

## Teaching portfolio

### 1. Teaching CV: A list of any lecturing and supervision tasks, including specification of academic fields, scope, level (bachelor, master, continuing education, PhD) as well as any external examiner tasks.

#### ***MSc/BSc Courses - recently teaching/co-teaching courses (each 5 ECTS) in:***

Experimental Hydrology/Experimental Methods in Hydrology (Water and Environmental Engineering, and Environmental Technology (CST); MSc 1st semester course in both study programs)

Environmental Soil Science and Geostatistics (Water and Environmental Engineering, and Environmental Technology (CST); MSc 1st semester course in both study programs)

Groundwater Modeling and Hydrogeology (Water and Environmental Engineering; MSc 1st semester course)

Local Ecological Processes (Physical Geography; MSc 1st semester course)

Soil Development and Characteristics (Geography, BSc 4th semester course)

Methods in Geography (Geography, BSc 4th semester course)

Also, I have during my time at Aalborg University taught courses within most classical Environmental Engineering disciplines at both undergraduate and graduate levels - including water supply, sewer engineering, solid waste technology, wastewater treatment processes and modeling, general process modeling, stream modeling, a.o.

#### ***MSc/BSc Projects - recently supervising/co-supervising group semester projects (each 15 ECTS) in:***

Soil and Groundwater (Environmental Engineering, Water and Environmental Engineering, MSc 1st semester)

Natural Systems (CST Environmental Technology, MSc 1st semester)

Local Ecological Systems (Physical Geography, MSc 1st semester)

Man and Environment (Geography, BSc 4th semester)

Supervising students for MSc 3rd semester stay abroad (e.g. Australia, Asia)

#### ***PhD courses (each 5 ECTS):***

Co-teaching Merging Measurements and Modeling in Soil Physics (with colleagues from Aarhus Univ. and Univ. of Arizona-Tucson, USA); next (7th) time Spring 2018

Co-teaching Visualization of Soil Inner Space (with colleagues from Aarhus Univ. and Oregon State Univ., USA)

Co-teaching Fundamental Soil Physics (with colleagues from Aarhus Univ.)

#### ***BSc thesis, MSc thesis, PhD dissertations:***

Supervised/co-supervised > 400 MSc students and > 20 BSc students for their final thesis work. Supervised/co-supervised > 30 PhD students for their final dissertation work

#### ***Further international teaching collaboration:***

Co-teaching an Environmental Soil Science class (under MSc program in Civil and Environmental Engineering at Saitama University, Japan: includes class lectures, problem solving exercises, and final 90 minutes written exam with grading).

Co-supervised > 20 BSc, MSc, and PhD students for their final thesis work at Saitama University, Japan, and Hiroshima University, Japan (with Professors Ken Kawamoto and Toshiko Komatsu, a.o.).

Co-supervised PhD student (member of dissertation committee) at Univ. of California - Davis.

### 2. Study administration: A list of any study administration tasks, e.g. study board membership, head of studies or semester or course coordinator, accreditation, etc.

Evaluating international student applications for Environmental Engineering studies.

Semester coordinator, 1st semester of MSc in Water and Environmental Engineering.

Chaired international panel evaluation of K-study board educations (Environmental Engineering, Environmental

Technology, Biotechnology, Sustainable Biotechnology, Chemistry, and Chemical Engineering) in Aalborg, Esbjerg, and Copenhagen.

Internal (Aalborg) and external (Aarhus, Copenhagen) opponent for PhD defense's.

**3. University pedagogy qualifications: A list of any completed courses in university pedagogy, PBL courses, workshops, academic development projects, collegial guidance and supervision, etc.**

Type your answer here...

**4. Other qualifications: Conference attendance, editorials, presentations, etc. relating to education, 'University Teaching Day', etc.**

Type your answer here...

**5. Teaching activity development and teaching materials: A list of any contributions to the development of new modules, teaching materials, study programmes, e-learning, collaboration with external business partners, etc.**

Together with Professor Thorkild Hvitved-Jacobsen the pioneers in developing the international master program in environmental engineering.

Together with Dr. Kaj Henriksen the pioneers in introducing/integrating environmental soil science into the environmental engineering programs.

Pioneered the development of reactor and proces modeling courses when the Biotechnology education started at Aalborg University, and taught/co-taught courses for the first few years.

Together with Dr. Per Loll (my former PhD student) wrote the teaching material (book, total of 10 chapters): Soil Characterization and Polluted Soil Assessment (AAU, 2000, 1st edition) for the MSc course in Environmental Soil Science. Also used by Aarhus University (Agroecology) and Saitama University (Civil Engineering), Japan.

Developed the Moving Mean Slope (MMS) Excel-programmable method for simulating one-dimensional water transport in unsaturated soil, used in basic and environmental soil science and engineering classes in e.g. Denmark (Aalborg and Aarhus), USA, Switzerland, and Japan.

**6. Teaching awards you may have received or been nominated for.**

Two times B-study board teacher of the year (latest in 2014).

Teaching activities and curriculum development both nationally and internationally part of motivation for being awarded Fellow of Soil Science Society of America (highest award given by the society).

**7. Personal reflections and initiatives: Here you may state any personal deliberations as regards teaching and supervision, any wishes and plans for further pedagogic development, plans for following up on feedback/evaluations from students, etc.**

Strive to still continuously modernize our teaching curriculum in close collaboration with colleagues and students. For example, we have this year changed focus on the 1st semester MSc group project in Soil and Groundwater from polluted soil site characterization, risk assessment, and mediation (solving "yesterday's pollutions") to climate change technologies using local area infiltration systems in developing city areas (solving "challenges for the future"). This at the same time integrates many activities within the Water & Environment area (one of the department sections).

Develop "Porous Media Physics" into an innovative and front-line technology platform for inter-disciplinary teaching across department teaching areas, hereby better enabling the students to create technology solutions and entrepreneurship for our future challenges regarding Earth resources, climate and environment. For example, Dr. Rasmus Lund Jensen and I are presently transferring measurement and modeling technologies from soil (air and gas phase) physics to architecture engineering to design sustainable building materials and buildings for the future, which could become a novel, research-based part of the departments teaching curriculum.

**8. Any other information or comments.**

Type your answer here...