

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
St. Louis, MO - Tuesday, February 20, 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

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 profile demonstrations

Continuing Education Credits

Professional Engineers

6.5 PDHs

Floodplain Managers

6.5 ASFPM CECs

Landscape Architects

6.5 HSW CEUs/CE Hours
6.5 LA CES HSW PDHs

Geologists

Non-Credit CE



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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

Holiday Inn Forest Park 5915 Wilson Avenue St. Louis, MO 63110 (314) 645-0700	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 - 4:30 pm
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Tuition
\$279 for individual registration
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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 or the CD/manual package. You may also send another person to take your place.



Webinar Series
Seismic Design and Construction
• **Seismology and Building Codes**
Wed., Dec. 27, 2017, 11:00 AM - 3:30 PM CST
• **Seismic Design of Building Structures**
Thurs., Dec. 28, 2017, 11:00 AM - 3:30 PM CST

The Distributed Battery Webinar Series
• **The Distributed Battery Webinar, Part I**
Thurs., Dec. 28, 2017, 11:00 AM - 2:15 PM CST
• **The Distributed Battery Webinar, Part II**
Fri., Dec. 29, 2017, 11:00 AM - 2:15 PM CST

Technical Writing
• **Technical Writing Basics**
Tues., Jan. 9, 2018, 11:00 AM - 1:00 PM CST
• **Planning Documents**
Tues., Jan. 9, 2018, 1:30 - 3:30 PM CST
• **Writing Documents**
Wed., Jan. 10, 2018, 11:00 AM - 1:00 PM CST
• **Revising and Editing Documents**
Wed., Jan. 10, 2018, 1:30 - 3:30 PM CST

Masonry Design and Construction
• **Introduction to Masonry Materials and Requirements**
Thurs., Jan. 11, 2018, 11:00 AM - 1:00 PM CST
• **Masonry Construction Techniques**
Thurs., Jan. 11, 2018, 1:30 - 3:30 PM CST
• **Quality Control and Sampling**
Fri., Jan. 12, 2018, 11:00 AM - 1:00 PM CST
• **Masonry Inspections and the Masonry Standards Joint Committee (MSJC) Code**
Fri., Jan. 12, 2018, 1:30 - 3:30 PM CST

Deep Foundations
• **Deep Foundation Site Evaluation**
Wed., Jan. 17, 2018, 11:00 AM - 12:00 PM CST
• **Overview of Deep Foundations**
Wed., Jan. 17, 2018, 12:30 - 2:00 PM CST
• **Deep Foundation Pile Design**
Thurs., Jan. 18, 2018, 11:00 AM - 12:30 PM CST
• **Deep Foundation Installation and Testing**
Thurs., Jan. 18, 2018, 1:00 - 2:00 PM CST

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

Continuing Education Credit Information

This seminar is open to the public and offers 6.5 PDHs to engineers in all states and 6.5 HSW CEUs/continuing education hours to landscape architects in most states, including Missouri and Illinois. Educators and courses are not subject to preapproval in these 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 deemed an approved landscape architect continuing education sponsor in New York. HalfMoon education is an approved continuing education sponsor for engineers in Florida, Louisiana, Maryland, New Jersey, New York (NYSED Sponsor No. 35), North Carolina, and North Carolina.

The Association of State Floodplain Managers has approved this course for 6.5 CECs.

This seminar offers a non-credit continuing education opportunity to geologists.

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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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.
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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)

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