Teaching portfolio

1. Teaching CV: A list of teaching and supervision tasks, including specification of academic fields, scope, level (bachelor, master, continuing education, PhD). Please state the teaching method used (e.g. lecture, class teaching, exercises, supervision, examination, coexamination, distance teaching, internet-based teaching and evaluation of teaching). Please also indicate the language of instruction.

Lecturer of the following courses:

B.Sc. course (5th semester) for all M&P students + Energy students + Indoor Climate students (1st semester M.Sc.): Numerical Methods in Aalborg. The course is given together with Tom Condra (he gives the first 8 lectures – I give the last 8). Typically, there are 110-125 students following the course in Aalborg. It is evaluated with an individual oral examination. The text book "Notes and Exercises for Numerical Methods" by Erik Lund and Tom Condra, 282 pages, is updated every year. Rather big updates of the notes have been done in 2017-2020, as the previous courses on mathematics no longer use the "Advanced Engineering Mathematics" by Kreyszig, which we previously used as reference for some of the lectures.

The M.Sc. course "Finite Element Methods" is given together with Esben Lindgaard. I have developed the course, and since 2010 Esben Lindgaard has taught the second part of the course on nonlinear methods. The first part has focus on linear problems, and this part of the course is followed by all 1stsemester students with mechanical and manufacturing engineering (DMS1, EMSD1, VT1). The slides for the course have an extent of 398 slides. It is evaluated with an individual oral examination. There are typically 40-65 participants in the course.

The M.Sc. course "Mechanics of Composite Materials and Structures" for DMS2. I teach more than half of the course (282 slides is part of the course material). Johnny Jakobsen and Jørgen Kepler are the two other lecturers of the course. There are typically 15-25 students following the course, and quite often there are also participants from industry. It is evaluated with an individual oral examination.

The M.Sc. course "Engineering Optimisation – Concepts, Methods and Applications" is followed by all students with mechanical and manufacturing engineering (DMS2, EMSD2, VT2) on the 2nd semester. I teach the first 4 lectures and the last 2. The first part of the course contains 8 lectures and is given together with Henrik Clemmensen Pedersen. The first part of the course is also followed by all students within energy engineering, such that the number of participants for the first part of the course is around 120-130. Benny Endelt and Michael Skipper Andersen are also giving 2 lectures in the second part of the course. It is evaluated with a written examination (2020-2021: Moodle Quiz exam).

Every second year we offer a Ph.D. course on analysis and optimization of laminated composites. The first version of the course was given in 2004. In 2016 I made a major revision of the course that was given the new name "Analysis and Gradient Based Optimization of Laminated Composite Structures". It is a 5 ECTS course with 5 days of lectures and exercises, and half of the course was completely remade in my revision in 2016. This revision was necessary because Lars Overgaard was on leave and Ole Thybo Thomsen was in the process of leaving AAU. In the current version I teach 4 days of the course, Johnny Jakobsen ½ day, and Esben Lindgaard ½ day. My course material for the Ph.D. course exceeds 600 slides. Typical number of participants is 25 including industrial participants.

I am normally supervising 1-3 M.Sc. projects and the same number of student projects on the 3rd semester for students within Design of Mechanical Systems. Due to my many courses and many Ph.D. students in recent years, I have had a relatively low number of student projects. In total I have been advisor of 43 M.Sc. thesis at AAU.

In total, I have been advisor for 27 Ph.D. students (24 completed) and three post doctoral fellows. I'm currently (2021) advisor for 2 Ph.D. students.

I am regularly examiner of M.Sc. and B.Sc. courses and theses at DTU and AU (typically 7-10 times per year).

I have been member of 9 Ph.D. evaluation committees at AAU, 11 at Technical University of Denmark, 1 at Aarhus University, 1 at Linköping University, 1 at KTH Royal Institute of Technology, 1 at Chalmers University of Technology, 1 at Technical University of Munich, 1 at Tampere University of Technology, 1 at Delft University of Technology, 1 at Nanyang Technological University (NTU), Singapore, and 1 at University of Bristol.

2. Study/programme administration and management: Experience in programme management and coordination. A list of study administration tasks, e.g. study board membership, chair of study board, semester or course coordinator, accreditation tasks, etc. Experience in planning teaching activities. Experience in programme development. Participating in committees and commissions etc. on education issues.

I'm coordinator of the 2nd semester of the M.Sc. study "Design of Mechanical Systems". I was member of the Industry and Global Business Development (M) Study Board, AAU (1999-2000 and 2002-2012). I was also coordinator of all semesters of the M.Sc. "Design of Mechanical Systems", Industry and Global Business Development (M) Study Board, AAU (2002-2011).

I am course responsible for the courses mentioned above, but we don't allocate resources for course coordination in the courses (agreed among the lecturers of the courses).

3. Formal pedagogical training: A list of completed courses in university pedagogy, PBL courses, workshops, academic development projects, collegial guidance and supervision, etc. Written assessment from the course in university pedagogy for assistant professors. Participation in conferences on pedagogy and didactics. Please enclose any documentation of the above, such as course certificates, references, etc

I have completed the AAU pedagogical course for assistant professors in the period 1995-1997. I have been collegial supervisor of two assistant professors as part of their pedagogical course.

4. Other qualifications: Conference contributions and attendance, contributions to debates, scientific articles on pedagogical issues etc. Peer supervision, editorials, mentoring experience or other types of competence development activities.

Previously I was very active as lecturer at "Dansk Naturvidenskabsfestival" 2002, 2004, 2006, 2007, and 2009 (totally 23 lectures at Danish High Schools). However, it has not been possible to find time for such activities in recent years.

5. Pedagogical development and research: Development of new courses, teaching materials, teaching methods, examination types or other types of pedagogical development. Didactic and pedagogical research. Cooperation with external collaboration partners.

This part was covered under the description of courses.

6. References on your teaching skills from superiors or colleagues. Teaching evaluations and any teaching awards received.

"Teacher of the Year" (Årets Underviser) at AAU (receiver of Det Obelske Familiefonds Uddannelsespris 2012).
"Teacher of the Year" at the Faculty of Engineering and Science, AAU, in 2011.
"Teacher of the Year" at the Faculty of Engineering, AAU, in 2021.
"Teacher of the Year" at the Industry and Global Business Development (M) Study Board, AAU, in 1998, 2003, 2006, 2011 and 2012.
"Teacher of the Year" at the Mechanics and Physics Study Board, AAU, in 2020.

Besides that, I have been nominated as "Teacher of the Year" many other times at the M and N study boards (also in the last couple of years).

7. Personal reflections and initiatives: Here you may state any personal deliberations as regards teaching and supervision, any wishes and plans for further pedagogical development, plans for following up on student feedback/evaluations, etc. Personal reflections on your own pedagogical practice, including objectives, methods and implementation. This should include an analysis and a reasoned description of your pedagogical activities in relation to your pedagogical understanding and student learning. Thoughts on the teaching method at Aalborg University (which is largely based on group-organised project work and problem-based learning)

In general I receive very positive feedback for my courses, so at the moment I have no plans for major changes of the courses.

8. Any other information or comments.

Nothing to mention.