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.

During my time as an employee at Aalborg University Esbjerg I have been involved in both supervision of student projects as well conducting seminars or lectures. The following lists my completed teaching assignments; Since 2009 I have supervised a total of 94 student projects (239 students) at Aalborg University Esbjerg from the 1st to the 10th semester. •Bachelor and master level projects in chemical engineering•Master level projects in oil & gas engineering•Bachelor level projects in environment & resource management at University of Southern Denmark•Bachelor level engineering projects at Department of Energy Technology, Aalborg UniversityWith regards to courses I have had 32 courses where I have supplied teaching and for some coordinated the course as well.

Courses:
Experimental Organic Synthesis
Experimental Unit Operations
Environmental & Pollution Science
Methods for Quantitative Chemical Analysis
Physical Chemistry & Transport Processes
Fundamental Physical and Organic Chemistry
Aspen HYSYS
Process Simulation
Technology & Ecology
Thermodynamics, Separation & Instrumentation
Material Science
Process Control & Instrumentation

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.

Semester coordinator on the 5th semester B.Sc. Chem. Eng. in Esbjerg
Course responsible for the following courses:
Thermodynamics and Separation Processes (4th semester B.Sc. Chem. Eng.)

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

- Pedagogical course for assistant professors at AAU 2013-2015
-Learning for the Future / Sally Brown & Phil Race
-Den Kreative Platform / Søren Hansen, Aalborg University

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

University Teaching Day presenting my change project of moving from lecture to workshop based teaching in a multicultural classroom

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.

Teaching activity development includes:
- input to the study programme for the B.Sc. degree in chemical engineering in Esbjerg
- input to the study programme for the M.Sc. degree in chemical engineering in Esbjerg
- input to the study programme for the M.Sc. degree in Oil & Gas Technology in Esbjerg
- part of the educational workgroup connected with the Danish Hydrocarbon Research & Technology Centre

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

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.

