

Undervisnings CV

Teaching experience at SDU TEK, Odense

Bachelor-level:

- Composite materials and manufacturing - 4/5th semester bachelors, 5 ECTS (Fall 2013, Fall 2014, Spring 2015, Fall 2015, Spring 2016)
- Product development and innovation 3 (from idea to detail design) - 3rd semester bachelors, 22 ECTS (Fall 2014, Fall 2015)
- Experts in teams - 5th semester bachelors, 10 ECTS (Fall 2014, Fall 2015)
- Product development and innovation bachelor project supervision - 6th semester bachelors, 15 ECTS (Spring 2015, Spring 2016)
- Materials and processes 2 - 2nd semester bachelors, 9 ECTS (Spring 2015, Spring 2016)
- Product development and innovation 4th semester project supervision - 4th semester bachelors, 17 ECTS (Spring 2015)
- Study trip, product development and innovation - 4th semester bachelors, 2 ECTS (Spring 2016)

Master-level:

- Product development and innovation in-company supervision - 3rd semester masters, 15 ECTS (Fall 2014)
- Product development and innovation bridging course - 1st semester masters, 10 ECTS (Spring 2015, Spring 2016)

Guest lecturer:

- Introduction to unmanned aerial systems technology - 5th semester or above bachelors, masters, or industry professionals; 5 ECTS (Spring 2015)
- Unmanned aerial systems mechanics - 2nd semester masters, 5 ECTS (Spring 2016)
- Materials technology 1 - 1st semester bachelors, 5 ECTS (Fall 2014)
- Mechanical and production engineering, materials and processes 2 - 2nd semester bachelors (Spring 2016)

Pedagogical development courses:

- Teaching in material science conference (Cambridge, UK) - 1 ECTS
- Setting up your course in blackboard- 1/2 ECTS
- Teaching portfolio - 1/2 ECTS
- Addressing gender bias in teaching and learning - 1/2 ECTS

Teaching philosophy

My teaching philosophy centers around a few main themes:

- Inspiration
- Engagement/active learning
- Course alignment
- Trust

Inspiration - this means getting the students excited about a topic by showing a genuine personal interest in the topic. It is more than just relaying information, it's about demonstrating how exciting it can be to learn and how one can see the world differently with this education. One way to inspire students is through the teacher's own passion. For example, I share real-world examples of engineering projects with drones, prototype aircraft, and military vehicles with my students, and tell them how much satisfaction these accomplishments can bring.

Engagement/active learning - this means that students are active participants in their own education, not passive 'containers' waiting for the teacher to 'fill them up' with knowledge. Engagement means piquing the students' interest at the start of class, and holding it throughout the day. One technique to achieve this is using various forms of media during the class, such as video clips, hands-on activities with materials, or company visits. Active learning can take the form of a class discussion. Instead of directly introducing the topic, a relevant question about the topic is posed. For example, in a 2nd semester material science class, the first discussion topic might be 'why do we care about corrosion?' Then the students discuss the question in pairs, and then we discuss it as a class. This allows the students to actively develop their own questions regarding the topic, rather than being 'fed' the topic the teacher feels is important. Often times, engagement can take the form of weekly homework, requiring the students to be active in developing their knowledge outside of class and during the semester (rather than just prior to the final exam).

Course alignment - this means starting with the learning objectives of the course as described in the course description and working backwards to develop the course to meet these objectives. This includes the form of instruction, as well as the frequency and method of formative and summative assessment. This also means utilizing Bloom's taxonomy to cover the entire spectrum of learning from the basics of recalling facts to the highest level of cognitive development where students must synthesize all they have learned to create something new (as in a final design project). Course alignment also means being aware of when individual work or group work should be utilized, and choosing the appropriate method for the task at hand.

Trust - this is about making the students feel comfortable in the learning environment. It means allowing them to feel safe to ask questions, share answers, and take the risk of being wrong without being judged by the teacher or their peers. Earning trust takes time and consistency. Trust also means the teacher must trust the students, and this can mean giving up some control in order to allow them to find their own ways of learning.

Reflections on practice

The reflections on my own teaching practice I would like to highlight fall under the following main topics:

- Teaching for active learning
- Lecturing
- Project supervision

Teaching for active learning - when I first started teaching, I taught like I had been taught: the teacher lectures, the students listen, do homework, and take the exam. This practice led to passive students, and a teaching environment which was not responsive to the wants and needs of the students. This may have been caused by my desire to be in control at all times. However, through adopting the teaching for active learning approach, I now appreciate the value of active students, giving up a certain amount of control and letting the students have an influence on the course layout and content. Projects are student-chosen, discussions are student-driven, and student satisfaction has increased. I use a number of activation strategies throughout the day and the semester to keep the students continually engaged in their own learning.

Lecturing - lecturing is still a vital part of teaching, and I had peer, internal, and external supervisors observe my lecturing on several occasions. The feedback was overwhelmingly positive, with observers noting my passion for the subjects I taught. An area that was identified for improvement was that of contextualization - where are we now, and how does this fit into the rest of the course? As a response, I now dedicate the first few slides of any lecture to show where we are within the semester, and clearly define the learning objectives for the class period.

Project supervision - project supervision is an area I chose to focus on in my development because it is both very important (i.e. bachelor projects) and somewhat variable from teacher to teacher and student to student. I sought pedagogical observation and feedback from a peer in the lecturer training program, and received constructive feedback. Based on this feedback, it was identified that my somewhat informal style could work, but for some students it meant they were unprepared for supervisor meetings or lacked a structured working method. In the future I will incorporate added structure to project supervision, and require some more formalized documentation of the process to make supervision both more efficient as well as allowing students time to reflect on what they want to discuss prior to each meeting.

Future development:

- Identify personal strengths and weaknesses within teaching
- Make and implement a plan for addressing weaknesses