

Agenda

Presented by Chris Zamaites, P.E., CFM, CPESC, ENV SP

Applications for Open Channel Hydraulic Analysis

- Flood risk assessment
- Floodplain management
- Roadways, bridge and culvert design
- New channel or channel modification projects

Hydraulic Principles

- Conservation of energy and momentum
- Energy losses and Manning's equation
- Backwater effects
- Need for computer models

History and Development of US Army Corps HEC-RAS Software

Working with the HEC-RAS User Interface

- File management
- Data entry and editing
- Displays, mapping, animations and reporting

Steady Flow Water Surface Profiling

- Types of flow: uniform flow, rapidly and gradually varied flow
- Data required
- Locating cross sections
- Setting boundary conditions
- Calculating water profiles in HEC-RAS

Special Elements

- Bridge and culvert modeling
- Lateral and diversion structures

One-Dimensional (1D) Unsteady Flow Simulation

- Routing principles
- Rating curves
- Boundary conditions

Two-Dimensional (2D) Unsteady Flow Simulation

- Application of 2D modeling: 1D vs 2D
- Required data sets
- Examples

Introduction to HEC-RAS Modeling
Lansing, MI - Friday, October 19, 2018

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Learning Objectives

You'll be able to:

Apply open channel hydraulic analysis to roadway crossing, culvert, and bridge design.

Review hydraulic principles including energy losses and backwater effects.

Understand how to work with the HEC-RAS user interface.

Discuss key issues in steady flow water surface profiling.

Calculate water profiles in HEC-RAS.

Examine one-dimensional and two-dimensional unsteady flow simulations.



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Understand the applications of open channel hydraulics

Identify the principles hydraulic analysis and review the history and development of US Army Corps HEC-RAS application

Examine the HEC-RAS user interface

Learn about types of flow and the data required for modeling

Explore steady flow water surface profiling

Review unsteady flow simulations

Continuing Education Credits

Professional Engineers

7.0 Continuing Ed. Hours

Floodplain Managers

7.0 ASFPM CECs

Professional Geologists

Non-Credit Continuing Ed.

Landscape Architects

7.0 LA/CES HSW PDHs



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Faculty

Chris Zamaite, P.E., CFM, CPESC, ENV SP, *Burns & McDonnell, Chicago*

Ms. Zamaite is a senior civil engineer with Burns & McDonnell in Chicago. She has 28 years of experience with planning and design covering municipal infrastructure; commercial, residential, and recreational development; along with planned community design. Ms. Zamaite’s experience includes utility design/relocation for water transmission and distribution systems; sewage collection; and stormwater management systems including that for arterial, collector and local street systems. Included with the aforementioned design includes floodplain evaluation and management, utility relocation, hydrology and hydraulics, earthen dam inspections, stream modeling with scour countermeasures, erosion and sediment control, and meeting all regulatory criteria associated with local planning and zoning ordinances, stormwater ordinances, and other applicable regulatory criteria from local to the federal level. Ms. Zamaite’s hydrologic and hydraulic modeling experience includes HEC 1, HEC 2, WSP2, WSPRO, WIN TR-20, TR 55, SWMM, HEC-RAS, HydroCAD, SewerCAD, StormCAD, Culvert Master, and Flow Master.

Seminar Information

Hyatt Place Lansing/Eastwood Towne Center 2401 Showtime Drive Lansing, MI 48912 (517) 679-7600	Registration 8:00 - 8:30 am Morning Session 8:30 am - 12:00 pm	Lunch (On your own) 12:00 - 1:00 pm Afternoon Session 1:00 -5:00 pm
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Tuition
\$279 for individual registration
\$259 for three or more simultaneous registrations.

Each registration includes a complementary continental breakfast and printed seminar manual.

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Cancellations: Cancel at least 48 hours before the start of the seminar (CDT), and receive a full tuition refund, minus a \$39 service charge for each registrant. Cancellations within 48 hours will receive a credit toward another seminar or the CD/manual package. You may also send another person to take your place.

Additional Learning

Webinar Series

Off-grid Photovoltaic Master Class

- **Off-grid Photovoltaic Master Class, Part I**
Wed., Oct. 3, 2018, 11:00 AM - 2:15 PM CDT
- **Off-grid Photovoltaic Master Class, Part II**
Thurs., Oct. 4, 2018, 11:00 AM - 2:15 PM CDT

Stormwater Management Systems

- **Basics of Stormwater Regulations and Requirements, Including New EPA Regulations**
Thurs., Oct. 4, 2018, 11:00 AM - 12:00 PM CDT
- **Working with the Regulator**
Thurs., Oct. 4, 2018, 12:30 - 2:00 PM CDT
- **Site Planning and Choosing Best Management Practices**
Fri., Oct. 5, 2018, 11:00 AM - 12:00 PM CDT
- **Long-term Stormwater Management Practices**
Fri., Oct. 5, 2018, 12:30 - 2:00 PM CDT

Floodplain Mapping and Regulation

- **Floods, Floodplains and Introduction to Floodplain Management**
Wed., Oct. 10, 2018, 11:00 AM - 12:30 PM CDT
- **Flood Maps and Flood Zones**
Wed., Oct. 10, 2018, 1:00 - 2:30 PM CDT
- **Elevations in the National Flood Insurance Program (NFIP) and Floodplain Regulation**
Thurs., Oct. 11, 2018, 11:00 AM - 12:30 PM CDT
- **Practical Floodplain Management**
Thurs., Oct. 11, 2018, 1:00 - 2:30 PM CDT

HEC-RAS Webinar Series

- **Hydraulic Principles and Applications**
Thurs., Oct. 18, 2018, 11:00 AM - 1:00 PM CDT
- **Working with the HEC-RAS User Interface**
Thurs., Oct. 18, 2018, 1:30 - 3:00 PM CDT
- **Water Surface Profiling**
Fri., Oct. 19, 2018, 11:00 AM - 1:00 PM CDT
- **Steady Flow Surface Profile Demonstrations**
Fri., Oct. 19, 2018, 1:30 - 3:30 PM CDT

For more information and other online learning opportunities visit:
www.halfmoonseminars.org/webinars/

Continuing Education Credit Information

This seminar is open to the public and offers 7.0 continuing education hours (PDHs) to professional engineers in all states. Educators and courses are not subject to preapproval in Michigan.

HalfMoon Education is an approved continuing education sponsor for engineers in Florida, Indiana (Provider No. CE21700059), Maryland, New Jersey (Approval No. 24GP00000700), New York (NYSED Sponsor No. 35), North Carolina, and North Dakota.

The Association of State Floodplain Managers has approved this course for 7.0 CECs.

This seminar offers a non-credit opportunity to Michigan geologists and landscape architects. The Landscape Architecture Continuing Education System has approved this program for 7.0 HSW PDHs. Only full attendance can be reported to the LA/CES.

Attendance will be monitored, and attendance certificates will be available after the seminar for most individuals who complete the entire event. Attendance certificates not available at the seminar will be mailed to participants within fifteen business days.

Can’t Attend? Order the CD/Manual Package:

An audio recording of this seminar is available for \$289 (including shipping). Allow five weeks from the seminar date for delivery. Please refer to specific state licensing rules or certification requirements to determine if this learning method is eligible for continuing education credit.

Registration

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How to Register	Registrant Information
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	Email address is required for credit card receipt, program changes, and notification of upcoming seminars and products. Your email will not be sold or transferred.
	() I need special accommodations. Please contact me.

Tuition

() **I will be attending the live seminar.** Single Registrant - **\$279.00**. Three or more registrants from the same company registering at the same time - **\$259.00** each.

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