

Agenda

Presented by Greg Nail

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
Eagan, MN - Thursday, December 13, 2018

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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.



Introduction to HEC-RAS Modeling

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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 water surface profile demonstrations

Continuing Education Credits

Professional Engineers

7.0 PDHs

Floodplain Managers

7.0 CECs

Geoscientists

7.0 PDHs

Landscape Architects

7.0 PDHs

7.0 LA/CES HSW PDHs



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Faculty

Greg Nail *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:

- “Very good presentation.” – *Hydrologist*
- “Knowledgeable presenter.” – *Civil Engineer/EIT*
- “The seminar was great and the presentation and delivery were very good as well.”
– *Civil Engineer*

Seminar Information

Holiday Inn Airport SE - Mall Area 2700 Pilot Knob Road Eagan, MN 55121 (651) 454-3434	Registration 8:00 - 8:30 am Morning Session 8:30 am - 12:30 pm	Lunch (On your own) 12:30 - 1:30 pm Afternoon Session 1:30 - 5:00 pm
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Tuition

\$279 for individual registration
\$259 for three or more simultaneous registrations.
Included with your registration:
Complimentary continental breakfast and printed seminar manual.

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 (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

Residential Energy Code

- **Introduction to the Residential Energy Code and Mandatory Requirements**
Thurs., Dec. 6, 2018, 11:00 AM - 12:30 PM CST
- **IECC Residential Building Envelope Requirements**
Thurs., Dec. 6, 2018, 1:00 - 2:30 PM CST
- **IECC Residential HVAC Requirements**
Fri., Dec. 7, 2018, 11:00 AM - 12:30 PM CST
- **International Energy Conservation Permit Pathways**
Fri., Dec. 7, 2018, 1:00 - 2:30 PM CST

Deep Foundations

- **Deep Foundation Site Evaluation**
Weds., Dec. 12, 2018, 11:00 AM - 12:00 PM CST
- **Overview of Deep Foundations**
Weds., Dec.12, 2018, 12:30 - 2:00 PM CST
- **Deep Foundation Pile Design**
Thurs., Dec. 13, 2018, 11:00 AM - 12:30 PM CST
- **Deep Foundation Installation and Testing**
Thurs., Dec. 13, 2018, 1:00 - 2:00 PM CST

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

For more information visit:
www.halfmoonseminars.org/webinars/

Continuing Education Credit Information

This seminar is open to the public and offers 7.0 PDHs to professional engineers, landscape architects, and geoscientists in most states, including Minnesota. Educators and courses are not subject to preapproval in Minnesota.

HalfMoon Education is an approved continuing education sponsor for engineers in Florida, Indiana, 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 event for 7.0 CECs for certified floodplain managers.

The Landscape Architecture Continuing Education System approved this course 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

Introduction to HEC-RAS Modeling

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How to Register	Registrant Information
Online: www.halfmoonseminars.org	Name: _____ Company/Firm: _____ Address: _____ City: _____ State: _____ Zip _____ Occupation: _____ Email: _____ Phone: _____
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Fax: 715-835-6066	Name: _____ Occupation: _____ Email: _____ Phone: _____
Mail: HalfMoon Education Inc., PO Box 278, Altoona, WI 54720-0278	Name: _____ Occupation: _____ Email: _____ Phone: _____
Complete the entire form. Attach duplicates if necessary.	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.

() **I am not attending.** Please send me the CD manual package for **\$289.00**. (S&H included. Please allow five weeks from seminar date for delivery)

Checks: Make payable to HalfMoon Education Inc.

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