

Advanced topics in urban water modelling

Monday 11th to Friday 15th (or optionally Sunday 17th) June, 2018

DTU Environment
Department of Environmental Engineering

Course details

Deadline for registration

May 1st, 2018

Please register by sending an e-mail to Jonas Wied Pedersen: jowi@env.dtu.dk

The number of participants is limited to 20, and the registrations will be "first come, first serve".

Credits and duration

2.5 ECTS

5 full days of lectures and discussions +
2 optional days of in-depth discussions

Venues

DTU has extensive collaborations with most of the major water utilities in Denmark, which are some of the most future-oriented water managers in the world. We will take advantage of this as each day of the course will be hosted at one of the utilities of the three largest cities in the country.

The course will start and end in Copenhagen while visiting Odense and Aarhus during the week. This roundtrip enables us to learn from the practical experiences of the utilities and visit some of the most attractive cities in Denmark. The two optional days will be held in the beautiful surroundings of the island of Hven in Sweden.

Fee

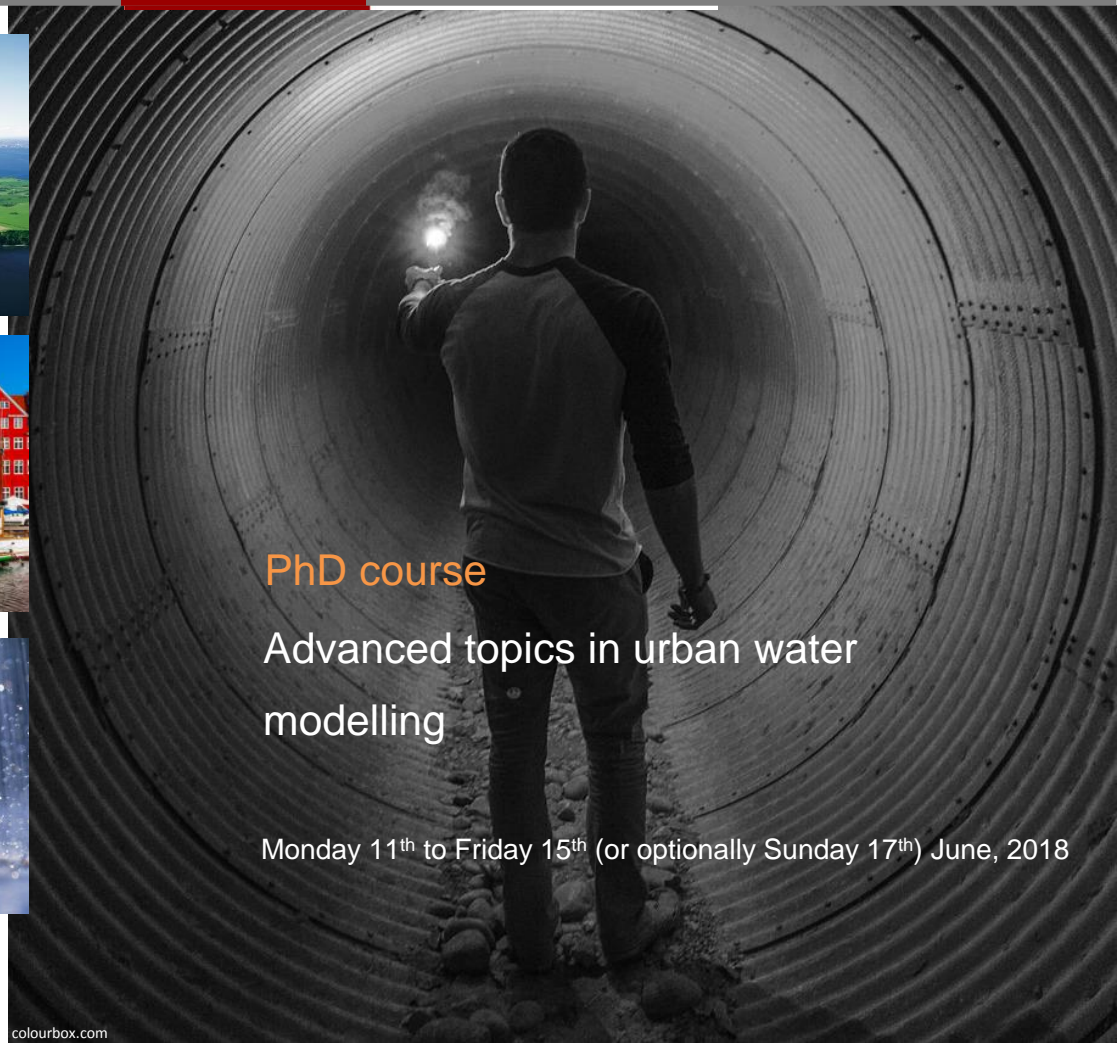
The course fee for the 5-day course is 3000 DKK while the fee for the 7-day course is 5500 DKK. When registering you will receive the payment details.

