Course Number

FHWA-NHI-135095

New Training

Course Title

Two-Dimensional Hydraulic Modeling of Rivers at Highway Encroachments

THIS AN UPDATE OF COURSE NO. 135071.

The course provides a well-balanced mix of lessons, demonstrations, and exercises for a comprehensive introduction to two-dimensional modeling concepts, including; background data necessary to support a model, hydraulic modeling parameters, mesh development, model simulation parameters, model calibration, hydraulic structures, and reviewing two-dimensional model results. Extracting hydraulic parameters for use in bridge scour evaluation is also discussed. Each concept is demonstrated and participants are given hands-on exercises to apply what they have learned. Once all modeling concepts are covered a comprehensive exercise is provided for participants to apply their skills on a project from start to finish.

Participants will receive a participant workbook that includes hard copies of presentation slides and step-by-step exercises. Electronic data needed for the exercises will also be provided.

Following completion of this course, participants should recognize situations where two-dimensional modeling is preferred and use SMS to successfully compile, execute, and review results for a SRH-2D model on a bridge or other hydraulic structure project.

PREREQUISITE NOTE: Course participants should have knowledge of the fundamentals of open channel flow hydraulics. The free web-based training course, NHI 135091 "Basic Hydraulic Principles Review" is available for those wishing to refresh their knowledge.

HOST NOTE: The host is responsible for providing a minimum of one computer for each pair of students. The computers shall have the following minimum specifications: Microsoft Windows XP with 512 MB of RAM (2 GB recommended) or Windows Vista, Windows 7, or Windows 8 with 1 GB of RAM (4 GB recommended), graphics card (OpenGL 1.5 or higher must be supported). The use of a dedicated graphics card is strongly recommended, display resolution of 1024 x 768 or greater.

Outcomes

Upon completion of the course, participants will be able to:

- Recognize the differences between 1D and 2D hydraulic models
- Use background data in SMS for 2D modeling projects
- Use SMS to setup and run 2D models
- Visualize and review 2D model results
- Add structures to 2D models
- Evaluate 2D hydraulic parameters for use in bridge scour analysis

Target Audience

The target audience for this course is FHWA and state Department of Transportation hydraulicspersonnel and other Federal, state, local or consulting engineers who have responsibility for, or desire to work with, the hydraulic analysis and design of highway river crossings.

Training Level: Intermediate

Fee: 2016: $775 Per Person; 2017: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 26

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov