant; Designer; Design Engineer; Drafter; Electrical Designer; Electrical Engineer; Facility Manager; GIS Market Analyst; GIS Specialist; Hydraulics Engineer; Imaging Specialist; Instrumentation Drafter; Instrumentation Engineer; Manager; Mechanical Engineer; Mechanical Engineering Designer; Naval Engineer; Pipe Stress Engineer; Piping Designer; Piping Drafter; Planner; Plant Administrator; Plant Engineer; Process Engineer; Product Designer; Project Manager; Site Developer; Structural Designer; Structural Engineer; Structural Engineering Technician; Surveyor

The MicroStation V8i for Advanced Users course is intended for the experienced MicroStation user and focuses on the features of MicroStation designed to improve user and work-group productivity. Providing lecture, demonstration and hands-on exercises, MicroStation V8i for Advanced Users begins with a thorough examination of the DGN file, AccuDraw and ends with an introduction to importing and exporting CAD data from/to other CAD programs.

This course uses the MicroStation Examples files as the course data set. These files are available:

When you install MicroStation

From the Bentley Library (<http://selectservices.bentley.com/en-US/Support/Downloads+And+Updates/Bentley+Library/>)

Objectives

After this course you will be able to:

- Improve drafting and designing productivity using MicroStation
- Apply advanced productivity tools, features and techniques

Details

Course Prerequisites:

- MicroStation Essentials or MicroStation for CAD Users

Topics

- Course Overview
- DGN File Settings
- Working with Cells
- Grouping Elements
- Advanced Annotation
- Multi-Scale Detail Sheets
- Working with Tags
- Custom Line Styles
- Productivity Tools
- Advanced AccuDraw
- Data Management
- Project Explorer
- Customizing
- Protecting your Intellectual Property
- Advanced Printing
- Google Earth
- Working with DWG

NOTE: This course is also available as ten, one hour video lectures.

MicroStation V8i Everything 3D

OnDemand eLearning: Hands-on

Hours: **32**

Description

Products Covered: MicroStation

Target Audience: Administrator; Analyst; Application Developer; Architect; Architectural Designer; Architectural Engineer; Civil Engineer; Civil Engineering Technician; Construction Site Worker; Consultant; Designer; Design Engineer; Drafter; Electrical Designer; Electrical Engineer; Facility Manager; GIS Market Analyst; GIS Specialist; Hydraulics Engineer; Imaging Specialist; Instrumentation Drafter; Instrumentation Engineer; Manager; Mechanical Engineer; Mechanical Engineering Designer; Naval Engineer; Pipe Stress Engineer; Piping Designer; Piping Drafter; Planner; Plant Administrator; Plant Engineer; Process Engineer; Product Designer; Project Manager; Site Developer; Structural Designer; Structural Engineer; Structural Engineering Technician; Surveyor

Through a series of hands-on exercises, users will develop a solid understanding of the 3D capabilities of MicroStation V8i. Users will navigate and work in a 3D design file, create and edit 3D curves, solids and surfaces in MicroStation, create parametric 3D models and develop a basic knowledge of the rendering capabilities of MicroStation. In addition, users will learn how to take their 3D data and apply Dynamic Views to create 2D drawings.

Objectives

Upon completion of this course users will be able to:

- Manage and control 3D views
- Use AccuDraw in 3D
- Apply curve tools to design problems
- Use Solid and Surface Modeling tools and techniques
- Render 3D Models
- Create Dynamic Views and export 3D data

Details

Course Prerequisites:

- MicroStation Essentials or MicroStation for CAD Users

Topics

- 3D Basics
- 3D View Control
- AccuDraw in 3D
- Basic 3D tools and Drawing
- Introduction to Feature Modeling
- Advanced Feature Modeling
- Solid Construction and Modeling
- Solid Utilities
- Conceptual Modeling
- Meshes
- Surface Creation
- Surface Modification and Blending
- Visualizing a 3D Design
- Creating Sheets, Exporting and 3D PDF

NOTE: [This course is also available as eleven, one hour video lectures.](#)

AutoPLANT P&ID V8i – the Video Lecture Series

OnDemand eLearning: Lecture

Hours: **1** per lecture

Description

Products Covered: AutoPLANT P&ID

Target Audience: Piping Designer; Process Engineer

Course Prerequisite: AutoCAD experience

01 Project Creation and User Interface – In part 1, you learn how to use the Project Administrator utility to create a new project where all component data will be stored during the drawing session. From Document Manager, the application is launched and the student learns how to set the drawing parameters. A tour of the P&ID User interface provides an overview of the tools and commands used during the course.

02 Equipment Placement and Process Lines – In part 2, you learn how route more complicated single and double offsets, including all fittings, using the Centerline Router utility. Once the lines are drawn, annotations and dimensioning, including cutlength data extracted from the database are added. Once the drawing is complete the student learns how to view and edit component information in the database and place the BOM.

03 Control Stations and Instruments – In part 3, you learn how to add new instruments to the drawing including how to create a control station to divert a process flow, in the event that a tagged control valve needs maintenance. Demonstrations show the student how to add controls and instruments to major process lines. When complete, line IDs and flow arrows are added.

04 PSVs, Flanges, Nozzles and Assemblies – In part 4, you learn how to annotate, create and place process safety valves and pipe connections added for regulation compliance. You will create assemblies using the Assembly Manager, annotate the drawing, in addition to adding flanges and nozzles.

05 Linked Drawings & Modifications – In part 5, you learn how to link drawings using To/From arrows and how to modify basic equipment components. You will learn how to create custom equipment learn the differences between processes and runs. Additional functionality is discussed including P&ID utilities used to break crossing lines and moving bubbles and symbols. Finally you will learn how to create Exchange drawings and how to import drawings.

06 Using Data Manager – In part 6, you learn how Data Manager is used for managing the project data. You will understand how component tags are used within the project and how to create views within Data Manager for sorting and displaying data. Using database tools you will learn how to search and replace data and create custom view of your project data.

Topics

- Creating a project and launching the application
- Setting drawing parameters
- Toolbars and menu commands
- Define a piping path using the Centerline Router
- Place all connecting pipe and fittings using automated techniques
- Place dimensions and annotations
- View, update and edit component data
- Clean the database
- Place a detailed BOM on a drawing
- Create a control station
- Drawing a Temperature Loop
- Placing Instruments on Process lines
- Creating a Level Gauge
- Create a Process Safety Valve
- Using the Assembly Manager Utility
- Annotations and Dimensions
- Adding Flanges and Nozzles
- Add To/From arrows
- Performing consistency checks
- Purging arrows from the database
- Modify a tank symbol
- Create custom equipment with simple commands
- Using the P&ID Utilities
- Creating exchange drawings
- Using Data Manager on a project to manage data
- Creating editing component tags
- Understand Data Manager Views including sorting capabilities

AutoPLANT Piping Fundamentals

OnDemand eLearning: Hands-on

Hours: **12**

Description

Products Covered: AutoPlant Piping

Target Audience: Piping Designer; Piping Drafter; Process Engineer

This course is designed for the Piping Designer or drafter new to AutoPLANT 3D Design applications and teaches the student how to route pipe between equipment components. By selecting pre-defined properties including spec, line type and insulation, the student learns how to ensure data consistency within the project. Branching tees, olets, valve topworks and supports complete the complex piping model. The importance of placement accuracy and connectivity between components is stressed and becomes apparent when viewing database records and generating reports.

Objectives

After this course students will be able to:

- Create a complex three-dimensional piping model
- Learn how to increase productivity using other pipe routing methods
- Learn how to view and edit component data
- Learn how to create Bill of Materials for drawings and reports

Details

Course Prerequisites:

- Basic understanding of AutoCAD 2D and 3D functionality

Topics

- Piping model setup
- Touring the interface
- Setting drawing preferences
- Component preferences control
- Component placement methods
- Creating pipelines including all fittings
- Automated pipe routing
- Adding special components including taps, topworks and supports
- Using autorouter modes
- Checking for connectivity
- Using component manipulation tools
- Using database tools to edit and update components
- Generating Reports

Bentley Architecture Fundamentals V8i

OnDemand eLearning: Hands-on

Hours: **16**

Description

Products Covered: Bentley Architecture V8i Edition

Target Audience: Architect; Architectural Designer; Architectural Engineer; Designer

Using Bentley Architecture V8i Edition and its example files throughout the course, you will be able to do real-time, intelligent 3D model creation, review and edit the model, annotate, extract drawings, reports and schedules from the model.

