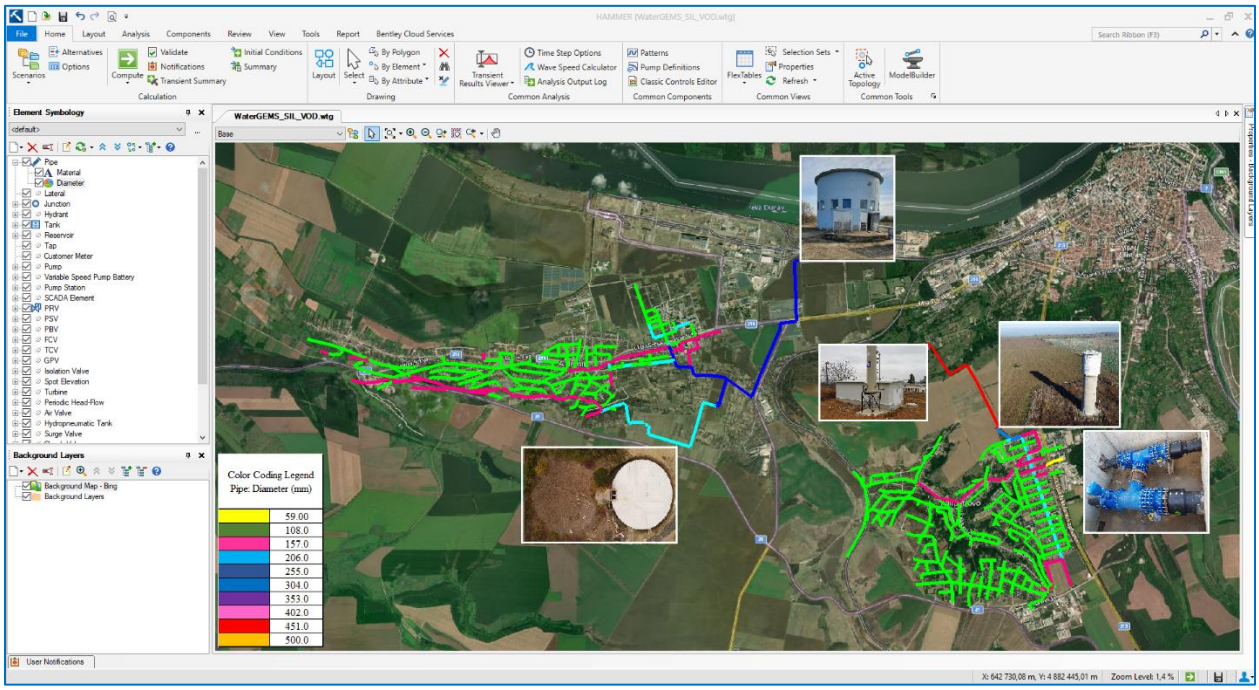

WE131:
WaterGEMS Hydraulic Modeling

Tel No:+97126654546 | Fax No:+97126654182 | Email: training@cmc-me.com | www.cmc-me.com

Training Description:

The WaterGEMS Hydraulic Modeling training course is designed to provide participants with practical knowledge and technical skills for hydraulic analysis and modeling of water distribution networks. Using Bentley's WaterGEMS software, participants will learn how to simulate, analyze, and optimize network performance to ensure reliable water supply, energy efficiency, and operational safety. The course emphasizes real-world applications, integrating both design and operational perspectives.

In this intensive training course, participants will explore fundamental and advanced hydraulic modeling concepts, including pressure, flow, velocity, demand patterns, storage, pump and valve operations, fire flow analysis, and energy optimization. The course includes scenario analysis, troubleshooting, and network calibration to address common challenges such as pressure deficiencies, pipe sizing issues, and operational contingencies. Realistic case studies and practical exercises provide hands-on experience, enhancing participants' ability to apply WaterGEMS in professional projects.

