

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.

Since 2016, I have been teaching engineering mathematics and several engineering science courses, such as engineering mechanics, energy conversion and system modeling and simulation, at the Department of Sustainability and Planning, AAU, Copenhagen, both in Danish and English. The courses are: Mekanik, Modeller og Materialer (Mechanics, Models and Materials). Taught eight times. Dynamik og Svingninger (Dynamics and Vibrations). Taught eight times. Fluid Mekanik (Fluid Mechanics). Taught five times. Energiomsætning og Termodynamik (Energy Conversion and Thermodynamics). Taught eight times. System Modellering og Simulering (System Modeling and Simulation). Taught five times. Matematisk Modellering (Mathematical Modeling). Taught one time. Matematik og Naturvidenskab (Mathematics and natural Science). Taught one time. Matematiske Modeller (Mathematical Models). Taught one time. Mekanik 1 (Mechanics 1). Taught one time. Mekanik 2 (Mechanics 2). Taught one time. I am also a semester project supervisor for the 1st, 2nd, and 5th semesters of the Sustainable Design study program. In my teaching, I use PBL, variation theory, Inquiry-based learning, dialogue-based learning, and other didactical approaches. Moreover, I frequently use internet-based teaching, where I ask the students to see educational material before coming to the class to initiate a class discussion about the educational material. Before coming to Aalborg University, I was involved in both teaching and creating and improving study programs for undergraduate engineering students, using project-oriented learning at the then Engineering College of Copenhagen, by strengthening the links between the semester projects and the courses. Study coordinator for the undergraduate program in mechanical engineering at the Engineering College of Copenhagen. At the Engineering College of Copenhagen, I also taught engineering mathematics, mechanical design, fluid mechanics, control systems, advance dynamics and engineering physics for both mechanical and electrical engineering students.

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 am a member of a committee that will modernize engineering education with a focus on sustainable design. Moreover, I am involved in the research project ESciSus: Engineering Sciences and Sustainability, the purpose of which is to integrate design and sustainability in the engineering sciences, which, I think, are still traditional in their approaches. I am the course coordinator of the following courses: Mathematics for Design, Engineering Mechanics I and II, Energy conversion and Thermodynamics, and System Modelling and Simulation.

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 a university pedagogical course, two PBL courses and several courses in the didactics of mathematics both at the University of Copenhagen and AAU. I cooperate with researchers in didactics at the University of Copenhagen, AAU, Sweden and other universities. I am now an associate professor at the Department of Sustainability and Planning.

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.

I have published six conference articles, four journal articles, all in engineering education and the didactics of mathematics, and have given presentations at five conferences. Reference to the articles: Pure 5.28.0 - Imad Abou-Hayt offentlig CV (aau.dk). I am also an editor of the following two engineering mechanics textbooks, that I use in my teaching: Engineering Mechanics: Dynamics and Statics & Strength of Materials, both published by Pearson. Presently, I am working on a project that integrates PBL and Virtual Reality to facilitate the students' understanding of vectors and cross products. Besides, I have submitted the article "Revisiting the law of large numbers" to the Journal of Research in Mathematics about how some textbooks introduce the law of large numbers in the theory of probability, causing obstacles in the students' understanding of the law. I am the sole author of the article, which is accepted with minor revisions, and I

am now waiting for the final decision.

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.

At AAU, I have developed the following courses for design-oriented engineering students: Mathematics for Design, Engineering Mechanics I and II, Sustainable Energy Conversion, Fluid Mechanics, and System Modeling and Simulation. Before AAU, I developed a whole undergraduate project-oriented program in mechanical engineering at the previous Engineering College of Copenhagen.

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

Nominated for Teacher of the year in the Study Board for Techno-Anthropology in spring 2022. Good evaluations from the students: "Imad is one of the best teachers I have had. He always shows a willingness to teach his students the subject, and always goes the extra mile to get everyone involved. He is motivating and is insanely good at learning from himself. His joy for the technical subjects, and the desire to help someone on the way to the future. In addition, he is always smiling and listening, which is a competence that is important in relation to my motivation. Imad likes to spend a long time with the individual student, also likes the breaks. In addition, he has stopped by our premises several times to check whether we need help etc. a program or task." "Imad is a dedicated and ambitious teacher who shows great interest in his subject and his students. He also fights to make teaching and the university better. His joy and great interest in lifting his students individually and as a group means that I always want to try the best in his subject. Imad is fighting to improve professionalism, not only at my study, but at the entire university. This kind of engagement is something I find incredibly extraordinary." "Imad deserves this award because he is doing a commendable job. He listens, is committed to his students' comprehensibility and exercises beyond what is usual for a lecturer at a university. Imad inspires me deeply because he is so professional. He is so skilled that he manages to be pedagogical, and can perspective any incomprehensible and abstract subject into something tangible and relatable. He goes beyond what is expected to help for any understanding, which is why you can always write to him, and he replies at short notice and is happy to come by for a chat. He inspires me to be better every time, and even a subject that doesn't interest me, he manages to make it a mission to understand and master. Imad tries to understand our projects alongside his teaching and adapts accordingly. In the 1st semester he helped me with calculators to build down in v-lab and despite the fact that it was not the syllabus or part of his teaching. Besides that, Imad is always happy and talkative. He tells jokes when it fits into the lesson, and manages to liven up a lesson at 8:30 on a Monday morning. Despite being a teacher, he shows personality and character, which as a student helps to create a relationship that is not distanced. This makes the classroom safe and creates space and the opportunity to be open and ask even the stupidest questions." The students like my various teaching methods, and can see the relevance of the courses, as they can use them in their semester projects. I have a good collaboration with my colleagues across the whole of AAU. References: Program coordinator Signe Pederson, sigpe@plan.aau.dk and semester coordinator Helena Kronby, hkronby@plan.aau.dk.

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)

I have always liked to teach, and I have devoted my life to teaching, learning how to teach, improving my teaching, and creating new courses. I never stop thinking about didactics and reflecting on my own teaching. Learning is of course what my students do at the university. But not only the students are there to learn; I am too. I then wondered if learning-to-teach methods can be supplemented by teaching-to-learn, by collecting, analyzing, and evaluating information about what goes on in my classroom. I regard the teaching-to-learn process as a didactic cycle that should be repeated and revised, just like the mathematical modeling process or a product design process: It is a process that never stops, even if you are an old hand that has been on the job forever. Given that PBL is the pedagogical platform of AAU, I believe that PBL ought to be used in the courses, not just in semester projects. In fact, I use both PBL and other educational platforms in my teaching in the courses I am involved in.

8. Any other information or comments.

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