

Agenda

Presented by Gregory H. Nail, PhD, PE

Applications of Open Channel Hydraulics

- River and watercourse analysis
- Floodplain management
- Flood hazard mapping and risk analysis
- Channel and levee design
- Roadway crossing and bridge analysis and design
- Bridge scour analysis

Principles of Hydraulic Analysis

- Conservation of energy
- Conservation of momentum
- Bernoulli equation
- Energy losses
- Backwater and forewater calculations
- Computer-based analysis and computations

History and Development of US Army Corps of Engineers HEC-RAS Application

HEC-RAS Application User Interface

- Program file and project management
- Data entry and editing
- GIS data usage
- Results and reporting
- Mapping capabilities

Water Surface Profiling

- Flow types
- Analysis data required for modeling
- Cross section location
- Discharge flows and boundary conditions
- Step backwater calculations
- Model calibration

Bridge and Culvert Modeling

- Cross section locations
- Flow regimes
- Ineffective flow areas
- Bridge model setup

Steady Flow Surface Profile Demonstration 1

- Live demo for typical river reach
- Project file setup
- Geometry file demo
- Steady flow file demo
- Setting boundary conditions
- Simple river reach modeling tips

Steady Flow Surface Profile Demonstration 2

- Live demo for simple bridge
- Setup of typical bridge cross section model
- Establishment of ineffective flow areas
- Simple bridge modeling tips

Introduction to HEC-RAS Modeling

Johnston, IA - Thursday, August 1, 2019

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Learning Objectives

You'll be able to:

Explore the many applications of open channel hydraulics, including flood hazard mapping, roadway crossing analysis and bridge design.

Review principles of hydraulic analysis, and explore backwater and forewater calculations.

Understand the history and development of HEC-RAS, and learn how to work with the HEC-RAS user interface.

Learn about bridge and culvert modeling.

Discuss key issues in steady flow water surface profiling.



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Understand the applications of open channel hydraulics, including flood hazard mapping and channel, levee and bridge design

Identify principles of hydraulic analysis, and discuss backwater and forewater calculations

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 surface profiles

Continuing Education Credits

Professional Engineers

6.5 PDHs

Geologists

Non-Credit Continuing Ed.

Landscape Architects

6.5 HSW Contact Hours

6.5 LA/CES HSW PDHs



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Faculty

Gregory H. Nail, PhD, PE Associate Professor, University of Tennessee at Martin

Dr. Nail is an associate professor in the Engineering Department at the University of Tennessee at Martin where he teaches a variety of courses including fluid mechanics, hydraulics and hydrology, and hydraulic and hydrologic modeling. He holds a professional engineer's license based on having passed both the Civil and Mechanical discipline-specific exams. Prior to coming to UT-Martin in 2002 he worked as a research hydraulic engineer for the United States Army Corp of Engineers for 11 years. He is a former member of the Executive Committee of the Tennessee American Water Resources Association, and he has lectured on various HEC-RAS modeling topics at the Annual Tennessee Water Resources Symposium and at other venues. Dr. Nail earned his B.M.E. degree from Auburn University and his M.S. and Ph.D. degrees from Texas A&M University.

Here's what past attendees had to say about the program and presenter Gregory Nail:

"Good seminar." – *Architect*

"Very knowledgeable speaker." – *Landscape Architect*

"Great presenter." – *Civil Engineer*

Seminar Information

Hilton Garden Inn Des Moines/Urbandale 8600 Northpark Drive Johnston, IA 50131 (515) 270-8890	Registration	Lunch (On your own)
	8:00 - 8:30 am	12:00 - 1:00 pm
	Morning Session 8:30 am - 12:00 pm	Afternoon Session 1:00 - 4:30 pm

Tuition

\$289 for individual registration

\$269 for three or more simultaneous registrations.

Included with your registration:

Complimentary continental breakfast and printed seminar manual.

Receive a reduced tuition rate of \$101 by registering to be our on-site coordinator for the day. For availability and job description, please visit www.halfmoonseminars.org.

How to Register

- Visit us online at www.halfmoonseminars.org
- Mail-in or fax the attached form to 715-835-6066
- Call customer service at 715-835-5900

Cancellations: Cancel at least 48 hours before the start of the seminar, 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. You may also send another person to take your place.