Objectives

By the end of this class students will be able to:

- create a 3D model from sketches, scans and other design criteria
- construct the model and extract from it
- create space schedules reporting on room sizes, finishes occupancy, plans, sections, elevations, schedules of all parts within the model (such as doors, windows, bills of quantities)

Details

Course Prerequisites:

- Knowledge and understanding of the principles of three dimensional design
- Modelling using MicroStation XM Edition or V8i Edition

Topics

- Bentley Architecture Concepts
- Schematic Design
- Developing the schematic design
- Dynamic Views and Drawing Extraction
- Enhancing the design
- Reports
- Printing and plotting

NOTE: [This course is also available as seven, one and two hour video lectures.](#)

Bentley Map Fundamentals V8i

OnDemand eLearning: Hands-on

Hours: **16**

Description

Products Covered: Bentley Map

Target Audience: Administrator; Analyst; Consultant; GIS Market Analyst; GIS Specialist; Site Developer; Surveyor

This course teaches you how to import a SHP file, create new map models and attach references, rasters and features in Map Manager. You will learn how to manipulate the display, order and symbology of features. As well as perform topology cleanup and use the topology creation tools to define and edit topology layers, overlaying topology layers and outputting the results of spatial analysis.

Objectives

By the end of this course, you will be able to:

- Describe the support files required by the SHP file format.
- Create a new map model. Attach references, rasters and features.
- Manipulate the display, order and symbology of features.
- Navigate and utilize the Command Manager.
- Place and modify a print border.
- Perform topology cleanup and creation tasks
- Complete operations involving the coordinate system, drawing geodesic lines, and interpreting the design plane.
- Define and edit topology layers, overlaying topology layers and outputting the results of spatial analysis.

Details

Course Prerequisites:

- None

Topics

- Interoperability
- The Map Manager
- Placing and Editing features
- Data Browser and Search Tool
- Using the Print Application
- Cleaning and Creating Topology
- Working with Coordinate Systems
- Analysis and Thematic Mapping
- Using Oracle Spatial

NOTE: [This course is also available as ten, one and two hour video lectures.](#)

Bentley Structural Fundamentals V8i

OnDemand eLearning: Hands-on

Hours: **16**

Description

Products Covered: Bentley Structural V8i Edition

Target Audience: Structural Designer; Structural Engineer; Structural Engineering Technician

Using Bentley Structural V8i Edition, you will be able to create an intelligent 3D model, review and edit the model, annotate, extract drawings, reports and schedules from the model.

Objectives

After this course you will be able to:

- create a structural model using Bentley Structural
- extract plans, sections and elevations using Drawing Extraction Manager
- produce bills of quantities, cost reports and specifications
- export the data to other packages for analysis such as MIDAS, RAM and STAAD

Details

Course Prerequisites:

- A working knowledge of 3D in MicroStation
- AccuDraw and its shortcuts is used routinely, students should be familiar with it

Topics

- Create a structural model using Bentley Structural
- Extract plans, sections and elevations using Drawing Extraction Manager
- Produce bills of quantities, cost reports and specifications
- Export the data to other packages for analysis such as MIDAS, RAM and STAAD

GenerativeComponents V8i Essentials

OnDemand eLearning: Hands-on

Hours: **24**

Description

Products Covered: MicroStation GenerativeComponents

Target Audience: Administrator; Analyst; Application Developer; Architect; Architectural Designer; Architectural Engineer; Civil Engineer; Consultant; Designer; Design Engineer; Hydraulics Engineer; Instrumentation Engineer; Manager; Mechanical Engineer; Mechanical Engineering Designer; Naval Engineer; Pipe Stress Engineer; Piping Designer; Plant Engineer; Process Engineer; Product Designer; Project Manager; Structural Designer; Structural Engineer

In this course users will learn that GenerativeComponents is an advanced parametric and associative design system which gives designers and engineers new ways to efficiently explore alternative forms. Once the underlying logic and design relationships have been defined, the designer can create new options without manually drawing (or re-drawing) the detail design model for each possible scenario.

This course will show how GenerativeComponents allows designers to work completely graphically, or to combine this with scripting where appropriate. The integration of algorithmic design with conventional interaction, based on direct manipulation, allows GenerativeComponents to fully support alternative approaches to design that span the intellectual and creative spectrum.

The Essentials course will take students through the principles of design with GenerativeComponents. Students will become familiar with installation, general interface principles, basic geometric generation, basic scripting and importing/exporting data, with an emphasis on many design problems.

Objectives

Upon completion of the course you will be able to:

- Install and set up GenerativeComponents
- Use GenerativeComponents tools to create geometry
- Apply principles of Transactional and Programmatic design
- Import and Export with Excel and databases
- Use principles of scripting to design
- Integrate GenerativeComponents design with your CAD workflow

Details

Course Prerequisites:

- Ability to use 3D Applications

Topics

- Introduction to GenerativeComponents
- Basic Interface Review
- Basic Geometry Creation
- Series and Collections
- Law Curves
- Import/Export
- Working with Solids
- BIM Objects
- Design Problems
- Scripting

GEOPAK Drainage, V8 XM Edition 8.9 and V8i 8.11

OnDemand eLearning: Hands-on

Hours: **16**

Description

Products Covered: GEOPAK and PowerCivil

Target Audience: Civil Engineer; Civil Engineering Technician; Designer; Design Engineer; Hydraulics Engineer

This course is designed to train students on how to leverage the design data, provided through the Road and/or Site products, and to design a storm drainage system. Seminar and hands-on sessions cover the design of drainage area, inlets, pipes and networks and the production of drainage reports.

This class uses imperial units, and is applicable to both GEOPAK and PowerCivil.

Objectives

After this course you will be able to:

- Draw and analyze DTM features
- Configure drainage preferences and the drainage library
- Perform hydraulic and hydrologic design as well as analysis and storm water network layout
- Draw drainage profiles
- Create reports
- Annotate plans
- Design culvert

Details

Course Prerequisites:

- Minimum MicroStation or PowerDraft experience is required.
- Prior knowledge of GEOPAK Road, GEOPAK Site or PowerCivil is a plus.

Topics

- Drainage Library
- Review Drainage Design of Area, Inlets, Pipes and Outlets
- Conveyance System Design
- Network Creation
- Profile/Reach Creation
- Navigator/Global Editing
- Query and Edit Features
- Reporting Features
- Drainage Design Labeling

GEOPAK Road 1 V8 XM Edition 8.9 and V8i 8.11**OnDemand eLearning: Hands-on**Hours: **32****Description****Products Covered:** GEOPAK**Target Audience:** Civil Engineer; Civil Engineering Technician; Designer; Design Engineer

In this course students will learn to use GEOPAK for road design projects. This hands-on training walks students through the project design cycle including: setting up a project, existing ground data, geometry, superelevation, volume calculations and drawing (plans) production. This hands-on course uses the GEOPAK Project Manager to guide students through a typical roadway design workflow, and enables students to completely design a roadway project.

Objectives

By the end of this class you will be able to:

- Define design preferences and create a GEOPAK project
- Extract and triangulate Digital Terrain Model (DTM) information from graphical elements
- Analyze a DTM
- Define a geometry chain using Coordinate Geometry (COGO) and horizontal alignment tools
- Store a parcel and alignment using Graphical COGO
- Create an existing ground profile and design the vertical alignment
- Draw existing ground cross sections
- Compute superelevation and draw shapes
- Draw proposed cross sections
- Calculate earthwork volume quantities
- Create sheet layouts for cross sections and plan/profile drawings
- Plans production annotation and the display of pavement striping
- Calculate seeding reports, and the limits of construction
- Generate a drive-through of a design

Details**Course Prerequisites:**

- A minimum of two months of MicroStation experience is required
- An understanding of road design is an advantage

Topics

- | | |
|--|---|
| <ul style="list-style-type: none"> • Introduction to GEOPAK • The Project Manager • Digital terrain modeling • Coordinate geometry (COGO) • Horizontal alignment tools • Graphical COGO • The Design and Computation (D&C) Manager • Existing ground profiles • Vertical alignment generator • Existing ground cross sections • Superelevation calculation • Proposed cross sections | <ul style="list-style-type: none"> • The port viewer • Earthwork calculations • Cross section drawing sheets • Cross section reports and limits of construction • Labeling • Plan and profile sheets • D&C Manager – quantities • 3D modeling |
|--|---|

GEOPAK Survey, V8 XM Edition 8.9 and V8i 8.11

OnDemand eLearning: Hands-on

Hours: **16**

Description

Products Covered: GEOPAK Survey

Target Audience: Civil Engineer; Civil Engineering Technician; Designer; Design Engineer; Surveyor

This entry-level course focuses on the reduction/processing and mapping of raw field data.

Objectives

You will learn how to be productive with the software and be able to accomplish time-consuming tasks with efficiency and ease. You will gain a fundamental understanding of the products and be able to efficiently process raw survey data.

Details

Course Prerequisites:

- A minimum of two months of MicroStation experience is recommended.

Topics

- Data Collection discussion
- Network Least Squares
- Raw Data Processing and Mapping
- Survey Editing Tools
- Digital Terrain Modeling: Creation and Display
- Existing Ground Profiles
- Reporting
- Import ASCII Data
- Digital Terrain Modeling

Hevacomp Design Simulator V8i

OnDemand eLearning: Hands-on

Hours: **8**

Description

Products Covered: Hevacomp Design Simulator, Hevacomp Design Database (advanced use), CHAM CFD

Target Audience: Mechanical Engineer; Mechanical Engineering Designer

This course covers additional functions required to run a simulation calculation. It will concentrate on inputting more complex building structures such as atria and composite partitions. Therefore it is essential that the user has some fundamental knowledge in Design Database before attending this course. Attendees will also learn how to modify and create profiles to be used in simulation calculation and how to input flowpath data. Finally, this course will cover the use of Computational Fluid Dynamics (CFD).

