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.

Below are different courses offered by Aalborg University that I am involved in:
Course: Preparation of Research Plan for PhDs: PhD Planning. Ongoing every year, twice a year since spring 2014.
Level: A PhD course offered by the Department of Energy Technology at Aalborg University.
Role: I am responsible for one lecture, where I teach how to make an efficient work plan for a PhD project.
lecture presentation material available at http://prezi.com/plyn6zjzxwf7/phd-planning/.
Course: Combustion Technology and Chemical Reactors. Ongoing every year since fall 2013.
Level: 7th semester Master of science in Thermal Energy and Process Engineering students
Role: Responsible for six lectures of four hours each.
Course: Summer school in Future Energy Systems. July 2013 and August 2014. Ongoing every summer.
level: Cross-disciplinary course to Bachelor of Science students
Role: Responsible for three lectures of one hour each.
Lecture title: Introduction to fuel cells.
Lecture title: Hydrogen production and storage.
Lecture title: Fuel cell systems.
Course: Summer school in Future Energy Systems. August 2012.
level: Cross-disciplinary course for Bachelor of Science students
Role: Responsible for one hour of lecture
Lecture title: Introduction to fuel cells.
Course: Energy and Environment. March 2012.
Level: Cross-disciplinary course for 6th semester Bachelor of Science students
Role: Responsible for one lecture of four hours
Lecture title: Energy and climate change and the use of Life Cycle Assessment (LCA) and other environmental management tools and solutions.
lecture presentation material available at http://prezi.com/u12ai--jlnc7/energy-and-environment/.

Project supervisions
Below are projects I have supervised or co-supervised and projects that I am currently supervising in the field of fuel cells:
Master project in Fuel Cells and Hydrogen Technology (HyTEC)
Thesis title: Degradation Model for a HT-PEMFC. - Steffen Frensch (2014/2015)
Role: Main supervisor
Ph.D. project in Fuel Cell and Battery Systems
Thesis title: Investigation of Ion Conduction and Acid Transport in HT-PEMFC MEAs. ongoing. - Sobi Thomas
Role: Co-supervisor
Ph.D. project in Fuel Cell and Battery Systems
Thesis title: Lifetime Investigation of PEM Electrolyzers under realistic Load Profilese. ongoing. -Steffen Frensch
Role: Co-supervisor
Master thesis in Fuel Cells and Hydrogen Technology (HyTEC).
Thesis title: Performance and Degradation Tests on High Temperature Proton Exchange Membrane Fuel Cells (HT-PEMFCs). - Ionela Florentina Grigoras (Spring 2013).
Role: Main supervisor
Master semester project in Fuel Cells and Hydrogen Technology (HyTEC).
Project report title: EIS Characterization of the Poisoning Effects of CO and CO2 on a PBI Based HT-PEM Fuel Cell. Spring 2010.
Role: Co-supervisor

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.

Type your answer here...

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

I have attended the following pedagogy related courses and I am continuously gaining new methods and insights that challenge my teaching, which I strive to apply in my curricular and extra-curricular communications.
1. University Pedagogy for Assistant Professors 2012-2014, Aalborg University, Denmark. It is a broad course that addresses many aspects of teaching and supervision. October 2012 - February 2014.
2. Professional Networking. Spring 2011, Aalborg University, Aalborg, Denmark.
3. Basic Course in Pedagogy for University Teachers. November 23, 2010, Aalborg University, Aalborg, Denmark.
4. Professional Communication. Spring 2010, Aalborg University, Aalborg, Denmark.
5. Qualitative Research Methods in Technology, Science and Education. May 2010, Aalborg University, Aalborg, Denmark.

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.

Type your answer here...

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

Type your answer here...

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.

Having studied in different countries and cultures, my teaching philosophy is taking shape from my learning processes in these environments, pedagogy courses I have attended and my teaching and supervision experiences at Aalborg University.

In my country of origin, Eritrea, university education is a privilege of the few. Very selective national university admission exams take place every year and only few students from the whole country are granted access to the only university of the country, the University of Asmara. Once in the university, students are evaluated and graded with respect to each other and never in absolute terms. This creates a very competitive and hostile environment, where there is no academic trust among students. While this model might produce excellent theoreticians, the lack of interaction among students and lack of resources for lab equipment or any other means of field study and lack of peer learning makes this model hardly applicable to solving real life problems.