Before sharing my views on teaching and supervision there is one distinction that should be clarified. Two different roles may be defined when dealing with teaching and supervision, which are the supervisor and the facilitator. In my view the supervisor instructs the students in where to go and what to do, whereas the facilitator tries to make the students come to these ideas and conclusions themselves. Traditionally the term supervisor is used, however I think that if we as teachers are to really perform well and do the work we are supposed to, then we should really see ourselves as facilitators. We shouldn't tell the students what to do, but rather have them arrive at those options (which the supervisor would present) by asking relevant questions and thus make the students reflect on the things they are working with. Not only will this increase the level of reflection but also grant a feeling of ownership since the idea did not originate from the facilitator but from the students themselves. Throughout this text the word supervisor will be used since this is the traditional form and the form used at Aalborg University. However, it must be noted that I see myself as a facilitator rather than a supervisor and use this approach in my teaching. Teaching at a university is something that from my perspective requires the teacher to be able to convey complex subjects to students and help the students understand these subjects. That teaching is research-based, is something that hopefully ensures that the students that pass through the university and end up with a degree are skilled and possessing cutting-edge knowledge about their specialized fields. Research-based teaching should not only creates skilled and capable candidates, but may also give back to those performing the research since students seems to have a knack for asking questions that were perhaps not expected. I believe that I have developed in my pedagogical practices since I gave my first lecture and supervised my first project. Since then I have learned to not just present things as they are given in the textbook, but expanding them and trying to find alternate way of explaining the same things, thus hopefully facilitating the students learning. To try to facilitate learning I have tried to implement various aspects in teaching. These aspects are •Seminar/Workshop format instead of lectures •Anonymous Question Jar for multicultural classrooms •End-of-lecture online quizzes •Alternation between methods of teaching i.e. powerpoint/youtube/blackboard/student participation This has led to a restructuring of how lectures are conducted now compared to the "traditional" way. All these changes are detailed in the change project report, however the gist of the project and the idea behind is it making teaching and learning less monotonous. I think it's fair to say that teaching has to be fun and engaging for the teacher for the students to have any chance of being motivated and engaged. Also I try to make my slides for presentations quite comprehensible. I think it's important that the slides may be read/understood without having the book at hand, i.e. they need quite a bit of explanations. Examples of this is in enclosure IV to VI, with the first being for a quite descriptive course at University of Southern Denmark, the second a technical course at Aalborg University , while the last set of slides is for an introduction to PBL for international students starting on the master level. Currently there is no real PBL introduction for these students so I decided to start giving just a small seminar to give them the most fundamental principles of PBL, which I think is of utmost importance if they are to have the full benefit of the PBL system at Aalborg University. So far the new approach to lectures (or seminars as I now call them) has made teaching far more enjoyable for me, and students attendance seems to remain fairly high (where you may at times observe attendance dropping as you progress through the course, I recall this from my own years as a student) Thus I think that the approach is useful and has its merits. Another issue is that by varying the methods used in teaching there is a chance for students that learn in different ways to be engaged and to learn the way they are most comfortable learning, thus hopefully accommodating a larger part of the student population while also maintaining their focus on the course they are participating in. Also I think that we need to recall, being teachers/supervisors that students are not always eager to learn. As Phil Race said then students need to know "What's in it for me?", because that is really a key aspect of motivation. If we can't see a reason for learning then we won't strive to learn something to the extent that is expected. Sometimes I think this may be forgotten when people find that their area of research is the most interesting in the world, but if you can't communicate why it is important/interesting/relevant to the students, they will not be as engaged in learning as they could be. With regards to project supervision I find that it is important to ensure that the students are committed to the project. To accomplish this I believe that there are two key points that needs to be fulfilled. 1.An enthusiastic and committed supervisor 2.Relevance of the project (the "what's in it for me"-factor) An enthusiastic supervisor will in my experience give the students the impression that their project work is not just another task that the supervisor has to deal with, but that the supervisor is genuinely interested in what they are doing. When people take interest in your work, most are generally inclined to put up a greater effort. The relevance of the project is of course important as well. Very few are interested in working a full semester on a project which has no real relevance or relation to anything else. If you can connect the project to a "real-world" problem or issue it tends to make it more "real" to the students and they would hopefully have a feeling that what they do actually matter, or that they are gaining a greater understanding of a process that is being used on a larger scale than in the lab. In general I try to make supervision quite informal to minimize the "teacher-student-gap" so to say. By this I mean, that I find it important that students do not view me as unapproachable, but as a guide in their project work to whom it is all-right to admit to not understanding certain concepts. If students feel that the supervisor is not going to bear down on them due to lack of knowledge and understanding during the project work, then I believe they are more open to coming to the supervisor to have a discussion of the concepts which they have a hard time grasping. Furthermore, I think it is important in project supervision that the students and the supervisor have a common understanding of the ambition level of the project group. With highly skilled and motivated students the supervisor should help push these students to new levels of understanding and skill, and thus encourage them to achieve as much as possible. However not