Objectives

After completing this course, users will be able to:

- Use simulation to review complex building structures: Atrium spaces and composite partitions
- Study flowpath data, such as openable windows
- Create and modify profiles
- Plant simulation- energy consumption and equipment
- Use Computational Fluid Dynamics in the final model

Details

Course Prerequisites:

- A fundamental knowledge of Design Database is essential
- An understanding of design simulation and HVAC design is an advantage

Topics

- Complex building structures: Atrium spaces and composite partitions
- Flowpath data, such as openable windows
- Create and modify profiles
- Plant simulation- energy consumption and equipment sizing
- Computational Fluid Dynamics

Hevacomp Mechanical Designer V8i

OnDemand eLearning: Hands-on

Hours: **8**

Description

Products Covered: Design Database Netsys

Target Audience: Mechanical Engineer; Mechanical Engineering Designer

This course covers the major mechanical programs within the Mechanical Designer's and Design Database packages. Emphasis is given to the integrated approach of the Design Database package, the different methods available for entering data and performing basic load calculations. The course also includes an introduction to the Netsys sizing modules for pipes and ducts.

Objectives

After this course you will be able to:

- Design Database: Full building CAD Model – CAD input
- Design Database: Calculation and Data modules
- Create duct and Pipe sizing - Setup
- Create multiple Floors
- Be able to size a system

Details

Course Prerequisites:

- No prior knowledge of Hevacomp software required but knowledge in mechanical design is an advantage.

Topics

- Design Database: Full building CAD Model – CAD input
- Design Database: Calculation and Data modules
- Duct and Pipe sizing - Setup
- Multiple Floors
- Sizing a system

Hevacomp System Builder (CAD) Mechanical v24 (metric)

OnDemand eLearning: Hands-on

Hours: **8**

Description

Products Covered: Hevacomp Mechanical

Target Audience: Mechanical Engineer; Mechanical Engineering Designer

This course will introduce the student to Hevacomp CAD Mechanical. It will show how a complete multi-floor model of the project building services systems is maintained. Work is carried out on one floor at a time and services can easily connect between floors. The course will show how the Room CAD modules and load calculations are linked to the pipe and duct sizing modules and will also carry out some simple calculations. At the end of this course, the student should be able to input a project from start to finish and conduct the necessary load calculations.

Objectives

At the end of the course you will be able to:

- Understand the Database
- Input building data related to building finishes and volumes
- Use CAD to create a building model
- Produce Load Calculations (Heat Loss, Heat Gain, Summertime Temperature)
- Calculate duct Sizing (Auto layout function, Acoustics, duct sizing)
- Calculate heating Pipe sizes (Heat loss calc and auto layout function, Pipe Sizing)

Details

Course Prerequisites:

- No previous knowledge of Hevacomp required

Topics

- Design Database - Overview
- Design Database – Building Data
- Design Database – CAD-input
- Load Calculations (Heat Loss, Heat Gain, Summertime Temperature)
- Duct Sizing (Auto layout function, Acoustics, duct sizing)
- Heating Pipe sizing (Heat loss calc and auto layout function, Pipe Sizing)

InRoads Fundamentals, V8 XM Edition 8.9 and V8i 8.11 with MicroStation

OnDemand eLearning: Hands-onHours: **24****Description****Products Covered:** InRoads V8 XM Edition or V8i with either MicroStation V8 XM Edition or MicroStation V8i**Target Audience:** Civil Engineer; Civil Engineering Technician; Design Engineer

This course introduces civil engineering designers to using InRoads software for road design projects. This hands-on training walks students through the project design cycle; including setting up a project, existing ground data, geometry, volume design, and reporting.

Students are encouraged to attend the InRoads Roadway Designer course after completing this training. InRoads Roadway Designer continues from this course and explores the Roadway Designer in much more detail.

Objectives

After this course you will be able to:

- Navigate and use the inroads Interface
- Create a CAD files to be used for inroads graphics using Project Defaults
- Display surface contours, features and triangles
- Create horizontal geometry alignments from graphics
- Create and edit horizontal alignments through curve definitions
- Create profiles and cross sections
- Create and edit vertical PI's and define alignments
- Create a corridor with the Roadway Designer
- Create a surface from a corridor
- Create and update cross sections
- Annotate cross sections
- Generate end-area volumes and volumes reports
- Generate an XML report and fixed format reports

Details**Course Prerequisites:**

- Students attending should have experience designing roadways and producing design plans, a working knowledge of the Windows operating system, as well as experience with MicroStation V8 XM Edition or MicroStation V8i, as appropriate.

Topics

- InRoads interface
- Setting up an InRoads project
- Project Defaults
- Surface Types
- Surface features
- Creating existing ground surfaces
- Displaying surfaces
- Surface properties
- Improving surface quality
- Creating, editing, and displaying Horizontal alignments
- Creating, editing, and displaying Vertical alignments
- Displaying profiles and cross sections
- Annotating cross sections
- Templates and Components
- Introduction to Roadway Designer
- Earthwork Volumes
- Reports
- Productivity Tools

Introduction to Reinforced Concrete Substructure Design with LEAP Bridge, V8i

OnDemand eLearning: Lecture

Hours: 1

Description

Products Covered: LEAP Bridge

Target Audience: Structural Designer; Structural Engineer; Structural Engineering Technician

Learn how to design a multi-column pier and footings using LEAP Bridge.

Objectives

By the end of this class, students will be able to:

- Learn to use the ABC wizard to layout superstructure and substructure
- Learn how to auto-generate loads for the superstructure
- Learn how to design the cap beam
- Learn how to design the columns
- Learn how to design the isolation spread footings

Details

Course Prerequisites:

- None

Topics

- Define Superstructure Geometry
- Define Pier Geometry
- Review 3D Model of Structure
- Design Piers with RCPier Application
- Define and Configure Loads
- Analyze Substructure
- Design Reinforcing for Pier Caps and Columns
- Design Spread Footing

MX Road Design, V8i (International)

OnDemand eLearning: Hands-on

Hours: **24**

Description

Products Covered: MXROAD

Target Audience: Civil Engineer; Civil Engineering Technician

This fundamental-level course teaches design engineers, engineering technicians, project managers and support personnel who have completed the MXROAD tutorials provided as part of the software installation, to develop their skills in the creation of a road design.

Objectives

At the completion of this course, you will be proficient using the MX design tools in the design of a new and the production of drawings and reports.

Details

Course Prerequisites:

- A good working knowledge of MX and completion of the MXROAD Tutorials.

Topics

- Introduction to string modelling
- Starting up MX - New Project
- Survey Data Input and Import
- Viewing Models
- Status Tools
- Surface Checker and Editing Data
- Surface Analysis - Triangles and Contours
- Housekeeping and Model file maintenance
- String Naming Conventions
- Quick Alignment Horizontal and Vertical
- Vertical Quick Alignment
- Carriageway Design
- Rule-Based Superelevation
- Crossfall Checker
- Roadway Widening
- Cross Section and Profile creation and Viewing
- Reporting out Model Information
- Junction Design
- Shoulders, Kerbs, Footways and Verges
- Earthwork slope design
- Cross Sectional Editor
- Creating and publishing Final Drawings

PondPack V8i: 01-Introduction to PondPack V8i Basic Features

OnDemand eLearning: Lecture

Hours: **2**

Description

Products Covered: PondPack

Target Audience: Civil Engineer; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

This PondPack V8i video is presented by Jesse Dringoli, a Technical Support Analyst for Bentley Systems. Jesse has been with Bentley Systems since December 2005 and has been working with the Haestad Product line the entire time. In this video, Jesse covers the basic features of the new PondPack V8i software. He will provide PowerPoint presentations, along with demonstrations of features covered within the software.

You will learn all the basics of PondPack V8i so that you can start taking advantage of the new features and learn the new interface. Some of the topics covered are: the New V8i Interface, Scaled and Schematic Network Layout, Scenarios and Alternatives, Storm Data, FlexTables, Reporting, and so much more. After watching this video you will have a better understanding of the basic features of PondPack V8i.

Objectives

After completing this module, you will be able to:

- Understand how to move around in, and customize the all new PondPack V8i interface
- Understand how scenarios and alternatives work, along with how the scenario creation tool can help you in the process of setting up pre-development and post-development scenarios
- Understand what the new basic features of PondPack V8i are, and how they work

Details

Course Prerequisites:

- A fundamental knowledge of stormwater systems is helpful.

