

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

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
Model calibration Step backwater calculations

Bridge and Culvert Modeling

Crossing locations Crossing 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

Arlington, VA - Thursday, June 13, 2019

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Learning Objectives

You'll be able to:

Discuss applications for open-channel hydraulic analysis, including flood risk assessment and roadway design.

Review hydraulic principles, including the principles of conservation of energy and conservation of momentum.

Learn about the HEC-RAS user interface.

Explore steady flow water surface profiling.

Explore bridge and culvert modeling.

Watch Live HEC-RAS demonstrations for typical river reach and simple bridges.



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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 surface profile demonstrations

Continuing Education Credits

Professional Engineers
6.5 PDHs

Geologists
Non-Credit Continuing Ed.

Floodplain Managers
6.5 ASFPM CECs



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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.

Seminar Information

Hilton Garden Inn Arlington/ Courthouse Plaza 1333 North Courthouse Road Arlington, VA 22201 (703) 528-4444	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
\$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

Septic Systems Series

- **Onsite Wastewater Treatment Technologies, Regulations and Contaminant Removal**
Tues., May 21, 2019, 11:00 AM - 12:30 PM CDT
- **Evaluating Sites, Setting Treatment Goals and System Design**
Tues., May 21, 2019, 1:00 - 2:30 PM CDT
- **Alternative and Sustainable Treatment Technologies**
Thurs., May 23, 2019, 11:00 AM - 12:30 PM CDT
- **Management Programs for Onsite Wastewater Treatment Systems**
Thurs., May 23, 2019, 1:00 - 2:30 PM CDT

Construction Cost Estimating

- **Introduction to Cost Estimating**
Thurs., May 23, 2019, 11:00 AM - 12:30 PM CDT
- **Cost Components – A Closer Look at the Estimates**
Thurs., May 23, 2019, 1:00 - 3:00 PM CDT
- **Cost Estimate Organization and Examples**
Fri., May 24, 2019, 11:00 AM - 1:00 PM CDT
- **Cost Estimating Topics**
Fri., May 24, 2019, 1:30 - 3:00 PM CDT

International Residential Code

- **Development and Enforcement of International Residential Code**
Thurs., May 30, 2019, 11:00 AM - 12:00 PM CDT
- **Building Planning and Shell Construction (IRC Chapters 3-10)**
Thurs., May 30, 2019, 12:30 - 2:30 PM CDT
- **Energy Efficiency (IRC Chapter 11)**
Fri., May 31, 2019, 11:00 AM - 12:00 PM CDT
- **Mechanical, Fuel, Plumbing and Electrical Systems**
Fri., May 31, 2019, 12:30 - 2:30 PM CDT

For more information
and other online learning opportunities visit:
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Continuing Education Credit Information

This seminar is open to the public. It offers 6.5 PDHs to professional engineers in all states. Educators and courses are not subject to preapproval in Virginia.

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

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

This course offers a non-credit continuing education opportunity to Virginia geologists. It may qualify for continuing education credit in other states. Refer to specific state rules to determine eligibility.

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.

Registration

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How to Register		Registrant Information	
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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.	
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