Urban Modeling and Storm Drain Training Class

January 28 to 30, 2019

TBD
Scottsdale, Arizona

Instructors: Jimmy O'Brien, Ph.D., P.E.
Karen O'Brien, Technical Support

AGENDA

Monday, January 28, 2019

8:00 – 8:15 am	Check-in
8:15 – 8:30 am	Introductions and overview of agenda.
8:30 – 10:15 am	**Module 1: Overview of FLO-2D and Grid Developer System** **Lesson 1:** Using the GDS to import and edit terrain elevation data, filter elevation point data, establish a grid system, work with aerial images, setup hydrographs and run the FLO-2D model.
10:15 – 10:30 am	Break
10:30 – 12:00 pm	**Module 2: Routing Algorithms and Stability Criteria** **Lesson 2:** Floodplain attributes; edit model components and layer attributes using shape files.
12:00 – 1:00 pm	Lunch
1:00 – 3:00 pm	**Module 3: Hydrology** Hydrology**, v**olume conservation, flood hydrology, and unconfined flooding; Rainfall and inflow hydrograph. Infiltration and simulation of realtime spatially variable rainfall. Building runoff and downspout simulation. **Lesson 3:** Enter/edit rainfall and infiltration data. Run a rainfall – runoff model.
3:00 – 3:15 pm	Break
3:15 – 5:00 pm	**Module 4: Review Data Files and Introduction to Urban Modeling** **Lesson 4:** QGIS Plug-in tool, overview and getting started

Tuesday, January 29, 2019

8:15 – 11:00 am	**Module 5: Channel Flood Routing** Channel component routing. Channel/floodplain flow exchange. Natural cross sections. Overview of GDS drainage channel tools. Break **Lessons 4:** Using GDS to create a simple rectangular channel; Interpolating the channel cross sections and slope and editing the bank elements in PROFILES and GDS. Working with channel cross sections.
11:00 – 12:00 pm	**Module 6: Hydraulic Structures** Weirs, bridges and culverts for rivers and floodplains. Generalized culvert equations for inlet and outlet control. **Lesson 6:** Using hydraulic structures.
12:00 – 1:00 pm	Lunch
1:30 – 3:00 pm	**Module 7: Urban Modeling Details – Building, Walls, Street flow** **Lesson 7:** Urban project details.
3:00 – 3:15 pm	Break
3:15 – 5:00 pm	**Module 8: Storm Drain Modeling and Storm Drain Details, Data Input and Results** **Lesson 8:** Create a simplified storm drain system.

Wednesday, January 30, 2018

8:00 – 9:00 am	**Module 9: Limiting Froude Number, Numerical Stability and n-value Adjustment** **Lesson 9:** n-value adjustments.
9:00 – 10:00 am	**Module 10: QGIS and Storm Drain Modeling - Revisited** **Lesson 10:** Finish storm drain system.
10:00 – 10:15 am	Break
10:15 – 12:00 pm	**Module 11: Troubleshooting Methods, and Finding Data Errors** **Lesson 11:** Troubleshoot a project.
12:00 – 1:00 pm	Lunch
1:00 – 2:15 pm	**Module 12: Flood Inundation, Hazard and Risk Mapping** **Lesson 12:** Display flood depths, velocities and hazard maps.
2:15 – 3:00 pm	**Module 15: Project Model Optimization and Review**
3:00 – 3:15 pm	Break
3:15 – 5:00 pm	**Lesson 15:** Create start-to-finish project