Topics

- Interface - Element Layout/Properties Grid
- Scaled and Schematic Network Layout
- New V8i Features
- Scenarios and Alternatives Management
- Scenario Creation Tool
- Active Topology
- FlexTables
- Network Navigator and Queries
- Storm Data and Global Storm Data
- Composite Outlet structures
- PondMaker Overview
- Element Symbology
- Background Layers
- Named Views
- Reporting
- Graphing

PondPack V8i: 03-Automating Model Building using ModelBuilder

OnDemand eLearning: Hands-on

Hours: **2**

Description

Products Covered: PondPack

Target Audience: Civil Engineer; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

In this workshop you will use the ModelBuilder tool, which has been recently added to PondPack V8i, to build a model from shapefiles and Excel spreadsheets. Once you successfully build the model using ModelBuilder, you will use PondPack V8i's tools to calculate the network and review the results. After completing this workshop you will have the knowledge needed to use the ModelBuilder tool to aid you in building your stormwater models.

Objectives

After completing this module, you will be able to:

- Use ModelBuilder to build a PondPack model from shapefiles
- Understand how field mappings work in ModelBuilder
- View and edit prototypes and FlexTables
- Model project-wide and local storm events
- Set up and animate color coding for model elements, as well as insert legends for the color coding

Details

Course Prerequisites:

- Modeling Basics

Topics

- Prototypes
- ModelBuilder
- Find Tool
- Background Layers
- Storm Data Groups and Global Storm Data
- FlexTables
- Model Validation
- Color Coding
- EPS Results Browser
- Scaled Network

PondPack V8i: 07-Creating a Pre-Developed Watershed

OnDemand eLearning: Hands-on

Hours: **2**

Description

Products Covered: PondPack

Target Audience: Civil Engineer; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

The purpose of this workshop is to get you familiar with the all new PondPack V8i interface and walk you through setting up a pre-developed watershed network. You will learn how to enter storm data, use the new scenario creation tool, how to input model data, how to compute and review your model, as well as many other useful features. After completing this workshop, you will have the basic knowledge needed to continue learning more about PondPack V8i.

Objectives

After completing this module, you will be able to:

- Work in the new PondPack V8i interface
- Use the new scenario creation tool to aide in creating pre and/or post-development scenarios and alternatives
- Lay out a basic pre-developed, schematic watershed network
- Create new storm data groups, add return events to them, and export them to the Engineering Libraries
- Calculate a model and review model results using Report Builder
- Create graphs to review element results

Details

Course Prerequisites:

- Modeling Basics ,Hydrology & Hydraulics ,Hydrograph Methods

Topics

- Scenarios and Alternatives management
- New PondPack V8i interface
- Scenario creation wizard
- Storm Data Groups and Global Storm Data
- Engineering Libraries
- Schematic Network Layout
- Model Validation
- Batch Runs
- Report Builder
- Graphs

PondPack V8i: 09-Single Pond Analysis and Design using PondMaker

OnDemand eLearning: Hands-on

Hours: **2**

Description

Products Covered: PondPack

Target Audience: Civil Engineer; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

The purpose of this workshop is to introduce you to the newly redesigned PondMaker tool. You will practice going through the entire pond design sequence, step-by-step, using PondMaker. After completing this workshop you will be able to walk through the PondMaker steps with ease.

Objectives

After completing this module, you will be able to:

- Understand and apply the entire PondMaker process from start to finish
- Use PondMaker to help you design a single pond and outlet structure
- Import an existing storm data group, for use in a new project

Details

Course Prerequisites:

- Modeling Basics, Hydrology & Hydraulics, Hydrograph Methods

Topics

- Scenarios and Alternatives management
- Scenario creation wizard
- Storm Data Groups and Global Storm Data
- Engineering Libraries
- Schematic Network Layout
- PondMaker
- Graphs

PondPack V8i: 12-Modeling Storage Chamber Systems

OnDemand eLearning: Hands-on

Hours: **1**

Description

Products Covered: PondPack

Target Audience: Modeling Basics, Hydrology & Hydraulics, Hydrograph Methods

In this workshop, you will be modeling a small two acre site development project using the modified rational method for runoff computations, and a storage chamber system for its stormwater management. PondPack V8i allows you to create and reuse prefabricated storage chambers, which can be combined with other standard pond components to create a single storage entity, to be used in the routing analysis.

You will be starting with an existing scaled PondPack model that has been set up with all information, except the storage chambers and outlet structure data, which you will be inputting. Once the data is entered into the model, you will then calculate it, review the results, and answer questions. After completing this workshop you will have a better understanding of how to model storage chamber systems.

Objectives

After completing this module, you will be able to:

- Understand how to input storage chamber systems into a PondPack model
- Understand the input data required for a modified rational network
- Import a background layer

Details

Course Prerequisites:

- Modeling Basics, Hydrology & Hydraulics, Hydrograph Methods

Topics

- Storm Data Groups and Global Storm Data
- Scenarios and Alternatives Management
- Scaled Network
- Modified Rational Method
- Storage Chamber Systems
- Element Symbology
- Background Layers

PondPack V8i: 14-Design Ponds in Series

OnDemand eLearning: Hands-on

Hours: **2**

Description

Products Covered: PondPack

Target Audience: Civil Engineer; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

The purpose of this workshop is to build on the knowledge that you learned in the PondPack V8i, Single Pond Analysis and Design using PondMaker workshop. This workshop will help you approach and design sites with in-line multiple ponds. The scenarios and network layout have been provided for you in a starter file. You will finish entering the required data and then proceed with designing the ponds using PondMaker. After completing this workshop you will have the knowledge needed to design ponds in series.

Objectives

After completing this module, you will be able to:

- Design ponds in series using the PondMaker tool
- Generate channel rating tables
- Create channels using the Conduit Catalog

Details

Course Prerequisites:

- Modeling Basics, Hydrology & Hydraulics, Hydrograph Methods, Single Detention Pond Design

Topics

- Storm Data Groups and Global Storm Data
- Conduit Catalog
- Channels
- Channel Rating Table
- PondMaker

PondPack V8i: 15-Interconnected Pond Modeling (ICPM)

OnDemand eLearning: Hands-on

Hours: **2**

Description

Products Covered: PondPack

Target Audience: Civil Engineer; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

In this workshop, you will learn how to model interconnected ponds. You will be given the necessary information to complete the workshop, and learn how to set up your outlet structures to allow for interconnected pond modeling. After completing this workshop, you will have the knowledge needed to be able to set up, and model, an interconnected pond network.

Objectives

After completing this module, you will be able to:

- Model and review an interconnected pond network
- Set up outlet structures so they allow for interconnected pond modeling

Details

Course Prerequisites:

- Modeling Basics, Hydrology & Hydraulics, Hydrograph Methods, Single Detention Pond Design

Topics

- Storm Data Groups and Global Storm Data
- Schematic Network Layout
- Interconnected Pond Modeling (ICPM)
- Model Validation
- Graphs

RAM Advanse V8i Fundamentals

OnDemand eLearning: Hands-on

Hours: **4**

Description

Products Covered: RAM Advanse

Target Audience: Structural Designer; Structural Engineer; Structural Engineering Technician

In this course, you will learn the basic skills to create three dimensional models in RAM Advanse, which includes generating members and nodes; assigning supports and member properties; creating loads and load combinations; performing an analysis, design, and optimization on a structure; and utilizing RAM Advanse detailing modules.

Objectives

After completing this course, you will be able to:

- Navigate the graphical user interface of RAM Advanse
- Generate nodes, members, areas, and shells of a three dimensional structure
- Assign properties to nodes, members, areas, and shells
- Create load cases and load combinations
- Perform an analysis, design, or optimization of a structure in RAM Advanse
- Utilize the RAM Advanse detailing modules in conjunction with the RAM Advanse main application

Details

Course Prerequisites:

- None

Topics

- Introduction to RAM Advanse – Topics include generating members and nodes; modeling supports; and assigning member properties.
- Load Cases and Combinations – Topics include defining load cases, applying loads, and generating load combinations.
- Analysis, Design, and Optimization – Topics include analyzing, designing, optimizing a model and obtaining results/report.
- Advanced Topics – Topics include assigning advanced properties and reviewing the results.
- Detailing Modules – Topics include an introduction into the detailing modules and how to incorporate them into your design process.

NOTE: [This course is also available as four, one hour video lectures.](#)

RAM Structural System V8i - RAM Modeling Fundamentals

OnDemand eLearning: Hands-on

Hours: **4**

Description

Products Covered: RAM Structural System

Target Audience: Structural Designer; Structural Engineer; Structural Engineering Technician

In this course, you will learn the basic skills to model a multi-story structure in RAM Structural System.

Objectives

After completing this course, you will be able to:

- Navigate through the RAM Manager and the RAM Analysis and Detailing Modules
- Specify model criteria in the RAM Manager or the RAM Design Modules
- Model a multistory structure in the RAM Modeler, including creating layouts, grid systems, members, slabs, story data, loads, and member properties

Details

Course Prerequisites:

- A basic understanding of Structural Engineering Principles.

