

# Minutes

12<sup>th</sup> of April 2019

<b>Subject</b>	Advisory board meeting for BEng and BSc Chemical Engineering, and MSc in Chemistry	mskau@tek.sdu.dk T +4565501984
<b>Date and time</b>	April 12, 2-4 pm	
<b>Location</b>	Syddansk Universitet, Det Tekniske Fakultet, Campusvej 55, 5230 Odense M (mødelokale Tesla, Ø28-508a-3)	
<b>Invited</b>	Elisabeth Villumsen (Novozymes) Lars Brodersen Holm (NGF Nature Energy) Martin Skov Skjøth-Rasmussen (Haldor Topsøe A/S) Hanne Tolderlund Rasmussen (BioMar A/S) Sabine Meng Jensen (Eurofins A/S) Lone Charlotte Larsen (Novo Nordisk) Thit Marie Buch Güllich (DOEHLER Denmark A/S) Behnaz Razi Parjikolaei (Arla Foods Ingredients) Massimiliano Errico (Associate Professor and Education coordinator at KBM, SDU) Birgitte Lilholt Sørensen (Associate Professor and Education coordinator at KBM, SDU) Knud Villy Christensen (Associate Professor and Education coordinator at KBM, SDU) Henrik Karring (Professor WSR, KBM, SDU) Per Æbelø (Executive Officer, SDU)	
<b>Cancellation from</b>	Lars Brodersen Holm, Hanne Tolderlund Rasmussen, Sabine Meng Jensen, Per Æbelø	
<b>Moderator</b>	Massimiliano Errico	

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## Agenda

Welcome

Student presentation

1. The importance of project work
2. Follow up on action plan from last meeting
3. The progress of changing the programmes (short introduction by Massimiliano) followed by a brainstorm of the entire board about possible changes
4. Ideas for programme titles
5. How do our graduates fit the job market?

**Minutes****Welcome****Welcome and presentation of the panel members****Student presentation****Bachelor project****Quantitative analysis of healthy compounds in seaweed using HPLC/GC**

by Bjarke Lundholm Andersen and Toke Murmann

**Discussion points****6. The importance of project work****• The board enquired about how students find projects and how they get in contact with relevant companies:**

Students can get projects from a “nesting box” available for the students and containing the projects suggested by professors. The projects can be theoretical or connected to specific companies.

The students can also choose In-Company projects, where they get to stay in a company and get practice experience and subsequently write a rapport. Furthermore, there is the ISA (Individual Study Activity) which can be done individually or in teams of two. The students define the content together with the teacher and get it approved by the study board.

- It was pointed out by some board members that it would strengthen the students position not to contact the companies directly. It needs to be done in a more formal way. The companies prefer to get contacted by the advisor. Teachers are aware of this and advice students not to contact companies directly, but sometimes they do it anyway.
- It was noted that Kalundborg invites different universities to a yearly mix, where coordinators (not students) can meet companies that have specific projects they would like students to work on. It was suggested that SDU did something similar. It was pointed out that SDU has Project and Practicum Day, where students meet companies. Not everybody on the advisory board had heard of Project and Practicum Day and they were encouraged to contact Lone Søvad Madsen at TEK Innovation who is responsible for this, so they can get invited going forward. It was also pointed out that relevant companies are welcome to contact Massimiliano directly if they have projects for our students.
- Since it is hard for a teacher to take an entire day out to explore possible projects for students by participating in practicum fairs, it would be nice for teachers to be provided with a list to look at in advance. Then a teacher could direct the students to meet specific

companies at the fair. It was suggested that the companies send out such a list to a contact person at the programme before a practicum fair.

- Companies experience it as satisfactory and efficient, when students combine their internship with their bachelor/master's project. That way, they will know more about the company. However, the bachelor projects and master's thesis cannot be extended beyond the ECTS they are nominated for. The internship at the bachelor is full-time. SDU cannot accept more than 40 ECTS master's thesis.

- **The board was asked what they thought of the impact of the extended project work at the programme:**

Board members agreed that project work is very important and teaches students to be reflective and that there is a big difference from working with people who has done project work and people who might be gifted but are not used to take personal responsible in the same way. It is a great advantage for this programme that there are good opportunities to offer students to work on projects not only on bachelor projects but also throughout their education.

## 7. Follow up on action plan from last meeting (Appendix A)

- **Winter uptake:**

The master's curriculum will be changed to make it possible to begin the master's programme in February. This is mainly to accommodate BEng students who wish to take a master's degree but cannot wait 6 months.

- **Partner universities:**

The international connection and collaboration are growing continuously. Currently, we have a guest from Mexico and will soon have someone from Italy and one from Brazil.

