

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.

Lectures

The subjects I taught were closely related to my area of research, which modelling of thermal systems.

* Preparation of PhD study plan - PhD course 2016 - 2018 - 2019

* Analysis of Advanced Thermal Process System - Elective course 9th semester 2018 and 2019

* Energy Conversion and Storage in Future Energy Systems - M.Sc. Energy Eng. 9th Semester 2016, 2017, 2018 and 2019

* Fuel conversion and production - 9th Semester 2018 and 2019

* Design and Modelling of Thermal Systems and Fuel Processing Technology - 8th Semester, M.Sc. Energy Eng. 2009/2012/2013/2014/2016

* Analysis of Advanced Thermal Process Systems - 8th Semester, M.Sc. Energy. Eng. 2014/2015

* Summer school on future energy systems - High school students 2012/2013

* Introduction to Solid Oxide Fuel Cell: Description of the technology and introduction to modelling - 10th Semester, M.Sc. Energy Eng. 2012

* Fuel Processing Technology Description and modelling of typical reforming technology. 10th Semester, M.Sc. Energy Eng. 2012

* Modeling and optimization of energy systems: Reforming processes 6th Semester, B.Sc. Energy Eng. 2010

Guest lectures

* University of Trieste - Italy 2019

* University of Agder - Norway 2019

* Nordic Folkecenter for Renewable Energy - Denmark 2017

* Petroleum Institute - Abu Dhabi 2017

Projects supervision

At Aalborg University students projects are centered on problem based learning. During my PhD and Post Doc I supervised projects groups within thermal energy engineering and fuel cell systems.

* HTPEM for Automotive Application. 8th Semester, M.Sc. in Energy Engineering Autumn 2020

* Dynamic Modeling of Hybrid Drivetrain Based on HTPEM for Automotive Application 9th Semester, M.Sc. in Energy Engineering Spring 2019

* Performance Analysis of Indirect Adiabatic Cooling System. 5th semester, Bachelor in in Energy Engineering 2018

* Modelling of transient heat change in fuel cell stack. 8th Semester, M.Sc. in Energy Engineering Spring 2016

* Modeling of Proton Exchange Membrane (PEM) Water Electrolysis and hydrogen storage. 8th Semester, (2 groups) M.Sc. in Energy Engineering Spring 2016

* Improved Heat and Electricity Production for Brønderslev: New CHP Plant Consisting of CSP, ORC, and Biomass Boilers. Gísli Jóhannesson; Mathias Kjær; Nanna Berthelsen; Niels Rasmussen; Sofie Winther. 5th Semester B.D. in Energy Engineering Fall 2015

* Implementation of Exhaust Gas Recirculation for Double Stage Waste Heat Recovery System on Large Container Ship. Matthieu Marissal; Morten Andreasen. Master's Thesis Spring, 2014

* Temperature control and water management in PEM fuel cell. Sudeshna Mandal 7th Semester, M.Sc. in Energy Engineering Spring, 2014

* Economic comparison of combined heat and power fuel cell systems with other competitive technologies. Matthieu Marissal; Ellen Batens; Apolline Pepin; Jefferson Sebban. 7th Semester, M.Sc. in Energy Engineering Fall 2012

* Modeling a hybrid quad generation system consisting of SOFC and absorption heat pump. Guillaume Laine; Irene Albacete Cachorro; Iulia Maria Daraban; Navdeep Singh. 7th Semester, M.Sc. in Energy Engineering Fall 2012

* Modelling and Optimization of Solid Oxide Fuel Cell System completed. Troels Bartholin Bertelsen; Thomas Helmer Pedersen; Jonas Lundsted Poulsen; Rene Haller Schultz 8th Semester, M.Sc. in Energy Engineering Spring 2011

* Designing of ejector for fuel cell anode and cathode gases recirculation. Sabrina Vittori; Mohammed M. Ali 7th Semester, M.Sc. in Energy Engineering Spring 2010

* Dimensioning of cooling system for the Unicorn Racer. Rasmus Moeller Bering; Kaere Elgaard Buskov; Morten Ryge Boegild; Morten Aalbae Kristensen; Emil Zacho Rath; Rene Haller Schultz 7th Semester, M.Sc. in Energy Engineering Fall 2009

* Solid oxide fuel cell micro combined heat and power system choosing the right reformer. Anders Christian; Olesen & Julian Ralf Jensen Master's Thesis Spring 2009

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.

Coordinator of fuel cell research group meetings

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

As a part of my PhD from Aalborg University, I participated in basic course in pedagogy for university teachers. This course gave me a basic pedagogical insight into learning objectives, assessment and didactic methods. I continued my pedagogical education during my Post Doc, where I attended a course on University Pedagogy for Assistant Professors.

* University Pedagogy for Assistant Professors 2014; 10 ECS

* Basic Course in Pedagogy for University Teachers 2010; 2 ECS

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

* Reviewer of Conference Papers: ECOS conferences; European Piero Lunghi Fuel Cell Conferences; SIMS conferences; ASME Fuel cell conferences.

* Reviewer of Journal Papers: Energy Elsevier; International Journal of Hydrogen Fuel Cells Elsevier; Applied Energy Elsevier; Applied Thermal Engineering Elsevier; Electrochemical society Journal

* Review PhD Thesis from 1 student at Polytechnic of Milan.

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.

I have been exposed to many academic environments in different countries (University of Perugia - Italy; KTH Stockholm - Sweden; Aalborg University - Denmark) and learnt to be comfortable dealing with people with different background. In particular, I have spent part of my PhD Project at the Imperial College of London – UK. I believe that experiencing diversity is important in developing good teaching and interpersonal skills.

Besides, going to moving to technical skills, I have:

* Developed tutorials and workshops for the courses I have taught on different software platforms such as EES; Matlab/SIMULINK; Excel

* Developed presentation skills drafting several Power Point presentations for students and project stakeholders.

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

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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.

Nowadays we live in a culture of standardization; students have to go through a standard curriculum and are evaluate according a standard scale. The high risk of this system is to reduce education to an industrial process. In this contest I believe that it is teacher's task to create the best specific climate for each individual to strive.

Tools and technology are invading our life more than ever before. Despite their importance I believe that technology should be considered a way to enhance education and help individualize education with students moving at different rate; Technology should not merely be the end point of the learning process.

As Andreas Schleicher (OECD) , the world is changing faster than ever before! Nowadays the challenge is not whether we can remember what we learned in school, but whether we are prepared for change , whether we are prepared for jobs that haven't been created, to use technologies that haven't been invented , to solve problems we just can't anticipate today.

8. Any other information or comments.

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