By the end of the training course, participants will be able to develop, analyze, and optimize hydraulic models, simulate multiple operational scenarios, integrate GIS and SCADA data, and produce professional reports and visualizations. The training course strengthens technical competence, problem-solving skills, and decision-making capabilities for engineers, planners and utility professionals responsible for water distribution networks.

Training Objectives:

By the end of the training, participants will be able to:

- ✓ Understand the principles of hydraulic modeling for water distribution systems
- ✓ Develop, calibrate, and analyze hydraulic models in WaterGEMS
- ✓ Evaluate network performance including pressures, flows and velocities
- ✓ Simulate demands, storage tanks, pumps and valves
- ✓ Conduct fire flow and energy optimization analyses
- ✓ Assess multiple operational and design scenarios
- ✓ Integrate GIS and SCADA data into hydraulic models
- ✓ Identify and resolve modeling errors and inconsistencies
- ✓ Generate professional reports and visual dashboards
- ✓ Apply best practices in hydraulic network design and operational management

Training Designed for:

This training course is designed for water engineers, network planners, hydraulic modelers, utility managers, and design consultants who are responsible for water distribution system planning, operation, or optimization. Civil engineers, municipal water authorities, and consulting professionals will benefit from developing practical skills in hydraulic modeling and scenario analysis. The course is also ideal for teams seeking to enhance operational efficiency, reliability, and resource management in water networks.

Training Requirement:

"Hands on practical sessions, equipment and software will be applied during the course if required and as per the client's request."

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Contents can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client's learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Program:

DAY ONE:

INTRODUCTION TO WATERGEMS HYDRAULIC MODELING

- ❖ Fundamentals of Water Distribution and Hydraulic Principles
  - Overview of WaterGEMS software interface and core features
  - Introduction to water distribution system components
  - Hydraulic fundamentals: flow, pressure, head, and continuity
  - Creating and editing network elements: nodes, pipes, pumps, valves and reservoirs
  - Importing GIS and CAD data
  - Building a base hydraulic model for analysis

DAY TWO:

DEMAND ANALYSIS AND NETWORK PERFORMANCE

- ❖ Evaluating System Performance under Operational Conditions
  - Assigning nodal demands and demand patterns
  - Hydraulic calculations: pressure, flow, velocity, and head loss
  - Modeling storage tanks, pumps, and valve operations
  - Network calibration techniques
  - Identifying pressure and flow issues
  - Scenario analysis for varying demand conditions

DAY THREE:

ADVANCED HYDRAULIC MODELING

- ❖ Optimizing Network Operations and Reliability
  - Fire flow analysis and system safety assessment
  - Pump scheduling and valve operation optimization
  - Energy consumption analysis and cost optimization
  - Contingency planning and failure simulations
  - Scenario management for operational and design planning
  - Comparing and interpreting model results for optimization

DAY FOUR:

DATA INTEGRATION AND REPORTING

- ❖ Linking Hydraulic Models with GIS, SCADA and Reporting Tools
  - Integrating GIS and SCADA data into WaterGEMS models
  - Data validation, quality assurance, and error checking
  - Using queries, charts, tables, and maps for network analysis
  - Generating professional reports and visual dashboards
  - Communicating analysis results to stakeholders

DAY FIVE:

MODEL VALIDATION AND NETWORK PERFORMANCE REVIEW

- ❖ Applying Hydraulic Modeling to Real-World Networks
  - Network validation and troubleshooting techniques
  - Scenario-based evaluation for operational efficiency
  - Assessing and documenting network performance results
  - Applying best practices for hydraulic modeling and optimization
  - Discussions on network improvement strategies
- ❖ Course Conclusion
- ❖ POST-ASSESSMENT and EVALUATION

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Gamification, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

CMCT Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

TBA as per the course location - This rate includes participant's manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:00	Recess (Prayer Break & Lunch)
13:00 - 14:00	Last Session

For training registrations or in-house enquiries, please contact:
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