In Italy, where I achieved both my B.Sc. and M.Sc. at the University of Perugia, teaching is organized in a completely different manner with similar end results. Here, there is not a competitive atmosphere, but on the contrary there is the possibility of sitting for any exam in any session of exams, i.e., first year exams can be taken on the last year. This encourages the students to keep postponing exams, with the excuse that they don't feel ready, and many of them end up having to study for the same exam year after year with the same feeling of un-readiness. The teachers' responsibility is to only deliver lectures and evaluate exams. The curriculum doesn't provide any interaction among students, even though sometimes the students decide to interact with each other as they find it a more efficient way of learning. This causes longer years spent in the university; the average graduation age for master students is 27.5 and 10% of Italians achieve their M.Sc. degree at 30.5 years of age [Almalaurea, data valid for 2013]. This in my opinion means robbing them of years that could have been spent acquiring work experiences and impacting their society positively.

At the Royal Institute of Technology (KTH), Sweden, where I spent half a year of study abroad and internship, I observed high level of interaction among students by means of group project works. I was involved in two groups for two separate projects in one semester alongside my Master thesis internship at a company. Even though, the projects were apparently unrelated, the way the program was put in place challenged me to relate them somehow and try to cross-transfer knowledge from one project to the other. The project works were on the subjects of Life Cycle Assessment (LCA), Industrial Ecology and Heat Pumps. Since these projects were being carried out in parallel, I was encouraged to consider LCA from an industrial ecology point of view as a tool for identifying points of improvement in production lines, based on environmental impacts and energy efficiency. Therefore, I applied these notions to my master thesis by performing LCA of the heat pump from raw materials extraction to waste management and proposed how the environmental impacts could be reduced. This intertwining among projects and courses and cross-transfer of knowledge made the whole experience very efficient and rewarding.

Aalborg University, where I currently work, on the other hand is internationally recognized for its advanced and efficient learning model, PBL - the Aalborg model. It is problem-based, project-organized model that gives the students a more independent learning which favors interdisciplinarity and direct participation through team works to solve real life problems. I
have had the privilege to practice this learning model both in teaching and supervision of student groups.

I asses my past experiences as a student and a lecturer carefully and I
always strive to learn from them by avoiding the negative ones and implementing the positive ones. When teaching a course, I decide on the learning goals before hand and I communicate them as clearly as possible in the introductory lecture. Telling the students what they will be able to do, or how their knowledge of the subject will improve motivates them and keeps them more interested in the course. It gives them a clear idea of what the
basis for their assessment at the end of the course will be. Moreover, it helps as some sort of accountability tool for the teacher to structure the lectures in a way that these learning goals are met. These can then be organized as sets of deliverables of skills and knowledge for every lecture. Consequently, I organize my lectures in a goal oriented manner and I
communicate the lecture outcomes of every lecture at the beginning and reconvene these at the end as a summary of acquired knowledge and skills from the lecture. Besides, I also give a brief summary of previous lectures at the start of every lecture and try to connect all the lectures with each other and create as seamless flow as possible between them.

Since I enjoy teaching, I try to make the learning process also enjoyable. I encourage students to interrupt for questions any time during a lecture and I spend some question-answer time at the end of every lecture. I also provide working examples that the students can discuss in groups during the lectures. These interactive ways allow the students to be more active and more attentive to the topics, and make them think and suggest new solutions and improvements to the field of study. I also spend some time preparing high quality, professional, clean and engaging presentation slides for my lectures. Examples of lecture presentation slides prepared in the above mentioned structure can be found in https://www.dropbox.com/s/c6c1nhr30gtfdql/Second_lecture_SSA.pdf and https://www.dropbox.com/s/4ron3y7sggqh3k0/lecture_three.pdf.

When supervising, I facilitate the students' learning process by offering a hand in practical experimental sessions and overall organization of their research project through regular meetings and by being open and available for questions and consultations. However, in the spirit of Aalborg University I encourage the students to formulate and understand the goals of their project and design the method to obtain and discuss results, and offer alternative new solutions. This way they are more motivated in achieving their own goals and the focus is directed towards the whole learning process rather than the end result.

8. Any other information or comments.

Type your answer here...