Modelling Of Integrated Urban Drainage-Wastewater Systems

Thursday 7th - Sunday 10th April 2016

UNIVERSITÉ LAVAL
DTU
INSA | INSTITUT NATIONAL DES SCIENCES APPLIQUÉES LYON

DTU Environment
Department of Environmental Engineering

Deadline for registration
Friday 18th March 2016
Please register by sending an e-mail to Dr. Vezzaro
luve@env.dtu.dk

2.5 ECTS
3.5 full days of lectures and exercises
Exercises based on WEST® software
E-learning based teaching

Fees:
PhD students – 40 EUR

Professionals from industry and university staff may be accepted on a special continuing education track of the course – 1000 EUR

Location
INSA Lyon
Villeurbanne, France

DTU Environment
Department of Environmental Engineering
Technical University of Denmark
Miljøvej, Building 113
DK-2800 Kgs. Lyngby
Denmark
www.env.dtu.dk

modelEAU – Université Laval
Canada Research Chair on Water Quality Modelling
Department of civil engineering and water engineering
Pavillon Adrien-Pouliot - 1065, Médecine avenue
Québec (Québec) - G1V 0A6
Canada
modeleau.fsg.ulaval.ca

Université de Lyon - INSA Lyon
Laboratoire DEEP (Déchets Eaux Environnement Pollutions - Wastes Water Environment Pollutions)
Université de Lyon - INSA Lyon, 34 avenue des Arts
F-69621 Villeurbanne cedex, France
deep.insa-lyon.fr
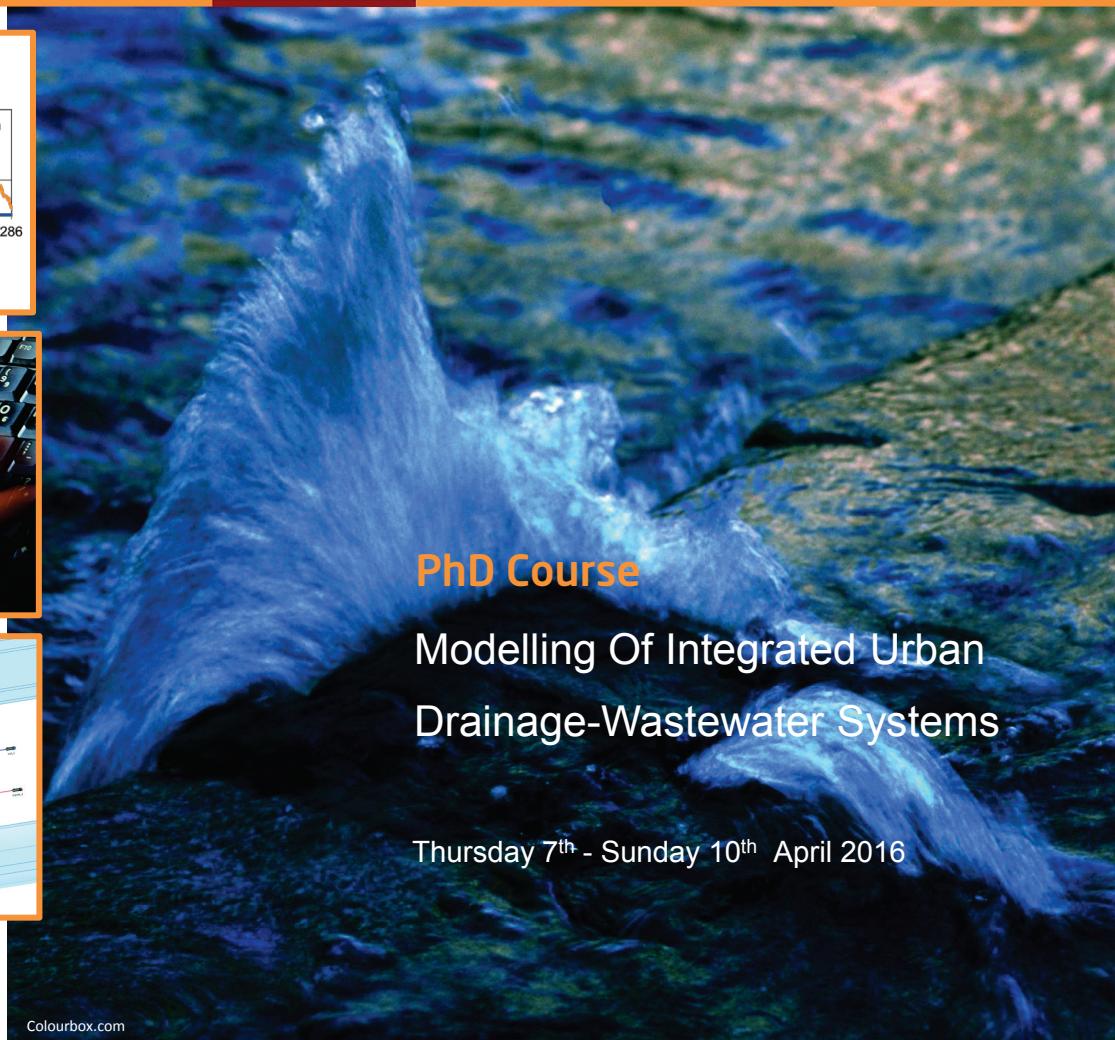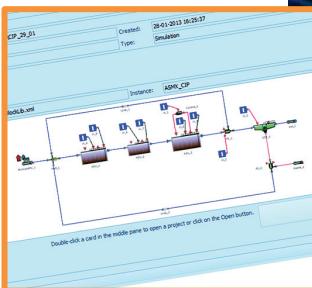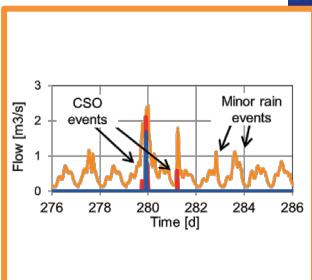
PhD Course

