

Agenda

Presented by E. Christian Naidu, PE

History and Development of US Army Corps HEC-RAS Software

Hydraulic Principles

- Conservation of energy and momentum
- Energy losses and Manning's equation
- Backwater effects
- Need for computer models

Applications for Open Channel Hydraulic Analysis

- Flood risk assessment
- Floodplain management
- Roadways, bridge and culvert design
- New channel or channel modification projects

Working with the HEC-RAS User Interface

- File management
- Data entry and editing
- Displays, mapping, animations and reporting

Steady Flow Water Surface Profiling

- Types of flow: uniform flow, rapidly and gradually varied flow
- Data required
- Locating cross sections
- Setting boundary conditions
- Calculating water profiles in HEC-RAS

Special Elements

- Bridge and culvert modeling
- Lateral and diversion structures

Steady Flow Simulation 1

- Demonstration for standard stream flow
- Project file setup
- Setting geometry and boundary conditions
- Modeling tips

Steady Flow Simulation 2

- Demonstration for a standard bridge
- Modeling tips

Introduction to HEC-RAS Modeling

El Paso, TX - Friday, February 14, 2020

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PO Box 278
Altoona, WI 54720-0278



Learning Objectives

You'll be able to:

Identify applications for open channel hydraulic analysis, including flood risk assessment, floodplain management, and roadway and bridge design.

Define hydraulic principles, including conservation of energy and momentum, and describe the operation of Manning's equation to calculate channel flow.

Describe how the U.S. Army Corps HEC-RAS software can be used to model water flow for streams and rivers.

Identify how HEC-RAS can be used to model steady stream flow, including the impacts of bridges and culverts on stream flow.



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Introduction to HEC-RAS Modeling

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Understand hydraulic principles

Identify applications for open channel hydraulic analysis

Learn how to work with the HEC-RAS user interface

Learn about steady flow water surface profiling

Explore steady flow simulations

Discuss special elements like bridge and culvert modeling

Continuing Education Credits

Professional Engineers

7.0 PDHs

Professional Geoscientists

7.0 CE Hours

Floodplain Managers

7.0 ASFPM CECs

Landscape Architects

7.0 HSW CEPDs/CE Hours

7.0 LA/CES HSW PDHs



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Faculty

Chris Naidu, PE *Water Resources Civil Engineer, Senior Project Manager at RESPEC*

Mr. Naidu has more than eight years of experience in drainage and flood control projects throughout New Mexico. His experience includes preparation of drainage management plans (DMP), hydrologic analysis, hydraulic analysis of flood control structures, sediment transport, and scour analysis for unlined arroyos and bridge structures. Using modeling/analysis software, Mr. Naidu produces high quality hydrologic and hydraulic models. He has a proven record of preparing easy-to-understand reports and corresponding maps and figures. He has prepared hydrographs and analyzed storm drains, weirs, pump stations, and detention/surge ponds. Additional skills include preparation of plan specifications, bidding and construction plans, cost estimates; and bidding services. He is familiar with Arc Geographic Information System (ArcGIS), Hydrologic Engineering Center (HEC) Hydrologic Modeling System, HEC Geospatial Hydrologic Modeling Extension (geoHMSO), HEC River Analysis System, US Environmental Protection Agency Storm Water Management Model (EPA SWMM), StormCad, and CulvertMaster.

Seminar Information

Radisson Hotel El Paso Airport 1770 Airway Blvd El Paso, TX 79925 (915) 772-3333	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 - 5:00 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

Commercial Solar Peaker Batteries

- **Part I**
Wed., Feb. 5, 2020, 11:00 AM - 2:15 PM CST
- **Part II**
Thurs., Feb. 6, 2020, 11:00 AM - 2:15 PM CST

Pumping and Piping Systems

- **Introduction to Pumps: Operation, Principles and Calculations**
Thurs., Feb. 6, 2020, 11:00 AM - 1:00 PM CST
- **Pumping and Piping Design Standards and Codes**
Thurs., Feb. 6, 2020, 1:30 - 2:30 PM CST
- **Piping System Components, Materials and Calculations**
Fri., Feb. 7, 2020, 11:00 AM - 1:00 PM CST
- **Handling Pump and Piping System Problems**
Fri., Feb. 7, 2020 , 1:30 - 2:30 PM CST

Pavement Design

- **Principles of Pavement Design**
Wed., Feb. 12, 2020, 11:00 AM - 12:00 PM CST
- **Flexible Pavement Design**
Wed., Feb. 12, 2020, 12:30 - 2:30 PM CST
- **Rigid Pavement Design**
Thurs., Feb. 13, 2020, 11:00 AM - 1:00 PM CST
- **Maintenance, Rehabilitation and Sustainability of Pavements**
Thurs., Feb. 13, 2020, 1:30 - 3:30 PM CST

Ethical Issues for Engineers

- **Resolving Disputes and Handling Ethical Issues in Government Projects**
Fri., Jan. 31, 2020, 12:00 - 1:00 PM CST
- **Complying with Rules of Professional Conduct**
Fri., Feb. 14, 2020, 12:00 - 1:00 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. It offers 7.0 PDHs to professional engineers and 7.0 continuing education hours to geoscientists in Texas. Educators and courses are not subject to preapproval in Texas.

Professional engineers seeking continuing education credit in other states will be able to claim | the hours earned at this seminar. HalfMoon Education is an approved continuing education sponsor for engineers in Florida, Indiana, Maryland, New Jersey (Approval No. 24GP00000700), North Carolina, and North Dakota.

The Association of State Floodplain Managers has approved this event for 7.0 CECs. ASFPM approval qualifies this program for Texas floodplain managers.

This course offers 7.0 HSW CEPHs to Texas landscape architects. Educators and courses are not subject to preapproval in Texas. The Landscape Architecture Continuing Education System has approved it for 7.0 HSW PDHs. Only full attendance is reportable to the LA/CES. Landscape architects seeking continuing education credit in other states will be able to claim the hours earned at this seminar, in most cases. 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
Online: www.halfmoonseminars.org		Name: _____ Company/Firm: _____ Address: _____ City:_____State: _____ Zip_____
Phone: 715-835-5900		Occupation: _____ Email: _____ Phone: _____
Fax: 715-835-6066	Code:	Additional Registrants: Name: _____ Occupation: _____ Email: _____ Phone: _____ 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 - **\$289.00**. Three or more registrants from the same company registering at the same time - **\$269.00** 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: _____

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Email: _____