

Agenda

Presented by Dr. Gregory H. Nail, PhD, PE

Introductions and One-Dimensional Steady Flow HEC-RAS Review

- Introduction and overview
- Basic definitions and assumptions
- Conservation of energy and energy losses
- Computational enhancements

Unsteady One-Dimensional Open Channel Hydraulics

Background and Theory

- Basic assumptions
- Conservation of mass
- Conservation of momentum
- Computational algorithm
- Boundary and initial conditions

Two-Dimensional Open Channel Hydraulics Background and Theory

- Basic assumptions
- Conservation of mass
- Conservation of momentum
- Boundary and initial conditions
- Computational mesh and algorithm
- HEC-RAS and historical perspectives

Demonstration 1 – Building an Unsteady 1D HEC-RAS Model without GIS

- HEC-RAS user interface
- Generating the geometry
- Generating the boundary and initial conditions
- Initial conditions
- Unsteady flow computational simulation
- Viewing of results

Demonstration 2 – GIS Basics

- Introduction and overview
- Geographic versus projected coordinate systems
- Raster versus vector files
- ArcMap versus ArcCatalog
- ArcMap interface basics
- Digital elevation model
- Other files

Demonstration 3 – Building an Unsteady 1D HEC-RAS Model with GIS

- RASMapper interface and the projection file
- Digital elevation models and geometry creation
- Generating the boundary and initial conditions
- Unsteady flow computational simulation
- Display and interpretation of results

Demonstration 4 – Building a Basic 2D HEC-RAS Model

- RASMapper interface and 2D geometry
- 2D mesh generation
- 2D boundary and initial conditions
- Other miscellaneous computational parameters
- 2D computational simulation
- Display and interpretation of results

Demonstration 5 – 2D HEC-RAS Model with Connections

- RASMapper interface and mesh generation
- Spatially varied Manning’s n
- Connections
- 2D Computational simulation
- Viewing and interpreting results

Demonstration 6 – 1D/2D HEC-RAS Model and Other Considerations

- RASMapper interface and combined 1D/2D mesh generation
- Manning’s n and connections
- External 2D flow area boundary conditions
- Other miscellaneous computational parameters
- 1D/2D computational simulation
- Viewing and interpreting result

Advanced
HEC-RAS Modeling
Live, Interactive Webinar - Friday, May 31, 2024

NON-PROFIT
U.S. POSTAGE PAID
EAU CLAIRE, WI
PERMIT NO. 2016

HalfMoon Education Inc.
PO Box 278
Altoona, WI 54720-0278



Learning Objectives

You’ll be able to:

Discuss the principles of open channel hydraulics that underlie one-dimensional and two-dimensional modeling with HEC-RAS software.

Learn about building an unsteady one-dimensional HEC-RAS model with and without GIS.

Discuss GIS basics for use in HEC-RAS modeling.

Explore the process of building a basic two-dimensional HEC-RAS model.

Get tips on using the RASMapper interface, and discuss mesh generation.

Create HEC-RAS models with connections, and view and interpret modeling results.



HalfMoon Education Inc.,
Your LIVE Education Leader Presents

Advanced HEC-RAS Modeling

Live, Interactive Webinar - Friday, May 31, 2024



Explore the hydraulic science behind USACE’s HEC-RAS software

Watch demonstrations of unsteady 1D HEC-RAS models built with and without GIS

Discuss unsteady one-dimensional open channel hydraulics

Get demonstrations of basic 2D HEC-RAS models

Examine two-dimensional open channel hydraulics

Continuing Education Credits

Professional Engineers
8.0 PDHs

Floodplain Managers
8.0 ASFPM CECs

Landscape Architects
8.0 HSW CE Hours
8.0 LA CES HSW PDHs



Webinar Information

Online | Friday, May 31, 2024
8:30 am - 5:30 pm CDT (including 60 minutes of breaks)
Please log into the webinar 15-30 minutes before start time

Tuition
\$339 for individual registration.
\$309 for two or more registrants from the same company at the same time.
Included with your registration: PDF seminar manual.

How to Register

- Visit us online at www.halfmoonseminars.org
- Call customer service at 715-835-5900

Webinars are presented via GoToWebinar. Instructions and login information will be provided in an email sent close to the date of the webinar. For more information, please visit our FAQ section of our website, or visit www.gotowebinar.com.