Topics

- Navigating the RAM Manager
- Defining a Model
- Modeling Slabs and Loads

SewerGEMS V8i / SewerCAD V8i, Constructing a Gravity Network - Steady State Run

OnDemand eLearning: Hands-on

Hours: **2**

Description

Products Covered: SewerGEMS, SewerCAD

Target Audience: Civil Engineer; Civil Engineering Technician; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

The purpose of this workshop is to introduce the SewerCAD environment in the simplest terms. This will allow you to gain immediate familiarity with the drawing, analysis, and scenario management tools. You will walk through laying out a schematic sewer network and populate it with given input data.

You will then enter manhole loading data using the Sanitary Load Control Center, apply peaking factors, set up the scenarios/alternatives/calculation options, and compute the model. For review of the model you will apply annotations, color coding, and create profiles. For this workshop, you can use either SewerCAD V8i or SewerGEMS Sanitary V8i.

Objectives

After completing this course, users will be able to:

- Draw a schematic model
- Duplicate, edit and rename FlexTables
- Use the Sanitary Load Control Center to apply unit loads to manholes
- Setup extreme flows to apply peaking factors to unit loads
- Create and edit new scenarios and calculation options
- Create and view profiles
- Use the Unit Sanitary (Dry Weather) Loads manager to import unit loads
- Apply color coding and annotation to models

Details

Course Prerequisites:

- Modeling Basics

Topics

- Project Properties
- Drawing Options
- Conduit Catalog
- Prototypes
- Schematic network layout
- Property Grid
- FlexTables
- Dry weather loading
- Sanitary Load Control Center
- Peaking Factors
- Scenarios and Alternatives management
- Annotations, Color Coding, and Profiles

SewerGEMS V8i/SewerCAD V8i, Extended Period Simulations (EPS)

OnDemand eLearning: Hands-on

Hours: **1**

Description

Products Covered: SewerGEMS, SewerCAD

Target Audience: Civil Engineer; Civil Engineering Technician; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

The purpose of this workshop is to help you learn the basics of extended period simulations. In this workshop, a major interceptor along a river collects wastewater from subdivisions. The lower residential area loads are collected in a wet well and pumped to the major interceptor on the other side of a hill. To determine the performance of the system, we will set up and run three scenarios: a steady state analysis of the average (base) sanitary loading (dry weather); an extended period analysis of the sanitary loading (dry weather); and an extended period analysis including wet-weather loading.

The beginning part of this workshop can be done using SewerCAD V8i or SewerGEMS Sanitary V8i. The dynamic routing section of the workshop is written for SewerGEMS V8i only. In addition to the workshop there is a brief video introduction that goes over what you will be doing in the workshop to aide you in getting started and finding the tools that you will be using. You will also have a brief video review of the workshop. The videos are presented by Thomas M. Walski, Ph.D., P.E., D.WRE, Senior Advisory Product Manager at Bentley Systems.

Objectives

After completing this course, users will be able to:

- Enter pattern loading data and assign patterns to manholes
- Set up diversions in a sewer model
- Enter pump definitions and inflow hydrographs
- Understand how to set up and use controls in a model
- Import a SewerCAD/SewerGEMS Sanitary model file into SewerGEMS and run

Details

Course Prerequisites:

- Modeling Basics, Gravity Collection Systems, Using Pumps and Force mains

Topics

- Controls
- Patterns
- Diversions
- Pump definitions
- Sanitary Load Control Center
- Viewing hydrographs
- Hydrograph loading
- Dynamic wave routing

NOTE: [A metric edition of this course is also available.](#)

SewerGEMS V8i/SewerCAD V8i, Introduction to Sewer Modeling

OnDemand eLearning: Lecture

Hours: **1**

Description

Products Covered: SewerGEMS, SewerCAD

Target Audience: Civil Engineer; Civil Engineering Technician; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

This video is presented by Mike Rosh, a Regional Engineer at Bentley Systems, Inc. Mike will provide you with a brief overview/introduction to SewerGEMS V8i and SewerGEMS Sanitary V8i. You will learn what SewerGEMS is and what you can use it for, become familiar with the graphical user interface, and understand what the available data management and model creation tools are inside of SewerGEMS. You will also be provided with a brief introduction to all the available tools you can use to review your model's data and results. After watching this video you will have a better understanding of the SewerGEMS V8i and SewerGEMS Sanitary V8i software.

Objectives

After completing this module, you will be able to:

- Understand what SewerGEMS is and what it can be used for
- Have a better understanding/familiarity with the SewerGEMS GUI
- Understand the methodology behind SewerGEMS
- Be familiar with the available data management and model creation tools
- Understand how to go about adding dry weather and wet weather loading to a SewerGEMS model
- Understand the different ways you can review the results of your SewerGEMS model

Details

Course Prerequisites:

- A fundamental knowledge of sewer systems is suggested.

Topics

- SewerGEMS and SewerGEMS Sanitary
- Platforms
- Background Layers
- Annotation/Color Coding
- Network elements
- Scenario Management
- Network Navigator
- Queries
- Selection Sets
- FlexTables
- Engineering Libraries
- ModelBuilder
- LoadBuilder
- TRex
- Thiessen Polygon Creator
- Dry and wet weather loading
- Graphs and Profiles

STAAD.Pro V8i Fundamentals: 01-Model Generation

OnDemand eLearning: Hands-on

Hours: **3**

Description

Products Covered: STAAD.Pro

Target Audience: Structural Designer; Structural Engineer; Structural Engineering Technician

In this course, you will learn the fundamentals of model generation in STAAD.Pro. Various methods are demonstrated to create, edit, and view structure geometry. The content of this course is specifically oriented toward models consisting of beams, braces, and columns.

Objectives

In this class you will learn:

- Create model geometry using a variety of available techniques
- Create model geometry using a variety of available techniques
- Identify convenient and efficient ways to perform specific modeling tasks
- Describe the default global

Details

Course Prerequisites:

- Familiarity with the general principles of structural engineering.

Topics

- The Pre Processor's graphical environment
- The Structure Wizard
- The data tables
- The input file

NOTE: [This course is also available as a video lecture course.](#)

STAAD.Pro V8i Fundamentals: 02-Finite Element Modeling

OnDemand eLearning: Hands-on

Hours: **1**

Description

Products Covered: STAAD.Pro

Target Audience: Structural Designer; Structural Engineer; Structural Engineering Technician

In this course, you will learn the fundamentals of modeling with plate elements (two-dimensional entities) in STAAD.Pro. Various methods are demonstrated to create individual plate elements to generate meshes of plates. The plate specifications are reviewed.

Objectives

After completing this course, you will be able to:

- Create plate model geometry using a variety of available techniques
- Distinguish conditions that might require the use of solid elements as opposed to plate elements
- Apply plate specifications effectively

Details

Course Prerequisites:

- Familiarity with general principles of engineering, a general familiarity with finite element analysis, and prior experience with model generation in STAAD.Pro is recommended.

Topics

- Introduction to finite element analysis
- Creation of individual finite elements
- Mesh generation
- Plate Specifications

NOTE: [This course is also available as a video lecture course.](#)

STAAD.Pro V8i Fundamentals: 03-Property Assignment

OnDemand eLearning: Hands-on

Hours: **3**

Description

Products Covered: STAAD.Pro

Target Audience: Structural Designer; Structural Engineer; Structural Engineering Technician

In this course, you will learn the fundamentals of defining and assigning properties, specifications, supports, loads, and materials in STAAD.Pro. The use of groups is demonstrated. Member/plate orientations are discussed using a local coordinate system, which is then related to the global coordinate system.

Objectives

After completing this course, you will be able to:

- Describe the member local coordinate systems and plate local coordinate system
- Create groups and use them to perform functions on multiple entities at one time
- Define and assign properties, beta angles, specifications, supports, and materials
- Create primary load cases, populate them with simple load items, and assign them to the model

Details

Course Prerequisites:

- Familiarity with general principles of structural engineering and prior experience with model generation in STAAD.Pro is recommended.

Topics

- Establishing Member/Plate Orientation and the Local Coordinate System
- Model Geometry
- Working with Groups
- Member Properties and Specifications
- Supports
- Loads and Load Definitions
- Materials

NOTE: [This course is also available as a three hour video lecture course.](#)

STAAD.Pro V8i Fundamentals: 04-Analyzing the Model

OnDemand eLearning: Hands-on

Hours: **1**

Description

Products Covered: STAAD.Pro

Target Audience: Structural Designer; Structural Engineer; Structural Engineering Technician

STAAD.Pro can perform various types of analysis on a structure and offers options for obtaining a printout of model information and analysis results. In this course you will learn how to perform an analysis in STAAD.Pro and obtain printed output results.

Objectives

After completing this course, you will be able to:

- Add analysis commands at the appropriate location in the input file
- Add commands for printing model information and analysis results in an output file
- Perform an analysis
- View the output file

Details

Course Prerequisites:

- Familiarity with general principles of structural engineering and prior experience with modeling structure geometry, assigning member and material properties, creating supports, and defining loads in STAAD.Pro.

