

WaterCAD/GEMS V8i, Water Distribution Design & Modeling, Fundamentals & Intermediate (metric)

Course Type: Classroom Learning : Hands-on

Products Covered: WaterCAD/GEMS

Target Audience: Civil Engineer; Civil Engineering Technician; Consultant; Designer; Design Engineer; GIS Specialist; Hydraulics Engineer; Piping Designer; Planner; Plant Engineer; Project Manager; Site Developer

Course Description: This class begins with the basics of hydraulics theory as it applies to water distribution modeling, then takes students through more advanced topics such as: working with multiple scenarios and alternatives; model calibration; pump selection; energy and cost studies; extended-period simulation; fire flow analysis; water quality analysis; and finally identifying critical links or shortfalls within a water system. Students will become familiar with WaterCAD and use the software to reinforce concepts with case studies. As WaterCAD and WaterGEMS capabilities are the same throughout this course, users will gain an understanding of both software applications. This 3 day fundamental course is taken from the initial portion of the full 5 day Water Distribution Design & Modeling course.

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

- Learning Objectives:**
- apply the basic principles of water distribution modeling
 - gain essential knowledge for water system design, and operation
 - apply WaterCAD models to solve common water distribution system problems
 - develop a deeper understanding of model creation and analysis using WaterCAD
 - increase productivity by using automated approaches to complete common modeling tasks

- Course Topics:**
- Building functional models using existing data
 - Troubleshooting an existing distribution system model for closed valves
 - Locating critical pipe segments, analyzing their impact and remediating them within a water system
 - Using models for solving complex design and operation control problems
 - Performing energy audits on a water distribution system and improve operation
 - Determining available fire flows and undersized components pipelines, pumps, tanks etc.
 - Calibrating distribution system models automatically with field data such as pressure recorder readings, tank levels, pump status, flow meter data
 - Answering design questions such as: How big should the tank or elevated tower be? How many pumps are enough? What pump curve is best for a particular application? Is a variable speed pump better for that application? What should the most energy efficient controls and logic be?
 - Analyzing various Water Quality parameters using Extended-period simulations: chlorine or chloramine decay, disinfection by products (DBP's) formation, tracer studies and constituent mixing within the system

Course Details: **Course Prerequisites:** There are no formal prerequisites for this course, although some familiarity water distributions systems will be helpful. The course material has been developed for the WaterCAD/GEMS V8i platform, at a minimum the Version 08.11.00.30. Modelers currently using versions prior to WaterCAD/GEMS V8i, version 08.11.00.30, are strongly encouraged to consider upgrading today and start taking advantage of the latest features.

Learning Units: 24

Display LUs in: hours

Accreditations:

Organization:	Value:
Bentley Institute	
	24 Bentley LU
Bentley Contact Hours	21 CONTACT HOURS