



# HANDS-ON BIOFILMS COURSE

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## GROW, IMAGE, MODEL

# 2026

November 16 - 20, 2026

The Hands-on Biofilms Course is intended for PhD students and post-doctoral researchers who are just getting started or who are already studying biofilms in microbiology, environmental technology, bioengineering and related fields. As pointed out by the title, theory and practice are strongly coupled. You will be trained in **biofilm fundamentals, development and growth**, visualization by means of **confocal laser scanning microscopy** and **optical coherence tomography**, and **numerical modeling** of the collected information using COMSOL multi-physics.

Attendees are welcome to contact the organizers to discuss whether their personal samples can be analyzed. Please bring your own computer for the modeling sessions (Windows only).

### Topics in detail

#### Cultivation of biofilms

*Prof. H. Horn (KIT), Prof. M. Duerholm (AAU)*

- > fundamentals
- > omic approaches
- > reactors and lab devices
- > reactor setup and operation

#### Biofilm visualization and image analysis

*Dr. M. Wagner (KIT), Dr. A. Hille-Reichel (KIT)*

- > fluorescence staining and optical sectioning
- > confocal laser scanning microscopy
- > optical coherence tomography
- > first steps with digital image analysis

#### Numerical biofilm modeling

*Prof. C. Picioreanu (KAUST)*

- > biofilm processes and modeling basics
- > models and biomass representation
- > solute distribution
- > 2-d/3-d biofilm models

### Schedule

The course starts on Monday November 16 at 9:00 a.m. and ends on Friday November 20 at 5:30 p.m.

Lectures are in the morning and practical work in the afternoon.

### Costs

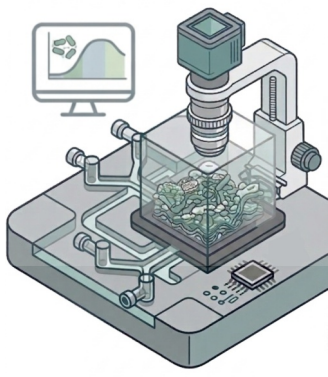
The **course fee is 1000 €** (incl. VAT) and includes course materials, beverages, lunch, as well as the course dinner. Travel expenses and accommodation costs are not covered.

### Location

Karlsruhe Institute of Technology  
Engler-Bunte-Institut  
Water Chemistry and Water Technology  
Engler-Bunte-Ring 9a  
76131 Karlsruhe | GERMANY  
building 40.04 / room -106

### Organizers & contributors





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### Registration and application

Applying to the Hands-on Biofilms Course is a two-step process.

#### Step 1

Register using the registration service. Once you registered successfully, you will be placed on the waiting list and you will be provided with the application form. [Click here to proceed.](#)

#### Step 2

Fill the application form, add your CV and send it to the e-mail address provided within.

The course is limited to 12 attendees. Thus, only a positive evaluation of your application will result in you being moved you from the waiting list to the participation list. Your place in the course is guaranteed after in-time payment. Payment is possible by invoice and credit card, respectively. More information is provided during the registration process itself.

A certificate of participation (3 ECTS credits) will be issued.

### Deadlines

- August 30, 2026 Registration closes
- September 7, 2026 Abstract submission closes
- September 15, 2026 Applications are evaluated  
Notification of acceptance or rejection
- September 30, 2026 Payment due date  
Confirmation of attendance