2D hydraulic modelling short course "Flood risk in urban areas"

FLO-2D

9-11 July 2018 Rome, Italy

Course goals: The training course is for professionals, researchers and students interested in the use of hydraulic models for hydrogeological risk. The course introduces and deepens the theoretical and applicative aspects related to the use of the two-dimensional hydraulic model FLO-2D (http://www.flo-2d.com/), the state of the art in 2D hydraulic modelling for hydrogeological risk and among the most used in the world for flood risk mapping and for the engineering design of flood mitigation works. FLO-2D is approved by FEMA (USA) to support hydrologic and hydraulic modeling and simulation of flood wave propagation in urban/natural environments, to simulate debris flow, floods in coastal areas due to storms and tsunamis. The 3 days course will guide beginners and more experienced users from the early stages of learning to the use of the most advanced FLO-2D components. The first two days, all participants will be guided through a learning path to use all the components and functionalities of the software, while the third day is dedicated to the development of projects of interest and to the specific topic of the short course "Flood risk in urban areas"

Instructors:

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FLO-2D, USA

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FLO-2D, USA

For more information visit **http://www.flo-2deurope.com/en/**

FLO-2D inc. Nutrioso, Arizona (USA)

FLO-2D Software, Inc. is a US-based software house that develops and distributes advanced hydro-hydraulic modeling tools worldwide for the simulation of flooding processes in fluvial and coastal environments, solid and pollutant transport and estimation of inflows and outflows. The FLO-2D also provides for the technical support, training and consultancy in affiliation with IDRAN Ingegneria e Tecnologia SrL. FLO-2D developers, Jim O'Brien, Karen O'Brien and Noemi Gonzalez-Ramirez will conduct the course. For more information visit http://www.flo-2d.com/

FLO-2D Europe. Rome, Italy

FLO-2D Europe is the sole authorized European distributor for FLO-2D USA. Visit http://www.flo-2deurope.com/en/

AGENDA

Monday, 9th July 2018
Getting started, Hydrology and Channel Flood Routing

8:00 – 8:15
Check-in, introductions and review agenda

8:15 – 9:00
Overview of the FLO-2D Pro modeling system. New features and enhancements. Grid Developer System GDS - getting started

9:00 – 10:00
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. Floodplain attributes; edit model components and layer attributes using shape files

10:00 – 10:15 Break

10:15 – 10:30
Discussion of routing algorithms and stability criteria

10:30 – 11:15
Hydrology, volume conservation, flood hydrology, and unconfined flooding; Rainfall and inflow hydrograph. Infiltration and simulation of realtime spatially variable rainfall. Building runoff and downspout simulation

11:15 – 12:00
Lesson 2: Enter/edit rainfall and infiltration data. Run a rainfall - runoff model

12:00 – 1:00 Lunch

1:00 – 1:30
Review data files and introduction to urban modeling

1:30 – 2:30
Channel flood routing overview. Channel/floodplain flow exchange. Overview of GDS drainage channel tools. Introduction to Lesson 3 and 5

2:30 – 2:45 Break

2:45 –4:15
Lesson 3: 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. Working with natural channels.

4:15 – 5:30
QGIS Plug-in Tool. Overview and Getting Started

Tuesday, 10th July 2018
Hydraulic Structures, Levees

8:00 – 9:00
Using hydraulic structures: weirs, bridges and culverts for rivers and floodplains. Generalized culvert equations for inlet and outlet control

9:00 – 9:45
Lesson 4: Hydraulic structures

9:45 – 10:00 Break

10:00 – 10:45
Storm drain modeling - surface water/storm drain exchange

10:45 – 11:15
Storm drain details, data input and results

11:15 – 12:00
Lesson 5: Create a simplified storm drain system

12:00 – 1:00 Lunch

1:00 – 2:00
Urban Features: buildings, walls

2:00 – 3:00
Lesson 6: Urban modeling

3:00 – 3:15 Break

3:15 - 4:00
Mapping: Create high resolution flood inundation maps

4:00 - 5:00
Lesson 7: Display flood depths, velocities, damage assessment and hazard maps

Wednesday, 11 July 2018
Troubleshooting, Project Optimization and Work on Project

8:00 – 9:00
Limiting Froude Number, Numerical Stability and n-value adjustment
9:00 – 9:45 Mapping: Create high resolution flood inundation maps

9:45 – 10:00 Break

10:00 – 11:00
Troubleshooting, tools and methods for finding data errors

11:00 – 12:00
Lesson 8: Troubleshoot a project

12:00 – 1:00 Lunch

1:00 – 2:00
Project review. What to look for when reviewing a project

2:00 – 3:00
Lesson 9: Create a project start to finish

3:00 – 3:15 Lunch

3:15 – 5:00
Lesson 9 (cont.): Create a detailed urban project from start to finish. Project includes grid, elevation, buildings, roughness, drainage channels, hydraulic structures, walls, streets and storm drain

Primary 'hands-on' computer session times are highlighted in blue

For more information visit **http://www.flo-2deurope.com/en/**

Location
Via Gregorio VII, 186, 00165 Rome, Italy.
Detailed directions to reach the course are available on the website http://www.flo-2deurope.com/about-us/

Where to stay
The location of the course is well surrounded by numerous hotels, B&Bs and apartments.

Fees
The registration fee is €595,00 plus VAT 22%. Young professionals (under 35 years old) €495,00 plus VAT 22%. Discount for students €300,00 (up to Master and PhD level, maximum age 32 years old)

Number of places available (15)
The course has a maximum capacity of 15 participants. Once the limit is reached any further request to join the course will be refused

Payment
Money transfer to IDRAN Srl

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Language
The course will be taught in English, nonetheless assistance in Italian will be provided by the developers

How to register
Please fill and submit the online registration form to participate in the course and send a valid proof of payment (wire transfer receipt) by email to info@idran.net

Public employees who can not make the bank transfer in time can contact the organizing committee to negotiate a different payment method.