Topics

- Preparing for the analysis
- Performing the analysis
- Viewing the output file

NOTE: [This course is also available as a two hour video lecture course.](#)

STAAD.Pro V8i Fundamentals: 05-The Post Processor

OnDemand eLearning: Hands-on

Hours: **2**

Description

Products Covered: STAAD.Pro

Target Audience: Structural Designer; Structural Engineer

In this course, you will learn the fundamentals of the Post Processor in STAAD.Pro. Various methods are demonstrated to review and verify analysis results in the Post Processor.

Objectives

After completing this course, you will be able to:

- Understand the coordinate system and sign convention for reporting results
- Activate the Post Processor and verify analysis results
- Review node analysis results including nodal displacement and reactions
- Review beam analysis results including beam forces and stresses
- Animate the structure due to the forces active upon it
- Plot Output from STAAD.Pro

Details

Course Prerequisites:

- Familiarity with general principles of structural engineering. The ability to create structure geometry using STAAD.Pro. The ability to assign member and material properties, supports, and loads in STAAD.Pro. The ability to issue analysis commands and perform an analysis in STAAD.Pro.

Topics

- Introduction to the Post Processor
- Activating the Post Processor
- Node Analysis Results
- Beam Analysis Results
- Verifying the Results
- Viewing the Results with the Member Query or the Structural Tool Tip
- Annotating the Structure Diagram
- Animation
- Plotting Output from STAAD.Pro
- Simple Query

NOTE: [This course is also available as a two hour video lecture course.](#)

STAAD.Pro V8i Fundamentals: 06-Steel Design

OnDemand eLearning: Hands-on

Hours: **2**

Description

Products Covered: STAAD.Pro

Target Audience: Structural Designer; Structural Engineer

In this course, you will learn the fundamentals of steel design in STAAD.Pro. This includes code checking and member selection of steel members in accordance with a wide selection of steel design codes.

Objectives

After completing this course, you will be able to:

- Apply design parameters to members of the structure
- Perform code checking of members using a variety of steel design codes
- Instruct STAAD.Pro to select (design) members to meet code requirements
- Apply techniques to optimize the design of steel members

Details

Course Prerequisites:

- Knowledge of general structural engineering principles, specifically steel design concepts. The ability to create structure geometry using STAAD.Pro. The ability to assign member and material properties, supports, and loads in STAAD.Pro. The ability to issue analysis commands and perform an analysis in STAAD.Pro. Familiarity with the basic Post Processing functions in STAAD.Pro.

Topics

- Introduction to STAAD.Pro Steel Design
- Specifying the Design Code
- Steel Design Parameters
- Code Checking
- Member Selection

NOTE: [This course is also available as a two hour video lecture course.](#)

STAAD.Pro V8i Fundamentals: 07-Concrete Design

OnDemand eLearning: Hands-on

Hours: **2**

Description

Products Covered: STAAD.Pro

Target Audience: Structural Designer; Structural Engineer

In this course, you will learn the fundamentals of concrete design in STAAD.Pro. This course covers the portions of modeling and property assignment that are pertinent to concrete models. A discussion on P-Delta analysis is presented. The course demonstrates the process of defining and assigning parameters and issuing commands to request the design of slabs, beams, and columns by the batch mode. Finally, the course concludes by interpreting program output for each of these available designs.

Objectives

After completing this course, you will be able to:

- Apply appropriate modeling techniques to incorporate the effects of the monolithic nature of beams and slabs in reinforced concrete structures
- Apply concrete design parameters to influence design output
- Initiate the batch mode design of reinforced concrete slabs, beams and columns
- Interpret concrete design output results

Details

Course Prerequisites:

- Familiarity with STAAD.Pro modeling and property assignment techniques. The ability to create structure geometry using STAAD.Pro. The ability to assign member and material properties, supports, and loads in STAAD.Pro. The ability to issue analysis commands and perform an analysis in STAAD.Pro. Familiarity with the basic Post Processing functions in STAAD.Pro.

Topics

- Defining Model Geometry, Member Properties, and Supports for Concrete Structures
- Defining Beam – Slab Monolithic Action
- Defining the Slab
- Tools for Viewing Plates
- Plate Orientation and Local Coordinate System
- Defining Plate Properties
- Assigning Specifications – Node, Beam, and Plate
- Assigning Loads
- Providing Analysis Instructions to Incorporate P-Delta Effects
- Reinforced Concrete Slab Design, Beam Design, and Column Design
- Reinforced Concrete Take Off Commands

NOTE: [This course is also available as a two hour video lecture course.](#)

STAAD.Pro V8i Fundamentals: 08-Example Problems

OnDemand eLearning: Hands-on

Hours: **1**

Description

Products Covered: STAAD.Pro

Target Audience: Structural Designer; Structural Engineer

In this course, you will perform nine example problems that will reinforce the Fundamental STAAD.Pro skills that you have learned up to this point.

Objectives

In this class you will learn:

- To reinforce your fundamental STAAD.Pro skills.

Details

Course Prerequisites:

- Familiarity with general principles of structural engineering, model generation and property assignment techniques in STAAD.Pro, analysis command and post processing function of STAAD.Pro, and basic steel and concrete design commands in STAAD.Pro.

Topics

- Nine exercise problems to reinforce your fundamental STAAD.Pro skills.

StormCAD V8i: 01-Introduction to StormCAD

OnDemand eLearning: Lecture

Hours: **1**

Description

Products Covered: StormCAD

Target Audience: Civil Engineer; Civil Engineering Technician; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

This video will provide you with an overview of the new StormCAD V8i. You will learn about some of the new features and benefits of this new version. You will be provided with an overview of StormCAD V8i's data management and model creation tools such as, scenario management, wet weather loading, ModelBuilder, platform support, and results viewing and interpretation tools.

You will see these new features demonstrated inside the StormCAD V8i environment. Modelers currently using versions prior to StormCAD V8i, version 08.11.00.24, are strongly encouraged to consider upgrading today to start taking advantage of the latest features and interoperability advantages of V8i.

Objectives

By the end of this class, students will be able to:

- Explain what StormCAD V8i is used for and the multiple platforms it is supported on
- Discuss the new features in StormCAD V8i
- Use many different tools to review and interpret results of a StormCAD model
- Be more familiar with the new StormCAD V8i interface
- Explain the StormCAD V8i Data Management and Model Creation tools
- Understand the new additions to the ModelBuilder tool in StormCAD V8i

Details

Course Prerequisites:

- None

Topics

- StormCAD V8i Uses and New Features
- Platform support
- ProjectWise integration with StormCAD V8i
- Profiling
- FlexTables
- Color Coding
- StormCAD V8i interface
- Background layers
- Element morphing and splitting
- Queries -predefined and creating custom
- Selection sets
- Scenario management
- ModelBuilder
- Network Navigator
- Inputting storm data

StormCAD V8i: 02-General Hydrology

OnDemand eLearning: Lecture

Hours: 1

Description

Products Covered: StormCAD

Target Audience: Civil Engineer; Civil Engineering Technician; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

This video provides a review of hydrology terminology and concepts in order to refresh your memory and to get you familiar with hydrology. Hydrology takes into account water resources and the hydrologic cycle to study the movement, distribution and quality of water. This video will provide you with an overview of the definitions and terminology, return periods, intensity-duration-frequency curves, Hydro-35, time of concentration, NRCS travel time method, system flow time, StormCAD travel times, rational method, and the NRCS graphical peak discharge method. You will see these topics reviewed and demonstrated inside the StormCAD V8i environment.

Modelers currently using versions prior to StormCAD V8i, version 08.11.00.24, are strongly encouraged to consider upgrading today to start taking advantage of the latest features and interoperability advantages of V8i.

Objectives

After the end of this module you will be able to:

- Understand the definitions and terminology relating to hydrology
- Know where and how to enter storm data and global storm events in the StormCAD V8i software
- Explain what time of concentration is and know the methods that are available to compute it inside of StormCAD
- Understand the rational method that is used to estimate peak flow from small areas and the formula that it uses

Details

Course Prerequisites:

- A basic familiarity with stormwater systems is helpful.

Topics

- Stormwater hydrograph
- Storm data and global storm events
- Intensity-Duration-Frequency Curves
- Hydro-35
- Time of concentration
- StormCAD time of concentration calculator and methods used
- NRCS travel time method
- System flow time
- StormCAD travel times
- Rational Method
- Composite C values
- NRCS graphical peak discharge method

StormCAD V8i: 03-General Hydraulics

OnDemand eLearning: Lecture

Hours: **1**

Description

Products Covered: StormCAD

Target Audience: Civil Engineer; Civil Engineering Technician; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

This video reviews basic hydraulic concepts that help you understand StormCAD's calculations and results. You will review different types of flow, flow classifications, the conservation principles, minor losses, nonuniform flow, and the two solution methods. You will also watch a demonstration of the FlowMaster software which is a comprehensive hydraulic calculator that lets you to analyze many hydraulic elements, view cross sections, view element results in tabular or detailed reports, generate rating tables and rating curves, as well as create gradually varied flow profiles and tables.