There are no fixed plans for exchange students. They still have to individually apply for credit transfer in advance. It can be difficult to find universities that have courses that are similar to ours, but the students are guided to which courses can be exchanged.

The number of students going abroad is stable. It is important that also the staff contributes in promoting our exchange programme using the Erasmus + channel.

- **Excel use:**

Excel use will be enforced more. There has been offered a specific Excel seminar in the past. It is not offered anymore, but the teachers give tips to how to use it in class. The students have no excel skills when they start at the university. Some board members

stated that high school students don't use Excel anymore, as it is obsolete. However, most companies won't have access to MatLab, Maple, Python etc. as it is too expensive. Thus, the students still need to learn how to use Excel for general purposes. If the students already knew Excel, other programmes could be added on but if they don't have any Excel skill they need to learn that first. They also need to learn statistics in Excel.

- **Computational Fluid Dynamics:**

The master's programme is undergoing some changes, but this will not be a specific course. This course was not recognised as a priority for the student's education.

**8. The progress of changing the programmes (short introduction by Massimiliano) followed by a brainstorm of the entire board about possible changes (Appendix B, C and D)**

- **It was discussed if the programme should try to catch the trends of the time like biology or if it should stick to the fundamentals:**

It was stated that students need to be taught the basic engineering and mathematical skills first. Later, they need to be taught the softer skills such as quality assurance and risk management. It is important to keep the basics and this programme is good at that. The LEAN thinking, the trend of looking into the environment etc. might be trends. They can be cooperated into the basics but not as substitution of the basics. The trends can change in a few years, so it can be dangerous to change to programmes to fit what is a trend today but might have gone tomorrow. It was pointed out that chemical engineers have developed from the industry. It is important to keep the core, but also to use trends as examples for the exercises.

It was also stated that the programme needs to support the Danish Industry which includes manufactory process and graduates will be taught by the companies to integrate the relevant trends once they have been employed by them.

- **The content of the programme was discussed, and the board was asked which courses and skills it should have:**

Board members from smaller companies said that they didn't need to do big calculations but required more "soft" skills such as quality assurance. This is currently not a part of the curriculum as there is none to teach it any longer. Risk Management was also highlighted as extremely relevant. Many people haven't done a risk analysis and it would be great to have it in some form on the bachelor.

When you start the education, you have an idea of working at one of the big companies, but there are many small companies on Fyn who would like to have Quality assurance. Other board members from larger companies expressed less of a need for this. It was suggested to get someone from outside to come and give students a talk or a seminar on it. The quality management mindset could then be built in to different student projects.

- It was stressed that in order to add something, something else had to be removed. Board members point to Economics, Technic Spectroscopy, and Experts in Teams:
  - **Business Economics:** The board members found it a waste of ECTS points to have courses on economy and stated that the concept of economy should be about process optimisation and process efficiency. Not about money.
  - **Experts in Teams:** It is important to be good at collaborating with many kinds of people, but it is very pedagogical. The Belbin test is useful, but the main purpose should be doing the concrete project.
  - **Technic Spectroscopy:** some board members found the content of the course outdated. Further, they stated that they didn't use it in their work and no one from this programme would be hired to oversee it. All companies hire experts to handle it. It can be an advantage to understand the analytic behind it to be able to challenge it. Students learn the important parts of it through other courses where it is incorporated. The specific course is outdated.
- 9. Ideas for program titles.**
- The titles for the BA/BEng and the master's programme currently don't match. The titles need to be attractive to potential students as well as for potential employers. It is important that the title convey the content so possible employers can understand what our students can. The current title of the master's programme sounds like it is just chemistry and not engineers.
  - The board agreed that the master's programme should be called the same as the BSc is called i.e. Chemistry and Biotechnology as it conveys the content. It was stated that potential employers don't necessarily look at the title but at the students' own description of their knowledge. It was encouraged to keep it simple, so employers understand what the students have been taught. It was noted that the name might not attract students and a good title can be

good for marketing but there are other strategies to attract students.

#### **10. How do our graduates fit the job market?**

- The board found that the project work is a considerably strength that sets the students from this programme apart from students from other universities. The projects make the students capable of reflection and independent work. This is what companies need. It was stated that the large project at the end of each semester is the most valuable part of the program. The companies appreciate to have the students in an internship first where they educate them in the specific company. It was stated that this process was much easier with the SDU students than with e.g. the students from DTU because the DTU-students don't have the same background and experience in project work. The companies prefer to model the students through an internship first and it is easy for an Odense-placed company to get SDU students as interns.

The content of the projects might change but they will not be removed. The project work it is part of the DESM model at SDU TEK. It was stated that the projects give the students drive and make them take initiative. They are better at this than other students who just point out the problem but are nervous to get involved in the problem solving.