

Agenda

Presented by Mary Paist-Goldman, P.E.

Applications for Open Channel Hydraulic Analysis

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

Hydraulic Principles

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

History and Development of US Army Corps HEC-RAS Software

Working with the HEC-RAS User Interface

- File management
- Data entry and editing

Building Your Steady Flow Model

- Data required
- Locating cross sections
- Setting boundary conditions
- Calculating water profiles in HEC-RAS

How Do I Add Special Elements?

- Bridge modeling
- Culvert modeling
- Dam modeling
- Lateral and diversion structures

Steady Flow Simulation 1

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

Model Output and Troubleshooting

- Profiles
- Tables
- Cross-sections
- Errors, warnings and notes

Steady Flow Simulation 2

- Demonstration for a standard bridge
- Modeling tips

Other Applications in HEC-RAS

- Unsteady flow
- Sediment transport
- Water quality

Introduction to HEC-RAS Modeling
Albany, NY - Thursday, August 22, 2019

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PO Box 278
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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, including data entry, reporting and mapping capabilities.

Examine steady flow water surface profiling.

Explore bridge and culvert modeling.



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Understand the applications of open channel hydraulics

Identify the principles of hydraulic analysis and review the development of US Army Corps HEC-RAS application

Examine the HEC-RAS user interface

Learn about the types of flow and the data required for modeling

Explore steady flow surface profile demonstrations

Continuing Education Credits

Professional Engineers

7.0 Continuing Ed. Hours

Landscape Architects

7.0 HSW Continuing Ed. Hours

7.0 LA CES HSW PDHs

Floodplain Managers

7.0 ASFPM CECs

Contractors

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