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.

Teaching experience: •Heat transfer (5th semester, bachelor level) •Modeling of thermal systems (5th semester, bachelor level) •Chemical Thermodynamics and Process Optimization (6th semester, bachelor level) •Modelling and Optimization of Thermal Energy Systems (PhD course) •Liquefaction of Biomass – Fundamentals and Practice (PhD course) •Perspectives of Plastics Recycling (Summer school – PhD level) Supervision experience: •Supervision of +40 undergraduate/graduate projects. •Supervisor of the “Best Thesis 2022” entitled “High-Temperature Direct Air Capture of Utilisation in Fischer-Tropsch Synthesis”. Recipient of the 2nd prize of the “Vissing Fondens Energipris”. •Currently supervising 7 PhD-students (including 2 industrial PhD students). Graduated 1 PhD student (2022), Eliana Lozano, who was granted the Villum International Postdoc ‘22. •Supported multiple high school projects (SRO & SRP). •Nominee for Teacher of the year; spring semester ’17, autumn semester ’17 (3rd best teacher of the year ’17/18), Best Teacher of the spring semester ’18 (2nd best teacher of the year ‘18/19), Nominee for Teacher of the year; spring semester ’22, autumn semester ’22. Overview of supervision experience: 1.Parametric Study of Continuous Hydrotreatment of Sludge Based Biocrude and Characterization of the Upgraded Products Energi, kandidat (Aalborg), (Kandidatuddannelse) 9. semester (internship), 2023 2.Modelling of an Amine-Based DAC with P2M Integration Energi, Bachelor (Aalborg), (bacheloruddannelse) 5. semester, 2022 3.Liquefaction CO2 capture Utilizing a Reverse Brayton Cycle Energi, kandidat (Aalborg), (Kandidatuddannelse) 9. semester, 2022 4.Intermediate CO2 storage & Liquefaction Configuration for a Power-to-Methanol Project in Hirtshals Energi, Bachelor (Aalborg), (bacheloruddannelse) 6. semester, 2022 5.High-Temperature Direct Air Capture for Utilization in Fischer-Tropsch Synthesis Energi, kandidat (Aalborg), (Kandidatuddannelse) 10. semester, 2022 6.Cryogenic Carbon Capture of a Cement Plant Off-gas considering the Synergies of a PtX Integration Energi, kandidat (Aalborg), (Kandidatuddannelse) 10. semester, 2022 7.Hydrothermal Liquefaction of Biogas Residue Energi, kandidat (Aalborg), (Kandidatuddannelse) 9. semester (internship), 2022 8.Synthetic Crude Oil Produced from Direct Air Capture Energi, Bachelor (Aalborg), (bacheloruddannelse) 5. semester, 2021 9.Depolymerization of Polyester and Nylon 6 in a CO-process using Neutral Hydrolysis Energi, kandidat (Aalborg), (kandidatuddannelse) 10. semester, 2021 10.Process Simulation and LCA of GHG Emissions of PET recycling via Neutral Hydrolysis Energi, kandidat (Aalborg), (kandidatuddannelse) 10. semester, 2021 11.Techno-economic Analysis and Optimization of Sewage Sludge-HTL Wastewater Treatment Methods Energi, kandidat (Aalborg), (kandidatuddannelse) 8. semester, 2021 12.Liquefaction of Kraft Lignin and bark to Biocrude Energi, Diplom (Aalborg), (Diplomuddannelse) 7. semester, 2021 13.Modelling and Integration of a Molten Salt Storage Circuit Energi, kandidat (Aalborg), (kandidatuddannelse) 9. semester, 2021 14.Practical Experience at CBS1 Energi, kandidat (Aalborg), (Diplomuddannelse) 7. semester, 2020 15.Hydrothermal Liquefaction of polystyrene waste and waste tyres to Oil Energi, kandidat (Aalborg), (Kandidatuddannelse) 8. semester, 2020 16.Modelling and optimizing a Plastic2Plastic Thermal Process Energi, kandidat (Aalborg), (Kandidatuddannelse) 8. semester, 2020 17.Air-blast Cooling Energi, Bachelor (Aalborg), (bacheloruddannelse) 5. semester, 2019 18.Modelling of a Selexol System to make HTL Process a BECCS Technology Energi, Bachelor (Aalborg), (bacheloruddannelse) 5. semester, 2019 19.Modelling of an Air-blast Food Freezer Energi, Bachelor (Aalborg), (bacheloruddannelse) 5. semester, 2019 20.System Design and Economic Feasibility for Chemical Recycling of Colored PET by Neutral Hydrolysis Energi, kandidat (Aalborg), (Kandidatuddannelse) 9. semester, 2019 21.Modelling and Testing of a Phase-Separation System for Biocrude Production Energi, Bachelor (Aalborg), (bacheloruddannelse) 6. semester, 2019 22.Optimization of PET recycling by Hydrothermal Treatment Energi, kandidat (Aalborg), (Kandidatuddannelse) 8. semester, 2019 23.Engineering a Continuous Bio-fuel Production Unit Energi, kandidat (Aalborg), (Kandidatuddannelse) 8. semester, 2019 24.Experimental Study on a Continuous HTL Product Separation and Demineralisation System Energi, kandidat (Aalborg), (Kandidatuddannelse) 10. semester, 2019 25.Internship at Steeper Energy for Commissioning of a New State-of-the-Art HTL Project Separation and Demineralisation System Energi, kandidat (Aalborg), (Kandidatuddannelse) 9. semester (internship), 2019 26.Kinetic Study of a Photocatalytic Reaction Energi, kandidat (Aalborg), (Kandidatuddannelse) 7. semester (intro), 2018 27.Implementation of PCM in liquid cooling systems Energi, bachelor (Aalborg), (Bacheloruddannelse) 6. semester, 2018 28.Utillizing the HtL technology for economic competitive marine fuel production. Energi, bachelor (Aalborg), (Bacheloruddannelse) 5. semester, 2018 29.Design of experiments and optimization of algae biocrude hydrotreating for biofuel production Energi, kandidat (Aalborg), (Kandidatuddannelse) 4. semester, 2018 30.Estimation of bio-crude solubility parameters: statistical modeling and experimental validation Energi, kandidat (Aalborg), (Kandidatuddannelse) 3. semester, 2017 31.Cryogenic Carbon Capture and Fuel Reforming Energi, kandidat (Aalborg), (Kandidatuddannelse) 2. semester, 2017 32.FEEDSTOCK PREPARATION AND PHYSICO-CHEMICAL CHARACTERIZATION. OPTIMIZATION OF FEEDSTOCK FOR CONTINUOUS HTL AND OPTIMUM YIELD PhD-dissertation by Iulia Maria Sîntamarean, April, 2017, supplementary supervisor 33.Parametrisk model for flowsystemer med udgangspunkt i effektivisering af gulvvarmesystem: Modellering og analyse af enkle energikonverterende systemer Energi, Bachelor (Aalborg), (Bacheloruddannelse) 3. semester, 2016 34.Generic Modelling Tool for Techno-economic Analyses of Hydrothermal Liquefaction Process Scenarios Energiteknik, Kandidat, (Kandidatuddannelse) 3. semester, 2016 35.CFD MODELLING OF A SUPERCRITICAL WATER DESALINATOR Energiteknik, Kandidat, (Kandidatuddannelse) 1. semester, 2016 36.Investigation of cold water marine macroalgae potential for bio-refinery integrated hydrothermal liquefaction: A process residue study Energiteknik, Kandidat, (Kandidatuddannelse) 4. semester,