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Main Topics of The Course

The course is targeted at PhD students and researchers modelling the elements of integrated Urban Drainage-Wastewater systems - drainage network, wastewater treatment plants, receiving water bodies.

The course consists of an overview of state-of-the-art tools for integrated modelling of urban drainage and wastewater systems, simulation exercises based on the WEST® software, and examples of application of integrated approaches for improving the environmental status of natural water bodies, e.g. eutrophication and oxygen depletion.

At the end of the course participants will be able to:

- Describe the operational interactions between the three components in the integrated urban (waste) water system: the urban drainage system, the wastewater treatment plant and the receiving waters.

- Understand the main assumptions and simplifications made in lumped conceptual modelling of integrated urban drainage-wastewater treatment systems.

- Use and run a professional integrated model programmed in WEST® for simulation of pollution loads, receiving water effects and mitigation option's efficiency.

- Apply the integrated model to understand and identify the main environmental problems in a defined model area.

- Assess the impacts of changing components in the integrated system and use this to develop and test possible mitigation strategies using the integrated model.

- Introduction to integrated modelling concepts.

- Conceptual hydraulic modelling.

- Conceptual modelling of transport and fate of macropollutants (TSS, nutrients) and micropollutants.

- Utilization of the WEST® Integrated Urban Wastewater System model library

- Application of integrated models for fulfilling environmental regulation (e.g. EU Water Framework Directive.)

- How to find the compromise between data requirements and actual data availability.

- Use of integrated models for decision support and scenario evaluation.

- Evaluation of the effects of climate change.

- Brief overview of approaches for evaluating uncertainty in model results.

- Brief overview of water quality based approaches to real time control of urban drainage and wastewater systems.
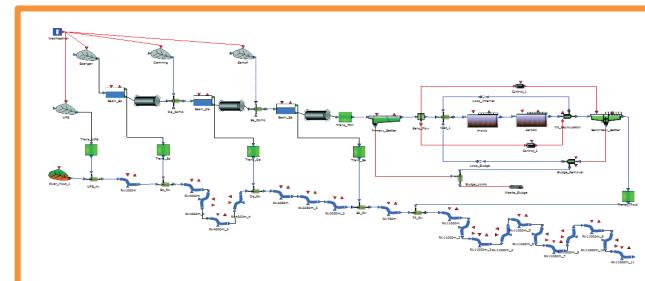
Course team

Assist. Prof Luca Vezzaro, DTU Environment

Prof. Jean-Luc Bertrand-Krajewski, Université de Lyon - INSA Lyon

Prof. Peter A. Vanrolleghem, modelEAU, Université Laval

Prof. Peter Steen Mikkelsen, DTU Environment

Dr. Elena Torfs modelEAU, Université Laval,

Dr. Lorenzo Benedetti, Waterways d.o.o.

Dr. Enrico Remigi, DHI

Dr. José Luis Arias Lopez, INSA Lyon

Santiago Sandoval Arenas, INSA Lyon

Technical Information

The course is based on exercises running the WEST® software. The students will have access to a server running the software - so a computer needing access to Windows Remote Desktop is required. The suggested size of laptop screens is at least 14". Students who already have a WEST® license may run the exercises on their machines.