

Autodesk River Analysis – 16.0 Hours (2 Days)

Course Description

Summary

Autodesk River Analysis Extension is a sophisticated river modeling software package that supports HEC RAS within the AutoCAD® Civil 3D® 2012 and AutoCAD® Map 3D 2012 environment. River Analysis makes it easier than ever before to compute water surface profiles for modeling rivers, bridges, culverts, spillways, levees, floodplain and floodway delineations, stream diversions, channel improvements, and split flows.

This training course will explain how to use the Autodesk River Analysis software, and will concentrate on demonstrating how to apply the software to everyday engineering projects. Tips and tricks on increasing overall proficiency and productivity are provided throughout the training. Upon completion of this course, participants will have a comprehensive knowledge of the Autodesk River Analysis software and will be able to create, maintain, run, and analyze HEC-RAS river hydraulic models with complete confidence.

The primary focus of this training course is to provide “hands-on” experience. Participants will learn by doing, while using the Autodesk River Analysis software “hands on.” The lectures and lab sessions will concentrate on demonstrating how to use the software in “real world” engineering applications. Participants will develop their own HEC-RAS models and perform floodplain encroachment analysis, bridge and bridge scour computations, culvert analysis, and other HEC-RAS modeling work.

As an advanced level course, the River Analysis course can be tailored to the individual project requirements of the participants. The course is typically a two-day program based on the time required to cover the core level of the program, but the length can be varied to suit individual client requirements and desire to use real project data within the course.

Course Objectives

- Understand water surface profile modeling using HEC-RAS within Autodesk River Analysis
- Learn practical applications in river hydraulics with Autodesk River Analysis
- Develop confidence in applying Autodesk River Analysis to a variety of modeling problems
- Learn how to troubleshoot models
- Learn how to review analysis results
- Learn advanced modeling techniques
- Learn to recognize potential problems in a modeling situation

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Course Topics

- HEC-RAS fundamentals, including theory and principals that underlie HEC-RAS
- Model theory, limitations, standard applications
- Automated cross section cutting
- Perform bridge and culvert design and analysis
- Analyze and predict bridge abutment and pier scour
- Compute floodway encroachments quickly
- Determine floodway delineations and resulting floodplain map
- Subcritical and supercritical modeling
- Importing cross section data
- Importing DEM data
- Importing survey data
- Importing aerial orthophotos
- Importing and exporting GIS data
- Constructing digital terrain models from a variety of data sources
- Scenario management
- Model comparisons between pre-developed and post-developed models
- Generating engineering reports
- Detailed analysis output review
- Exporting analysis results for engineering reports
- In-depth, step-by-step model building exercises

Prerequisites

Thorough familiarity with AutoCAD Civil 3D or Map 3D is essential. Completion of Civil 3D Essentials or Map 3D Essentials is recommended.

Learning Objectives

1. Participants will be able to construct a complete HEC-RAS model using Autodesk River Analysis along with Civil 3D digital terrain model data from the exercises provided in the course.
2. Participants will be able to perform bridge and culvert design and analysis using Autodesk River Analysis from the sample land development project used in the course.
3. Participants will be able to perform FEMA floodplain encroachment studies using Autodesk River Analysis from the exercises provided in the course.

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Learning Objectives (Continued)

4. Participants will be able to perform bridge scour analysis using Autodesk River Analysis from the exercises provided in the course.
5. Participants will gain confidence in applying Autodesk River Analysis to a variety of HEC-RAS modeling problems from the lectures and exercises provided in the course.
6. Participants will learn how to troubleshoot HEC-RAS models and how to review HEC-RAS models using Autodesk River Analysis from the lectures and exercises provided in the course.

AUTODESK RIVER ANALYSIS – TWO DAYS	
Overall Course Length	16 Hours
Instructional Time	14 HOURS
PROFESSIONAL DEVELOPMENT HOURS (PDHS)	
New York State Land Surveyors	N/A
New York State Professional Engineers	14.0 PDHS



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