The fee includes:

- ✓ All transportation between course venues
- ✓ Breakfast and lunch all course days
- ✓ Dinner all course day (except departure day)
- ✓ Refreshments all days
- ✓ Accommodation Monday to Friday (or Sunday)
- ✓ Course material

Course website:

<http://kurser.dtu.dk/course/2017-2018/12934>



PhD course

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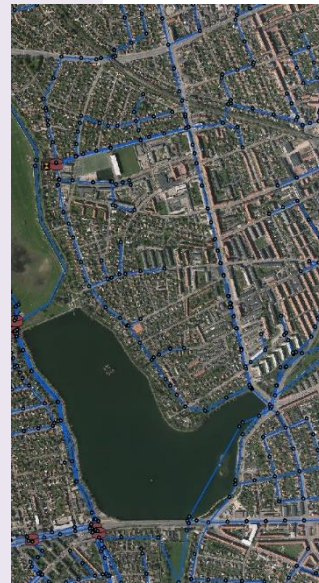
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The course will provide the PhD students with a broad overview of advanced urban drainage modeling for planning, design and real-time operation and help the students place themselves and their research interests in the larger context of the field.

The course exists in a 5- and 7-day version. During the week, both versions give a general presentation of the functions that urban drainage systems provide for society at large, and why modeling of these systems is a worthwhile exercise. Different levels of model complexity, in terms of processes and spatio-temporal resolution, will be discussed alongside various approaches to accounting for uncertainty in the system. Data, ranging from multiple types of precipitation estimates to in-sewer measurements of flow, water level and quality will be addressed as well as their use in models. The 7 days course will additionally include 2 days of in-depth discussions on how urban drainage modelling can be structured, leading to the draft of a modelling framework and possibly scientific paper(s).

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

- Explain societal challenges that require the use of urban drainage models
- Explain objectives and modes for managing urban drainage systems across all time-scales (from seconds to decades) and the concept of operational modes
- Explain different types of input data and their related error sources
- Explain different types of in-sewer observations and their related error sources
- Define different types of model complexities and explain which purposes the different model complexities are applicable for
- Identify different schools of thought for including uncertainty in urban drainage models
- Contribute to a classification of urban drainage models
- Relate their own research to the larger context of urban drainage modeling



Main topics of the course

- Introduction to concepts of urban drainage modelling
- Challenges and objectives from the urban water utilities point of view
- Different precipitation products
- In-sewer observations
- Economic and urban development scenarios
- Model complexity and processes across different time scales: from high-fidelity to data-driven models
- Overview of approaches for evaluating uncertainty in models
- Classification of approaches in urban drainage modeling

Examination

Participants following the 5 days course:

Preparation of a short report about their role in the context of urban drainage modelling

Participants following the 7 days course:

Participation in in-depth discussions and possibly preparation of a scientific paper both during the weekend and after

Course team

From DTU Environment:

Prof. Peter Steen Mikkelsen,
Prof. Karsten Arbjerg-Nielsen,
Assist. prof. Morten Borup
Assoc. prof. Luca Vezzaro
Assist. prof. Hjalte Sørup
Dr. Roland Löwe
PhD fellow Nadia Lund
PhD fellow Jonas Wied Pedersen

From Aalborg University:

Prof. Michael Rasmussen
Assoc. prof. Søren Thorndahl

+ additional guest lecturers