Objectives

After the end of this module you will be able to:

- Explain the different types of flow that can be in a system and how they get classified
- Understand the different friction head loss equations available and when they are used
- Explain the factors that influence the manning's n-value
- Have a better understanding of the FlowMaster software and the tools it provides
- Explain what Direct Step and Standard Step methods are and how they differ

Details

Course Prerequisites:

- A basic familiarity with stormwater systems is helpful.

Topics

- Types of flow
- Flow Classification
- Conservation Principles
- Friction Head Loss Equations
- Moody Diagram
- Minor Losses
- FlowMaster
- Nonuniform Flow
- Controls
- Direct Step Method
- Standard Step Method

StormCAD V8i: 04-Model Building using ModelBuilder and TREX

OnDemand eLearning: Lecture

Hours: **1**

Description

Products Covered: StormCAD

Target Audience: Civil Engineer; Civil Engineering Technician; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

This StormCAD V8i video is presented by Norelis Florentino, Senior Application Engineer at Bentley Systems. In this video, Norelis covers building a model using the ModelBuilder and TRex tools. You will learn what these tools are, how they work, and the types of data sources they can work with. You will also learn about the Network Navigator tool, and how it can help you navigate around your model for analysis and review purposes. A demonstration is given for each of these tools inside the StormCAD V8i interface. After watching this video you will have a better understanding of the ModelBuilder and TRex tools and how you can use them to build a StormCAD model.

Objectives

After completing this module, you will be able to:

- Understand and explain what ModelBuilder and TRex tools are, how they work, and the data sources they can work with
- Understand what the Network Navigator tool is and how it is a very handy tool to use in network analysis and review

Details

Course Prerequisites:

- None

Topics

- ModelBuilder
- Network Navigator
- Trex

StormCAD V8i: 05-Sewer Analysis and Design with Inlet By-Pass Flows

OnDemand eLearning: Hands-on

Hours: **2**

Description

Products Covered: StormCAD

Target Audience: Civil Engineer; Civil Engineering Technician; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

This module shows the user how to leverage StormCAD to build a model from data source(s), in this case, from Shapefile data. The workshop will take the student step by step through the ModelBuilder wizard. After the model is built, the workshop then steps the student through the entry of rainfall data for storm event(s).

The workshop will guide the student through the Terrain Extractor (TREX) tool to add surface elevations to the network. Finally, the student will design and test the storm sewer system model for compliance against several design constraints. This course material has been developed for the StormCAD V8i platform, at a minimum the Version 08.11.00.34. Modelers currently using versions prior to StormCAD V8i, version 08.11.00.34, are strongly encouraged to consider upgrading today to start taking advantage of the latest features and interoperability advantages of V8i.

Objectives

After completing this module, you will be able to:

- Use ModelBuilder to build a StormCAD model from shapefiles
- Use TRex to import ground elevations
- Redesign a storm sewer network based upon analysis results

Details

Course Prerequisites:

- Introduction, Storm Sewer System Analysis, Storm Sewer System Design

Topics

- Inlet catalog
- ModelBuilder
- Background layers
- Storm data
- Default design constraints
- Alternatives and scenarios
- FlexTables
- Conduit catalog
- Trex

StormCAD V8i: 06-Modeling Fundamentals

OnDemand eLearning: Lecture

Hours: **1**

Description

Products Covered: StormCAD

Target Audience: Civil Engineer; Civil Engineering Technician; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

This StormCAD V8i video is presented by Norelis Florentino, Senior Application Engineer at Bentley Systems. Norelis covers pipe losses and junction headloss methods as well as surcharge and hydraulic jumps in this video. You will learn about the six different headloss methods, how they are used/applied in StormCAD V8i, and learn about the three different ways that you can specify these headloss methods.

You will also learn about the causes of surcharge, the impact that it can have on storm sewer systems, hydraulic jumps, what causes them, and how the jump height is calculated. Norelis provides brief PowerPoint presentations along with demonstrations inside the StormCAD V8i software. She will show you how to compare different headloss method results using color coding, annotation, profiles, as well as FlexTables. After watching this video you will be able to set up and review these headloss methods in your own StormCAD V8i model.

Objectives

After completing this module, you will be able to:

- Understand what the different Headloss Methods are and how you can apply them in StormCAD
- Understand what Flow-Headloss Curves are and how you are to specify them in StormCAD
- Review and compare headloss method results using a variety of different ways
- Understand what can happen during a surcharge in a storm sewer system and what the possible causes of surcharge are
- Explain what hydraulic jumps are and why there are concerns about them
- Understand how to determine they hydraulic jump height and location

Details

Course Prerequisites:

- Modeling Basics

Topics

- Transition losses
- Structure losses
- Junction Headloss Methods
- Absolute Headloss Method
- Standard Headloss Method
- HEC-22 Energy Method
- AASHTO Method
- Generic Headloss Method
- Flow-Headloss Curves
- Scenarios/Alternatives
- FlexTables
- Color Coding
- Annotation
- Contours
- Profiles
- Surcharge
- Adverse Pipes
- Hydraulic Jump
- Profile Descriptions
- Reporting
- Specific Energy

StormCAD V8i: 07-Evaluating Multiple Alternatives and Scenarios

OnDemand eLearning: Hands-on

Hours: **2**

Description

Products Covered: StormCAD

Target Audience: Civil Engineer; Civil Engineering Technician; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

This module will walk the student through the use of StormCAD to design for pre-development and post-development via Active Topologies. Components to be placed in this user built model include: catchments, catchment basins, gutters, manholes, conduits, Inlets, and an outfall. Other supporting information is covered such as creating profiles and entry of channel cross sections.

The student will be stepped through the entry of storm data using the rational method based on pre- and post- development, and analysis of headloss using the AASHTO method. This course material has been developed for the StormCAD V8i platform, at a minimum the Version 08.11.00.34. Modelers currently using versions prior to StormCAD V8i, version 08.11.00.34, are strongly encouraged to consider upgrading today to start taking advantage of the latest features and interoperability advantages of V8i.

Objectives

After completing this module, you will be able to:

- Use scenarios and alternatives to analyze pre- and post- development conditions
- Compare pre- and post- development networks using active topology
- Use scenarios to analyze a model using the HEC-22 and AASHTO headloss methods
- Add contours to a network to review network results

Details

Course Prerequisites:

- Introduction, Storm Sewer System Analysis , Storm Sewer System Design

Topics

- Background layers
- Storm data
- Alternatives and scenarios
- Inlet catalog
- Conduit catalog
- Prototypes
- Active topology
- Profiles
- Contours
- HEC-22 headloss method
- AASHTO headloss method

StormCAD V8i: 08-Storm Sewer System Analysis

OnDemand eLearning: Hands-on

Hours: **2**

Description

Products Covered: StormCAD

Target Audience: Civil Engineer; Civil Engineering Technician; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

In this module, the student will obtain a fundamental knowledge of how to lay out a storm sewer network. Components to be placed in this user built model include: catchment basins, pipes, Junctions, Inlets, and an outfall. Also supporting information is covered such as setting up a project, creating profiles, color coding, and element prototypes.

The student will be stepped through the entry of storm data, Intensity Duration Frequency Curves (IDF), for various storm events. Once built, the student will then analyze the system based on profile data, FlexTable output, and color coding visuals. This course material has been developed for the StormCAD V8i platform, at a minimum the Version 08.11.00.34. Modelers currently using versions prior to StormCAD V8i, version 08.11.00.34, are strongly encouraged to consider upgrading today to start taking advantage of the latest features and interoperability advantages of V8i.

Objectives

After completing this module, you will be able to:

- Create a new StormCAD project and model a schematic network
- Understand the use of prototypes to save time with model layout
- Enter system data using multiple input tools
- Enter storm data to use with global storm events
- Create new and use existing FlexTables to input and/or edit model data
- Create alternatives and understand how they are used to build scenarios
- Review model results using profiles, color coding, and annotation

Details

Course Prerequisites:

- A basic familiarity with stormwater systems is helpful.

Topics

- Prototypes
- Conduit catalog
- Schematic network layout
- FlexTables
- Storm data
- Alternatives and scenarios
- Profiles
- Annotation
- Color coding

StormCAD V8i: 09-Overview of Storm Sewer Design and Design Constraints

OnDemand eLearning: Lecture

Hours: **1**

Description

Products Covered: StormCAD

Target Audience: Civil Engineer; Civil Engineering Technician; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

This StormCAD V8i video is presented by Norelis Florentino, Senior Application Engineer at Bentley Systems. In this video, Norelis covers storm sewer design and design constraints in regards to StormCAD V8i. In her StormCAD V8i demonstration she will review the storm sewer network elements, the properties/results of those elements, and the Inlet Catalog.

You will also be shown the how to set up design constraints for gravity pipes, nodes, and inlets, the different locations where you can specify them, and the steps that are required to make a design run. After watching this video you will have a better understanding of StormCAD V8i's designing capabilities.