all students are A-grade students and we need to consider these as well. Of course some of these students are just not very motivated or committed and in these cases it is the task of the supervisor to try to motivate them or in the worst case explain to them the problems that a substandard performance may cause. Then finally there are the students that are academically weaker, and again, here I believe encouragement and close supervision of the project are key elements to having these students perform to an acceptable level. When supervising projects I try to lay out the ground rules from the very first meeting. I think it is important that students are informed of how I view the supervisor-student relationship, to have a sort of constructive alignment i.e. matching our expectations. One key issue is that I tend to criticize fairly much when students submit working papers. I inform students of this fact from day one and let them know that if I have no comments then I find it acceptable. I tend to do very little praise of student work, I let them know what is good and bad, but I tend to keep it at that. In general I think students react very well to this approach and the fact that the amount of student projects I supervise and students coming and asking me for projects support that point. An example that the students find the approach reasonable is this excerpt from the process analysis. *Inden hvert vejledermøde har gruppen forberedt sig på, hvordan agendaen for hvert møde skulle være. Dette har gjort, at det var nemt at komme til at fremlægge problemstillinger og spørgsmål fra gruppens side, og derved få styr på projektets vinkel gennem dialogen med vejlederne. Vejlederne har altid været lette at komme i kontakt med, hvilket var godt for gruppen. Dette gjorde det nemmere at komme videre efter en skriveblokering. Da projektet nærmede sig sin afslutning, sendte gruppen sin samlede rapport til vejlederne, hvorefter de havde 3 dage til at læse den igennem. På mødet efter gav vejlederne konstruktiv kritik i form af kommentarer til projektet. Dette gjorde at gruppen kunne nå at rette projektet igennem inden den skulle afleveres. Det var godt at gruppen, havde planlagt agendaen, samt at vejlederne gav sig tid til at kommentere og give konstruktiv kritik. Dette gjorde det meget nemmere for gruppen at komme tilbage på sporet, hver gang der havde været et større sidespring. Samtidig med den konstruktive kritik, har vejlederne også været nemme at få fat i eller har været gode til at skrive tilbage, når de havde tid. Vejlederne har altid været positive, hvilket gør at det er dejligt og nemt at henvende sig til dem og at arbejde sammen med dem. -Group B324, 1st semester chemical engineering, fall 2013*. However, to use this approach it is important to keep the critique very well reasoned and thoroughly explained, so the students hopefully will understand why something is unacceptable/wrong etc. As a supervisor I find that supervision has to be differentiated between the various semesters. Early in the study i.e. 1st and 2nd semester the students require more interaction with their supervisor to ensure that they are correctly introduced to the methods of POPBL. As the students' progress through the semesters they should be able to handle the project work more independently, meaning that through a scientific discussion with their supervisor they are able to follow up on ideas and prepare experiments or calculations to prove or disprove these ideas/concepts. On the first few semesters I recommend students to have scheduled meetings with their supervisor so their project work is monitored to a reasonable extent, ensuring that they apply the correct methods and proper argumentation in their work. At later semesters the students are encouraged to develop their experimental plans, which are then discussed before starting experimental work. For all semesters I find it important that results are continuously discussed to gain the best results. Working with Peers When teaching and supervising I think it is important that we (the teachers) share our experiences amongst ourselves. No doubt we will be able to learn from each other and our various approaches. I have had a lot of discussions with several of my peers regarding teaching over the last years. I think having this discussion creates a forum where new ideas can be thrown into the air and bounced around until either dismissed or adapted/tried out. It has been valuable to have the discussion with a more experienced colleague who has been able to see past some of the very practical aspects that one has a tendency to focus on in the start of a teaching career in higher education. In that way you may call the experienced peer a facilitator for my understanding and reflection on my own teaching or supervision of the students, something which I value greatly. Working with others at my own experience level has very much been a discussion forum of ideas and student response to new approaches. At this point I do see myself as having an appreciable amount of experience in teaching and supervision, yet I still think these discussions with peers is of utmost importance to continuing development of teaching/supervision approaches. Ongoing & Further Work Being a professional teacher in higher education is not something that you become and then lean back and smell the roses. It is a continuous work in progress, where we should constantly strive to better ourselves at facilitating the students learning process. To do this I think there are two main aspects that we need to remember. 1.Stay open to new ideas and approaches 2.Make our teaching/supervision relevant for the students With these two factors in mind I think that we may continue to improve on our teaching. One thing that I personally will continue to work with is utilizing new methods in teaching, trying to have students engage more and participate and hopefully lead to a better learning for these students. This means that courses needs to be reworked now and then, changes implemented and trials made to determine how students will react to changes, because, let's be honest, not all the changes are going to be either feasible or successful. However, without attempts at new methods there will be no development in our teaching and I think that if we are content at how we do it and don't try to improve/change/experiment then we are heading down the wrong path as teachers. Also we need to face that the world is changing constantly. When I was a student in chemical engineering we used a pad and pencil for notes. Today almost everyone has a computer and a smartphone in class, and I think we need to face the challenges and opportunities that presents. Personally I am using smartphones for online multiple-choice quizzes, sometimes even gamifying these quizzes by turning a normal quiz into a team game and a competition. This has been very successful in all classes where this has been applied, and it is just an example of how we may accept and use the possibilities presented to us by technology instead of remaining with older practices.

8. Any other information or comments.