



# CASFM Continuing Education

## HEC-RAS BASIC 1D MODELING COURSE

May 8th - 10th, 2023

8am-5pm

### Course Description

WEST Consultants' hands-on seminar and computer workshop provides practical training in basic steady flow modeling. Participants gain intensive experience constructing HEC-RAS models, including developing bridge geometry and performing floodplain analyses. Lectures also discuss modeling culverts, modeling techniques, and FEMA floodway encroachment analysis. Workshops focus on giving students experience developing a hydraulic model, modeling bridges and culverts, modeling inline and lateral structures, floodway encroachments, and using the built-in feature RASMapper to spatially analyze results.

**\*Attendees should bring their own laptop with latest version of HEC-RAS\***

### Learning Outcomes:

1. Obtain a working understanding of the theory behind HEC-RAS 1D.
2. Develop a 1D hydraulic model and run a steady flow analysis.
3. Model bridges, culverts, and inline and lateral structures.
4. Analyze FEMA floodway encroachments.
5. Understand how to use RASMapper to visualize results.

### Cost:

Early Registration (by April 17<sup>th</sup>): \$825

Late Registration (after April 17<sup>th</sup>): \$925

### Date:

May 8<sup>th</sup> – 10<sup>th</sup>, 2023 8AM-5PM

Lunch will be provided

### Location:



12575 W. Bayaud Ave., Lakewood, CO 80228

### Register:

Register for the event [here](#)

### Questions?

Contact Katie Kerstiens at MHFD  
303-653-3220 | [kkerstiens@mhfd.org](mailto:kkerstiens@mhfd.org)

We will be offering a certificate that will provide 7 CECs per day for this course  
(Registrants are responsible for submitting CECs to ASFPM)



# Basic HEC-RAS Modeling 3-Day Course Outline

Presented by:



## Day 1

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<u>Event</u>	<u>Time</u>
Administrative and Introductions	8:00 AM - 8:30 AM
Working with HEC-RAS: An Overview	8:30 AM - 9:30 AM
Break	9:30 AM - 9:45 AM
Basic Input Data Requirements	9:45 AM - 11:30 AM
Lunch	11:30 AM - 12:30 PM
Workshop No. 1: Developing a Hydraulic Model	12:30 PM - 1:30 PM
Review Workshop No. 1	1:30 PM - 1:45 PM
Break	1:45 PM - 2:00 PM
Workshop No. 2: Adding Tributaries and Junctions	2:00 PM - 2:45 PM
Review Workshop No. 2	2:45 PM - 3:15 PM
Theoretical Basis of HEC-RAS	3:15 PM - 5:00 PM

# Basic HEC-RAS Modeling 3-Day Course Outline

Presented by:



## Day 2

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<u>Event</u>	<u>Time</u>
<b>Workshop No. 3: Creating Plans</b>	<b>8:00 AM - 9:00 AM</b>
<b>Review Workshop No. 3</b>	<b>9:00 AM - 9:30 AM</b>
<b>Break</b>	<b>9:30 AM - 9:45 AM</b>
<b>Cross-Sections and Ineffective Areas for Modeling Structures</b>	<b>9:45 AM - 10:45 AM</b>
<b>Modeling Basic Bridges</b>	<b>10:45 AM - 12:00 PM</b>
<b>Lunch</b>	<b>12:00 PM - 1:00 PM</b>
<b>Workshop No. 4: Modeling Bridges</b>	<b>1:00 PM - 2:30 PM</b>
<b>Review Workshop No. 4</b>	<b>2:30 PM - 3:00 PM</b>
<b>Break</b>	<b>3:00 PM - 3:15 PM</b>
<b>Modeling Culverts and Multiple Openings</b>	<b>3:15 PM - 4:00 PM</b>
<b>Workshop No. 5: Modeling Multiple Openings</b>	<b>4:00 PM - 5:00 PM</b>

# Basic HEC-RAS Modeling 3-Day Course Outline

Presented by:



## Day 3

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<u>Event</u>	<u>Time</u>
Review Workshop No. 5	8:00 AM - 8:30 AM
Modeling Inline and Lateral Structures	8:30 AM - 9:15 AM
Break	9:15 AM - 9:30 AM
Optional Capabilities and Modeling Techniques	9:30 AM - 10:30 AM
Floodway Determination	10:30 AM - 11:30 AM
Lunch	11:30 AM - 12:30 PM
Workshop No. 6: Floodway Encroachment	12:30 PM - 2:00 PM
Review of Workshop: Floodway Encroachment	2:00 PM - 2:30 PM
Break	2:30 PM - 2:45 PM
RAS Mapper Lecture/Walkthrough	2:45 PM - 3:45 PM
Workshop No. 7: Output Analysis	3:45 PM - 4:30 PM
Review of Workshop: Output Analysis	4:30 PM - 5:00 PM