Cancellations: Cancel at least 48 hours before the start of the webinar, and receive a full tuition refund, minus a \$39 service charge for each registrant. Cancellations within 48 hours will receive a credit toward another webinar or the on-demand package. You may also authorize another person to take your place.

Learn More and Register:
www.halfmoonseminars.org
Customer Service (715) 835-5900 Ext. 1

or scan here



Can't Attend? Order the Webinar as an On-Demand Package!
Recordings of this webinar are available for purchase. See details online for more information and please refer to specific state licensing rules or certification requirements to determine if this learning method is eligible for continuing education credit.

Faculty



Dr. Gregory H. 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.

Credit Information

This webinar is open to the public and is designed to qualify for 8.0 PDHs for professional engineers and 8.0 HSW continuing education hours for licensed landscape architects in most states that allow this learning method. Please refer to specific state rules to determine eligibility.

HalfMoon Education is an approved continuing education sponsor for engineers in Florida (Provider License No: CEA362), Indiana (License No. CE21700059), Maryland, New Jersey (Approval No. 24GP00000700) and North Carolina (S-0130). HalfMoon Education is deemed an approved continuing education sponsor for New York engineers and landscape architects via its registration with the Landscape Architecture Continuing Education System.

The Landscape Architecture Continuing Education System has approved this course for 8.0 HSW PDHs. Only full participation is reportable to the LA CES.

This Association of State Floodplain Managers has approved this course for 8.0 CECs for floodplain managers.

Attendance will be monitored, and attendance certificates will be available after the webinar for those who attend the entire course and score a minimum 80% on the quiz that follows the course (multiple attempts allowed).

On-Demand Credits
The preceding credit information only applies to the live presentation. This course in an on-demand format is not pre-approved by any licensing boards and may not qualify for the same credits; please consult your licensing board(s) to ensure that a structured, asynchronous learning format is appropriate. The following pre-approvals may be available for the on-demand format upon request:
8.0 HSW PDHs (LA CES), 8.0 ASFPM CECs

Additional Learning

- Engineering Projects from Start to Finish**
- Monday, May 6, 2024 | 8:30 am - 4:30 pm CDT
- FEMA Floodplain Letters of Map Change Explained**
- Wednesday, May 8, 2024 | 9:00 am - 1:30 pm CDT
- Hydrology and Hydraulics for Municipal Stormwater Engineering**
- Thursday, May 9, 2024 | 9:00 am - 4:30 pm CDT
- Natural Ventilation Principles and Techniques**
- Thursday, May 9, 2024 | 9:00 am - 4:00 pm CDT
- 2021 International Building Code Essentials**
- Friday, May 10, 2024 | 8:30 am - 4:30 pm CDT
- Insulations in Light Construction for Northern Climates**
- Friday, May 10, 2024 | 1:00 - 4:00 pm CDT
- Protecting Tree Diversity**
- Friday, May 10, 2024 | 1:00 - 4:00 pm CDT
- Urban Stormwater Management System Design and Construction**
- Friday, May 10, 2024 | 8:30 am - 4:30 pm CDT
- Techniques to Promote Groundwater Conservation**
- Monday, May 13, 2024 | 9:00 am - 4:30 pm CDT
- Temporary Construction Site Erosion and Sediment Control BMPs**
- Monday, May 13, 2024 | 9:00 am - 4:00 pm CDT
- Roadway Design**
- Tuesday, May 14, 2024 | 8:30 am - 5:00 pm CDT
- Adding EV Charging Stations to Homes or Businesses**
- Wednesday, May 15, 2024 | 1:00 - 3:00 pm CDT
- Managing Engineering Liability and Risk**
- Wednesday, May 15, 2024 | 8:30 am - 4:30 pm CDT
- A Closer Look: Federal Strategies in Addressing PFAS Contamination**
- Thursday, May 16, 2024 | 9:00 - 11:00 am CDT
- Heritage Trees: Why and How to Save and Protect Them**
- Friday, May 17, 2024 | 10:00 am - 1:00 pm CDT
- Wetland Preservation, Restoration, Creation and Enhancement**
- Tuesday, May 21, 2024 | 10:00 am - 12:00 pm CDT
- How to Use Less "Toxic" Weed Control**
- Wednesday, May 29, 2024 | 10:00 am - 12:00 pm CDT
- Understanding Subsidence Caused by Groundwater Withdrawal**
- Wednesday, May 29, 2024 | 12:00 - 2:00 pm CDT

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