2016 37.Analysis of catalysts in a HTL process: a study about the driving force in the catalytic effect Energiteknik, Kandidat, (Kandidatuddannelse) 3. semester, 2015 38.Investigation of spent mushroom compost as an alternative waste-based feedstock for carbon recovery enhanced hydrothermal liquefaction Energiteknik, Kandidat, (Kandidatuddannelse) 3. semester, 2015 39.Synergetic integration of HTL and conventional base -catalyzed biodiesel production Energiteknik, Kandidat, (Kandidatuddannelse) 2. semester, 2015 40.Hydrothermal Liquefaction of Lignocellulosic Biomass. Feedstock Pretreatment to Improve Slurry Pumpability for Continuous Processing Energiteknik, Kandidat, (Kandidatuddannelse) 4. semester, 2014 41.Hydrothermal Liquefaction of Black Liquor: Process Modelling and Optimisation by Heat- and Process Integration Energiteknik, Kandidat, (Kandidatuddannelse) 2. semester, 2013 42.Hydrothermal liquefaction of lignin-based feedstock Energiteknik, Kandidat, (Kandidatuddannelse) 3. semester, 2012 43.Vindenergi 2020 Energiteknik, Bachelor, (Bacheloruddannelse) 1. semester, 2012 44.Solceller i Danmark Energiteknik, Bachelor, (Bacheloruddannelse) 1. semester, 2012 45.Biodiesel – Nu og i Fremtiden Energiteknik, Bachelor, (Bacheloruddannelse) 1. semester, 2012 46.Fremtidens Transportsektor Energiteknik, Bachelor, (Bacheloruddannelse) 1. semester, 2012

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 have been responsible for planning and conducting multiple lectures and courses. The planning includes literature selection, preparation of course material (slide shows, exercises etc.) and oral exams. I have taught in 3 different courses at bachelor level, and 2 PhD 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

Type your answer here...

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.

Type your answer here...

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.

Type your answer here...

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

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 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)

My teaching philosophy is avoidably a heritage of my personal preferences on how to be supervised and educated myself. As a result, I will claim that PBL is already an inherent element in my supervision and teaching activities. During my undergraduate and graduate studies, I was exposed to a nearly identical educational environment that I am now teaching in, which is why I believe that I already have strong prerequisites for knowing what is generally challenging to learn (from a student perspective), and how technical engineering topics can be communicated effectively for maximum learning outcome. On top of this, my teaching philosophy has naturally been affected by my Adjunktpædagogikum itself, the courses within, and by discussions with peers and supervisors. As a teacher at highest educational level it is my believe that I responsible for creating a learning environment in which students are able to achieve excellent engineering skills within a given subject, no matter the distribution of intrinsically and extrinsically motivated students. Through a high level of enthusiasm, supported instructional scaffolding, student interactions, and on-class discussions in both my lecturing and supervision tasks, I aim at creating a learning environment that facilitates deep understanding of the subject. In principle, my teaching philosophy can be boiled down to: “Excellence over perfectionism” What do I mean by this? In my opinion, striving for perfectionism is an outcome-oriented approach. In a teaching context, striving for perfectionism is equivalent to aiming only for highest grades. This is by default not a bad approach, but putting it into an analogy, it resembles an empirical regression; it may be highly efficient and perform perfectly within the domain it has been trained, but it typically extrapolates horribly. Striving for excellence is a process-oriented approach, which may require tremendous effort but will train you to work effectively in any disciplines.

8. Any other information or comments.

Type your answer here...