

## Public teaching CV

### Paedagogical view: Educational practice - basis / values

My teaching involves graduate and undergraduate students in courses with focus on electronics under the Mechatronics program. The 3rd semester courses are challenging due to the large number of international students and the fact that they only have limited experience in project work and especially cooperation via their 1st and 2nd semester project work. Some have a practical background, but most do not.

Students have different levels of knowledge, cultural backgrounds (>50% are from outside Denmark) and understanding as well as working morale. The project task is formulated very broadly and the students are challenged to find (and agree on) their own solutions to the technical problems they identify. I believe that it is very important to generate a learning culture where the students are challenged to "think out of the box". But I also firmly believe that it is very important to have a solid base of technical knowledge in order to find the best technological solutions. Therefore, I am not an advocate of too much group work on the earlier semesters as it takes precious time from lectures in more fundamental disciplines, such as mathematics and electronics/mechanics.

As students have different backgrounds and preferences (some like embedded software, some electronics, some mechanics) it is important to me to encourage the students to work with the fields in the project where they are not so strong! That will help develop their individual learning in fields where they consider themselves weak. To me the most important quality of an engineer is the ability to reflect, to learn and to think by him/herself! I am critical to students who are doing a "free ride" in a project, meaning that they do not contribute much but count on others to do the actual work. I expect dedication and focus of students to the education they have chosen. In lecture based courses I try to involve real-world examples of applications of technology, so that the often very theoretical subjects are linked to practical applications. Company visits and guest lectures are included in lecture plans.

My lectures often follow the chosen text books but I always supplement with additional literature which might explain certain aspects better. I often use practical exercises in my lectures, where the students either individually or in small groups typically have to perform simulations, construction and testing of circuits etc.. I prefer exercises to details mathematical proofs when the proofs are described in detail in the textbooks. I encourage discussions in classes during lectures to activate the students. Students having difficulties understanding the subject are encouraged to ask for extra guidance and explanation. In future I plan to increase the involvement of students via extended exercises and to use e-learning when it seems feasible. To me it is very important to generate a basic understanding of a given subject, so that the students can build a solid base to continue studying themselves. The purpose of teaching for me is not to fill a hole with textbook knowledge only, but to "ignite a fire". First of all, studying should be fun and rewarding on the personal level!

### Teaching experience

Year•Courses (SDU) •Programme •ECTS points for course

2011•Power Electronics•B.Eng. in Mechatronics•10  
2012•Construct mechatronics / SPRO4MC•B.Eng. in Mechatronics•10  
2012•Power Electronics and Electromagnetics•B.Eng. in Mechatronics•10  
2013•Construct mechatronics / SPRO4MC•B.Eng. in Mechatronics•10  
2014•Develop Intelligent Dyn. Mech. Systems•B.Eng. in Mechatronics•10  
2015•Develop Intelligent Dyn. Mech. Systems•B.Eng. in Mechatronics 10  
2015•Switch mode converters•M.Sc. in Mechatronic•10  
2016•Develop Intelligent Dyn. Mech. Systems•B.Eng. in Mechatronics• 10  
2016•Switch mode converters•M.Sc. in Mechatronic•10  
2017•Switch mode converters•M.Sc. in Mechatronic•10  
2017•PE Measurement Systems•B.Eng. in Mechatronics•5  
2017•Develop Intelligent Dyn. Mech. Systems•B.Eng. in Mechatronics•10  
2017•High Frequency communication•B.Eng. in Mechatronics• 5  
2017•Develop Intelligent Dyn. Mech. Systems•B.Eng. in Mechatronics•10  
2017•High Frequency communication•B.Eng. in Mechatronics• 5  
2018•Develop Intelligent Dyn. Mech. Systems•B.Eng. in Mechatronics•10  
2018•High Frequency communication•B.Eng. in Mechatronics• 5  
2019•Sensors, filters and mathematics•B.Eng. in Electronics• 5  
Total:105 ECTS

Year•Stand-alone Lectures•Programme•Hours

1985•Electronics course/brush-up for engineers•Royal Danish Airforce•75  
2011•Solar cells•"Videnskab på besøg"•3  
2011•Patents in real life•B.Eng. in Mechatronics•3  
2011•4x PV technology•High schools in DK•15  
2012•Engineering Ethics•B.Eng. in Mechatronics•4  
2012•Patents in real life•B.Eng. in Mechatronics•4  
2013•Engineering Ethics•B.Eng. in Mechatronics•4  
2013•Patents in real life•B.Eng. in Mechatronics•4  
2013•Solar cell camp•Solar Camp SDU•4

2014•3x Solar cell camp•Solar Camp SDU•12  
2014•Patents in real life•B.Eng. in Mechatronics•3  
2014•PV system technology (Odense)•B.Eng. in Energy technology4  
2015•Engineering Ethics•B.Eng. in Mechatronics•3  
2015•2x Solar cell camp•Solar Camp SDU•8  
2015•Patents in real life•B.Eng. in Mechatronics•3  
2016•2x Solar cell camp•Solar Camp SDU•8  
2016•Engineering Ethics•B.Eng. in Mechatronics•3

Student supervision in other courses

Year•Course•Programme•Hours

2013•Project in Embedded Systems Design and Analysis•B.Eng. in Mechatronics•25  
2014•Project in Embedded Systems Design and Analysis•B.Eng. in Mechatronics•25  
2017•Electronic semester project, 4. sem. (6 students)•B.Eng. in Mechatronics•25  
2017•Autonomous buoy project (2 students)•M.Sc. in Mechatronic•30  
2017•Autonomous buoy project (5 students)•Mech. design and build•10

Supervision of student projects

>40 Internship/BA/BEng/MSc projects

## Formal pedagogical training

- 1985: Royal Danish Airforce instructor certificate, "Forsvarets Center for Lederskab", Lynæs, DK.
- 1983-2015: Several instructor courses related to sports (archery, ju-jitsu).
- SDU Lecturer Training Program (summer 2016-17).
- Course: Questioning - how it can support learning, teaching and assessment (2016).
- Course: Setting up your course in BlackBoard (2016).
- Course: Research Based Teaching (2017).

## Other activities related to teaching and teaching development

Extern censorship:

1998-2009 I was appointed Censor by the Danish Ministry of Education and acted member of the Danish Censor corps for Electronic Engineering. Re-appointed 2018 for a 4-year period. •A total of 96 graduate projects (Master and Diploma/Teknikum) were evaluated. •> 40 written class exam sessions in various engineering courses at Teknikum/SDU in Sønderborg have been censored (est. average >25 students per class exam). •> 40 class oral exam sessions in various engineering courses at Teknikum/SDU in Sønderborg have been censored (est. average >25 students per class exam).

Experience on course curriculum design:

- 2013-2015 Involved in planning/the design of BA and MSc Electronics educations at the Mads Clausen Institute.
- Design of 5 ECTS Bachelor level "**RF technology**" course curriculum (MC-HFC).
- Design of 5 ECTS Bachelor level "**PE Measurement System**" course curriculum (MCPE).
- Design of 10 ECTS Master level "**Switch Mode Power Supply**" course curriculum (SWMC).
- Co-design of 10 ECTS Bachelor level "**Semester course**" curriculum (SPRO3MC)
- Co-design of 5 ECTS Master level "**Fundamentals of PE System Engineering**" course curriculum ( PESE)
- Design of 5 ECTS Bachelor level "**AFS**" course curriculum (AFS).

2016-2019 Involved in design of new BA and MSc Electronics educations at MCI for accreditation.

2018- (ongoing) Involved in the planning of the new EE educations (BA/BSc/MSc) at MCI.