Objectives

After completing this module, you will be able to:

- Be familiar with the different the elements of a storm sewer in both surface and subsurface systems.
- Understand how to set up design constraints, where you specify them, and the steps required for performing a design run

Details

Course Prerequisites:

- Modeling Basics

Topics

- Gravity System Design
- Pipe Constraints
- Extended Design Constraints
- Structure Constraints
- Inlet Constraints

StormCAD V8i: 10-Inlets, Gutters and Diversions

OnDemand eLearning: Lecture

Hours: 1

Description

Products Covered: StormCAD

Target Audience: Civil Engineer; Civil Engineering Technician; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

This StormCAD V8i video is presented by Norelis Florentino, Senior Application Engineer at Bentley Systems. In this video Norelis covers inlets, gutters, and diversions. She goes over the importance of gutters and their flow, the different types of gutter sections, allowable spread requirements, and how to define them in StormCAD. She also covers the equations utilized to calculate interceptive flow and efficiency for the different types of inlets, as well as where to place inlets and the factors that affect their placement location.

Finally, Norelis covers diversions and their rating curves. Throughout the lecture Norelis shifts from PowerPoint into the StormCAD interface for demonstrations of topics covered. After watching this video you will have a much better understanding of inlets, gutters, and diversions and how they are defined and used within StormCAD V8i.

Objectives

After completing this module, you will be able to:

- Understand the different types of inlets and gutters, their importance, and how to define them in StormCAD V8i
- Understand diversions, how to set them up and view their rating curves

Details

Course Prerequisites:

- Modeling Basics

Topics

- Gutter sections
- Gutter design considerations
- Inlet design
- Inlet Engineering Libraries
- Inlet design constraints
- Inlet Types
- Grate Inlets
- Curb Inlets
- Combination Inlets
- Slot Inlets
- Inlet Efficiency
- Design spread
- Diversions

StormCAD V8i: 11-Storm Sewer System Design

OnDemand eLearning: Hands-on

Hours: **2**

Description

Products Covered: StormCAD

Target Audience: Civil Engineer; Civil Engineering Technician; Consultant; Designer; Design Engineer; Hydraulics Engineer; Project Manager; Site Developer

In this module, the student will review how to lay out a storm sewer network. Components to be placed in this user built model include: catchments, catchment basins, conduits, transitions, and an outfall. Also supporting information is covered such as using background layers and element prototypes.

The student will be stepped through the entry of storm data, Intensity Duration Frequency Curves (IDF), for various storm events. Once built, the student will then design and analyze the system for optimal tail water conditions and hydraulic jump occurrences. This course material has been developed for the StormCAD V8i platform, at a minimum the Version 08.11.00.34. Modelers currently using versions prior to StormCAD V8i, version 08.11.00.34, are strongly encouraged to consider upgrading today to start taking advantage of the latest features and interoperability advantages of V8i.

Objectives

After completing this module, you will be able to:

- Make use of background files to lay out a scaled model
- Design a stormwater drainage system in a scaled environment
- Use scenarios and alternatives for design and analysis of a model in a single project file

Details

Course Prerequisites:

- Introduction, Storm Sewer System Analysis

Topics

- Background layers
- Prototypes
- Scaled network layout
- Default design constraints
- Storm data
- Global storm events
- Alternatives and scenarios

WaterCAD/GEMS V8i, An Introduction to Water Distribution Design & Modeling

OnDemand eLearning: Lecture

Hours: **2**

Description

Products Covered: WaterCAD/GEMS

Target Audience: Civil Engineer; Consultant; Designer; Hydraulics Engineer; Project Manager; Site Developer

In this video Angela Suarez, Application Engineer at Bentley Systems, provides an extended overview of WaterCAD/WaterGEMS V8i. Angela covers such topics as simple as network layout, data entry, background layers, as well as more advanced topics such as, Scenario and Alternative management, ModelBuilder, LoadBuilder, TRex, Fire Flow Analysis, Water Quality Analysis, and Interoperability. She also covers the smaller, but very helpful tools such as graphing, color coding/annotation, FlexTables, profiles, contours, Network Navigator, etc. Angela created this video using PowerPoint presentations along with demonstrations inside the software interface. After watching this video, you will have a much better understanding of all that WaterCAD V8i/WaterGEMS V8i can do, the differences between them, and how they can help you quickly and easily model and analyze your water distribution networks.

Objectives

After completing this module, you will be able to:

- Explain what WaterCAD and WaterGEMS are, their common uses, and their differences
- Understand how to build a network from scratch using the network layout tools, how to split pipes, and morph one element into another
- Understand the many different ways to enter, edit, and modify network element data as well as demands
- Understand how to use the available WaterCAD/GEMS tools (ModelBuilder, LoadBuilder, and TRex) to extract existing data from other data sources and bring it into your water model
- Understand what Network Navigator is and how it can help you review, analyze, and navigate around your WaterCAD/GEMS model
- Learn how to set up and execute predefined queries, as well as create your own custom queries, to aid in an analysis of a model
- Learn how to use scenarios and alternatives to create and edit multiple "what if" situations within a WaterCAD/GEMS model
- Learn about the many different available tools in WaterCAD/GEMS that you can use to generate professional outputs from your water model, such as color coding/annotation, FlexTables, graphs, profiles, and contours
- Learn about the modeling capabilities of WaterCAD/GEMS, in particular Steady State/Extended Period Simulation, Fire Flow Analysis, and Water Quality Analysis

Details

Course Prerequisites: A fundamental understanding of Water Distribution Systems is recommended

Topics

- WaterCAD and WaterGEMS Product Overview
- Hydraulic Element Types
- Background Layers
- Drawing Options
- Prototypes
- Engineering Libraries
- Network Layout
- Edit data
- Selection Sets
- FlexTables
- Demand Control Center/Unit Demand Control Center
- ModelBuilder
- TRex
- LoadBuilder
- Network Navigator
- Queries
- Scenarios and Alternatives Management
- Annotation and Color Coding
- Graphs
- Profiles
- Contours
- Fire Flow Analysis
- Water Quality Analysis
- Interoperability

WaterCAD/GEMS V8i, Modeling Data, How do I build a water model?

OnDemand eLearning: Lecture

Hours: 1

Description

Products Covered: WaterCAD/GEMS

Target Audience: Civil Engineer; Consultant; Designer; Hydraulics Engineer; Project Manager; Site Developer

This video is presented by Martin Pflanz, P.E. He has been with Bentley Systems since 2006 and comes from a consulting background where he had been using the Haestad Methods Solutions in his everyday workflow. In this video he covers how to get started with building a water model. You will learn about the 10 steps of modeling that if followed, will result in a good approximation of your real-world system. You will also learn about where to get elevation data, how to assign demands, calculate demand projections, how to define peaking factors, the different modeling alternatives available in WaterCAD and WaterGEMS, as well as modeling practice tips. After watching this video you will have the knowledge you need to begin creating a well built accurate water model.

Objectives

After completing this module, you will be able to:

- Know how to get started with building a model, the data that is needed, how to get that data, and how to go about applying the model
- Understand and explain the 10 steps of modeling
- Understand the different ways that diameter, length, and elevation can be represented in a water model
- Understand how to assign demands to a system and the steps you should take to assign them correctly
- Explain the different modeling alternatives that are available in WaterCAD and WaterGEMS
- Understand the modeling practice tips

Details

Course Prerequisites:

- A fundamental understanding of Water Distribution Systems is recommended

Topics

- What is a model?
- What makes a good model?
- Steps in modeling
- Diameter, length, and elevation representation
- Obtaining elevation data
- Demand assignment and the steps taken to assign them correctly
- Defining peaking factors
- Modeling alternatives
- Modeling practice tips

WaterCAD/GEMS V8i, Modeling Fundamentals, What is a good model?

OnDemand eLearning: Lecture

Hours: **1**

Description

Products Covered: WaterCAD/GEMS

Target Audience: Civil Engineer; Consultant; Designer; Hydraulics Engineer; Project Manager; Site Developer

This video is presented by Martin Pflanz, P.E. He has been with Bentley Systems since 2006 and comes from a consulting background where he had been using the Haestad Methods Solutions in his everyday workflow. In this video he covers the modeling fundamentals for water distribution modeling. You will be provided with a hydraulics review that covers many topics such as, flow, velocity, pressure, the Continuity Principle, the Moody Diagram, etc. This short presentation will get you back up to speed with understanding the principles behind WaterCAD and WaterGEMS.

Objectives

After completing this module, you will be able to:

- Understand the types of applications that WaterCAD/WaterGEMS can be used for
- Refresh your memory in regards to hydraulic principles
- Explain the different units of pressure and flow

Details

Course Prerequisites:

- A fundamental understanding of Water Distribution Systems is recommended

Topics

- Hydraulics Review
- Flow
- Velocity
- Pressure and pressure standards
- Continuity Principle
- Energy Principle
- Hydraulic head
- Head loss and associated equations
- Moody Diagram
- C-factors
- Minor losses
- Network representation in WaterCAD/WaterGEMS
- History of distribution system modeling
- Types of model runs