Additional Learning

Webinar Series

Distributed Battery Webinar

- **The Distributed Battery Webinar, Part I**
Wed., June 12, 2019, 11:00 AM - 2:15 PM CDT
- **The Distributed Battery Webinar, Part II**
Thurs., June 13, 2019, 11:00 AM - 2:15 PM CDT

Water Conservation

- **Evaluating the Owner's Commitment to Water Conservation and Applicable Codes and Standards**
Thurs., June 13, 2019, 11:00 AM - 12:30 PM CDT
- **Assessing the Building Site**
Thurs., June 13, 2019, 1:00 - 2:00 PM CDT
- **Conserving and Reducing Water Use**
Fri., June 14, 2019, 11:00 AM - 1:00 PM CDT
- **Onsite Water Recycling and Minimizing Water Use**
Fri., June 14, 2019, 1:30 - 3:30 PM CDT

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

International Existing Building Codes

- **Working with the International Existing Building Code**
Thurs., June 20, 2019, 11:00 AM - 12:30 PM CDT
- **Chapters 3, 4 & 6**
Thurs., June 20, 2019, 1:00 - 3:00 PM CDT
- **Chapters 7-10: Alterations and Occupancy**
Fri., June 21, 2019, 11:00 AM - 1:00 PM CDT
- **Chapters 11, 12 and 14: Additions and Historic Buildings**
Fri., June 21, 2019, 1:30 - 3:00 PM CDT

Retaining Structures

- **Earth Pressures and Surcharges**
Wed., June 26, 2019, 11:00 AM - 12:30 PM CDT
- **Cantilever & Apparent Earth Pressures**
Wednesday, June 26, 2019, 1:00 - 2:30 PM CDT
- **Apparent Earth Pressures**
Thurs., June 27, 2019, 11:00 AM - 12:30 PM CDT

Continuing Education Credit Information

This seminar is open to the public and offers 6.5 PDHs to professional engineers and 6.5 HSW contact hours to landscape architects in most states, including Iowa. Educators and courses are not subject to preapproval in Iowa and neighboring states.

This seminar is approved by the Landscape Architecture Continuing Education System for 6.5 HSW PDHs. Only full attendance can be reported to the LA/CES.

HalfMoon Education is an approved continuing education sponsor for engineers in Florida, Indiana (License No. CE21700059), Maryland, New Jersey (Approval No. 24GP00000700), North Carolina, and North Dakota. HalfMoon Education is deemed an approved continuing education sponsor for New York landscape architects.

This event also offers a non-credit continuing education opportunity to geologist. It has not been reviewed by any state contractor licensing entity for course approval.

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

Attendees wishing for hands-on HEC-RAS experience can do so by participating in the two live demonstrations during the afternoon session. This is entirely optional, but those wishing to do so should download and install HEC-RAS 5.0.3 on your laptop before arriving at the seminar (<http://www.hec.usace.army.mil/software/hec-ras/downloads.aspx>). All HEC-RAS files used by the presenter during the live demonstrations will be distributed to attendees on a DVD, prior to the start of the seminar. No internet connection or licensing is required to run HEC-RAS, once it is installed. Participation in the live HEC-RAS demonstrations is the choice of the attendees, and is not required.

Registration

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How to Register		Registrant Information	
Online: www.halfmoonseminars.org		Name: _____	
Phone: 715-835-5900		Company/Firm: _____	
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Code:		City: _____ State: _____ Zip: _____	
Mail: HalfMoon Education Inc., PO Box 278, Altoona, WI 54720-0278		Occupation: _____	
Complete the entire form. Attach duplicates if necessary.		Email: _____	
		Phone: _____	
		Name: _____	
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		Email: _____	
		Phone: _____	
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 - \$289.00 . Three or more registrants from the same company registering at the same time - \$269.00 each.	
() I am not attending. Please send me the self-study package:	
Checks: Make payable to HalfMoon Education Inc.	
Credit Card: <i>Mastercard, Visa, American Express, or Discover</i>	
Credit Card Number: _____	
Expiration Date: _____ CVV2 Code: _____	
Cardholder Name: _____	
Billing Address: _____	
City: _____ State: _____ Zip: _____	
Signature: _____	
Email: _____	