

## Hydraflow Extensions for Civil 3D – Essentials

Hydraflow Extensions is a software suite housed within Civil 3D that enables engineers to carry out many common hydraulic and hydrologic engineering tasks. In this course students will learn to use Hydraflow Hydrographs, Hydraflow Storm Sewers, and Hydraflow Express to define rainfall data, analyze storm water management system components, and report results.

### Who should attend?

Experienced Autodesk Civil 3D users who possess knowledge of hydrologic and hydraulic engineering principles.

### Prerequisites

A *Civil 3D Essentials* or equivalent course is strongly recommended. Additionally, class participants should have a background or knowledge of hydrologic and hydraulic engineering (including knowledge of Rational/Modified Rational/SCS calculation methodologies, Manning's Equation, and the design of storm water detention facilities). Students should also have a working knowledge of the Microsoft Windows environment.

### Questions?

Please call us at 800-336-3375.

### Course Outline

#### Introduction

- About Hydraflow Extension Tools for Civil 3D

#### Hydraflow Hydrographs

- Watershed modeling workflow
- Setting Up Pre- and Post- Development Models
- Creating Rainfall Data
- Hydrograph Creation Methods
- Creating Civil 3D Catchment Areas
- Time of Concentration Calculation Methods
- Hydrograph Routing: Combining and Diverting Hydrographs
- Project Example: Creating a detention pond with outlet control structure

#### Hydraflow Express

- Using the Common User Interface
- Calculation of C and CN
- Open Channel Analysis
  - Culverts
  - Channels
  - Weirs
- Project Example: Design and Analysis of Roadway Culvert

#### Hydraflow Storm Sewers

- Extract Pipe Networks from civil 3D
- Creating Rainfall Data
- Storm Water Runoff Flow Calculation Methods
- Hydraulic Design of Piping Networks
- Hydraulic Design of Inlets
- Export Storm Sewer Design from Storm Sewers to Civil 3D
- Project Example; Create a Storm Water Management System