

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
Toledo, OH - Tuesday, February 5, 2019



Halfmoon Education Inc.
PO BOX 278
Altoona, WI 54720-0278

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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 the principles of hydraulic analysis

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

Ohio Professional Engineers & Professional Surveyors

6.5 PDHS

Floodplain Managers

6.5 ASFPM CECs

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

Radisson Hotel at The University Toledo Medical Center

3100 Glendale Avenue
Toledo, OH 43614
(419) 381-6800

Registration 8:00 - 8:30 am	Lunch (On your own) 12:00 - 1:00 pm
Morning Session 8:30 am - 12:00 pm	Afternoon Session 1:00 - 4:30 pm

Tuition

\$279 for individual registration

\$259 for three or more simultaneous registrations.

Each registration includes a 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 a job description, go online to 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

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.

Additional Learning

Webinar Series

Stormwater Management Systems

- **Stormwater Infrastructure Practices**
Weds., Dec. 19, 2018, 11:00 AM - 1:00 PM CST
- **Infiltration Management Techniques**
Thurs., Dec. 20, 2018, 11:00 AM - 1:00 PM CST

NFPA 70E Series

- **NFPA 70E, Part I**
Weds., Dec. 26, 2018, 11:00 AM - 3:30 PM CST
- **NFPA 70E, Part II**
Thurs., Dec. 27, 2018, 11:00 AM - 3:30 PM CST

Seismic Design and Construction

- **Seismology and Building Codes**
Thurs., Dec. 27, 2018, 11:00 AM - 3:30 PM CST
- **Seismic Design of Building Structures**
Fri., Dec. 28, 2018, 11:00 AM - 3:30 PM CST

Commercial Solar Peaker Batteries

- **Commercial Solar Peaker Batteries, Part I**
Wed., Jan. 9, 2019, 11:00 AM - 3:15 PM CST
- **Commercial Solar Peaker Batteries, Part II**
Thurs., Jan. 10, 2019, 11:00 AM - 2:15 PM CST

Proposal Writing

Fri., Jan. 11, 2019, 11:00 AM - 3:30 PM CDT

Technical Writing

- **Technical Writing Basics**
Mon., Jan. 14, 2019, 11:00 AM - 1:00 PM CST
- **Planning Documents**
Mon., Jan. 14, 2019, 1:30 - 3:30 PM CST
- **Writing Documents**
Tues., Jan. 15, 2019, 11:00 AM - 1:00 PM CST
- **Revising and Editing Documents**
Tues., Jan. 15, 2019, 1:30 - 3:30 PM CST

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 6.5 PDHs to professional engineers and professional surveyors in most states, including Ohio. Educators and courses are not subject to preapproval in Ohio.

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

The Association of State Floodplain Managers has approved this event for 6.5 CECS.

This course offers 6.5 HSW contact hours to Ohio landscape architects. Educators and courses are not subject to preapproval.

The Landscape Architecture Continuing Education System has approved this course for 6.5 HSW PDHs. Only full attendance can be reported to the LA/CES.

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: _____ Company/Firm: _____ Address: _____ City: _____ State: _____ Zip: _____ Occupation: _____ Email: _____ Phone: _____
Phone: 715-835-5900	Additional Registrants: Name: _____ Occupation: _____ Email: _____ Phone: _____
Fax: 715-835-6066	Name: _____ Occupation: _____ Email: _____ Phone: _____
Mail: HalfMoon Education Inc., PO Box 278, Altoona, WI 54720-0278	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.
Complete the entire form. Attach duplicates if necessary.	() 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.

Checks: Make payable to HalfMoon Education Inc.

Credit Card: *Mastercard, Visa, American Express, or Discover*

Credit Card Number: _____
Expiration Date: _____ CVV2 Code: _____
Cardholder Name: _____
Billing Address: _____
City: _____ State: _____ Zip: _____
Signature: _____
Email: _____