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 of supervision:
MSc2 (8 students, 2025 spring)
Topic 1: Design of 40 kW solid oxide electrolysis system for dynamic operations (Road2X)
Topic 2: Solid Oxide Electrolyzer Modelling For Dynamic Operations

MSc4 (4 students, 2025 spring)
Topic 1: Design and Dynamic Modelling of a 40 kW Solid Oxide Electrolysis System
Topic 2: Process Modelling and Optimization of Methanol-to-Jet for eSAF
Topic 3: Economical e-Methanol Production: Dynamic Modelling and Optimal Scheduling of Power-to-Methanol Plant

MSc3 (3 students, 2024 autumn)
Topic 1: Solid Oxide Cell 2D and 3D Modeling: Air-Side Focus on Rib-Channel Insights
Topic 2: Investigation of Maritime LNG-Fuelled HT-PEM Fuel Cell System With Carbon Capture

BSc (12 students, 2024 autumn)
Topic1: Modelling and Heat Integration of Maritime PEM Fuel Cell System with a Carbon Capture Unit
Topic2: Investigation and Modeling of Maritime Fuel Cell System

MSc4 (2 students, 2024 spring)
Topic1: Dynamic Modelling of the Absorber in a Fully Electrified Amine-Based Carbon Capture System with 99% CO_2 Removal

MSc2 (10 students, 2023 spring)
Topic1: Transient model and performance analysis of a direct ammonia-fed Solid Oxide Fuel Cell (SOFC)
Topic2: Offshore Green Hydrogen Production: An Economical Study on Implementation of Waste Heat Recovery

Master thesis (3 students, 2023 spring)
Topic1: Multiphysics Modeling of Alkaline Water Electrolysis
Topic2: Investigations of novel AC:DC dynamic operations on PEM electrolyser
Topic3: EVALUATION OF THE DECARBONIZATION POTENTIAL OF A METHANOL BASED FUEL CELL SYSTEM

MSc1 Intro project (6 students, 2022 autumn)
Topic: Analysis of water electrolyzer performance to produce hydrogen from Ocean wave energy harvester

MSc3 semester projects (internship in industrial partners, 3 students, 2022 autumn)
Topic1: Modeling of an Alkaline Electrolysis Cell with Modelica
Topic2: Modeling PEMWE in Python
Topic3: Characterizing three different methanol-based fuel cell systems

MSc2 semester project (5 students, 2022 spring)
Topic: Modelling of an Integrated Catalyst-Absorber Reactor for Ammonia Synthesis and Optimisation of a Synthesis Plant

MSc3 semester project (internship in industrial partners, 2 students, 2021 autumn)
Topic1: Dynamic Modeling of a high temperature PEMFC operating on reformed Methanol
Topic2: Empirical Thermal Model of Methanol Steam Reformer

MSc1 Intro project (5 students, 2021 autumn)
Topic: Modelling of cryogenic carbon capture process for biogas upgrading

Master thesis (4 students, 2021 spring)
Topic1: Techno-Economic Analysis of Green Methanol and Green BTX Production from Syngases
Topic2: Optimisation and Numerical Investigation of a Proton Conducting Ceramic Membrane Reactor for Hydrogen Extraction

MSc2 semester project (3 students, 2021 spring)
Topic: Energy storage system based on solid oxide electrolysis cells and biogas methanation (MESH)
MSc2 semester project (6 students, 2020 spring)
Topic: Optimisation and Integration of Sustainable Hydrogen Extraction from Carbohydrate Fuels through Electrochemical Conversion

Teaching experience at MSc courses:
Elective course: Analysis of Advanced Thermal Process Systems (TEPE3) (2022 autumn)
Topic: An introduction to Fuel Cell Systems, Water electrolysis systems and Power-to-X systems (two lectures).
Teaching experience at PhD courses:
Electrochemical Energy Conversion (2022 spring):
Topic: An introduction to Power-to-X (one lecture)

Examinations and co-examinations:
Examination for the above projects and courses (2020 - 2022)
Co-examinations of semester projects:
MSc1 Intro, 6 students, 2022 autumn
MSc3 1 students and MSc1 Intro 5 students, 2021 autumn

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.

Type your answer here...

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

Pedagogical training:
Basic course in Pedagogy (2016)
University pedagogy for assistant professors at Aalborg University (2022)
AAU certification in English as a medium of instruction (2022)

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)

Type your answer here...

8. Any other information or comments.

Type your answer here...