

# Minutes: Advisory Board Meeting for Engineering programs in Engineering, Innovation and Business

*Friday 21<sup>st</sup> of April from 12:00 – 15:00*

**The meeting was held at:** SDU, Campus Sønderborg, Alsion 2 – Meeting room M303.

**Invited to the meeting:** Philip Baxter (Banke), Sara Lind Kolbeinsdottir (Danfoss), Ronen Hadar (LEGO), Markus Hofmann (Linak), Niels Albert van Dulmen (Danfoss Drives), Dwivedi Sanjeet Kumar (Everfuel), Mark Yeoman (Swipbox), Marianne Stenger (SDU), Arne Bilberg (SDU), Elias Ribeiro da Silva (SDU), Silke Tegtmeier (SDU), Kari Kleine (SDU), Christina Skytte Møller (SDU)

**With apologies:** Silke Tegtmeier (SDU), Philip Baxter (Banke)

## Minutes:

We started the meeting with lunch follow by a guided tour on SDU, showing the Innovations Labs and some of the labs in the CIE building.

### 1. Welcome

As new members have entered the board, we started with a short introduction round.

### 2. Brief status of the program and uptake 2023 – bachelor and master (Marianne)

Starting with the good news, Marianne could report that the application numbers for the bachelor programs in Sønderborg are amazing, there is an increase in the applications for all programs:

Søgningen 15. marts til bacheloruddannelser - endelige tal						
Studieretning	Prioritet	15/3 2022, slut	15/3 2023, slut	Diff 2023-2022 (n)	Diff 2023-2022 (pct)	
Civilingeniør i maskinteknik	1. prioritet	17	43	26	153%	
Civilingeniør i maskinteknik	Lavere prioritet	72	158	86	119%	
Civilingeniør in Electronics	1. prioritet	15	18	3	20%	
Civilingeniør in Electronics	Lavere prioritet	87	134	47	54%	
Civilingeniør in Engineering, Innovation and Business	1. prioritet	52	115	63	121%	
Civilingeniør in Engineering, Innovation and Business	Lavere prioritet	111	242	131	118%	
Civilingeniør in Mechatronics	1. prioritet	32	36	4	12%	
Civilingeniør in Mechatronics	Lavere prioritet	95	178	83	87%	
Civilingeniør in Software Engineering	1. prioritet	0	212	212	-	
Civilingeniør in Software Engineering	Lavere prioritet	0	276	276	-	
Diplomingeniør i maskinteknik	1. prioritet	57	104	47	82%	
Diplomingeniør i maskinteknik	Lavere prioritet	105	189	84	80%	
Diplomingeniør in Electronics	1. prioritet	43	61	18	42%	
Diplomingeniør in Electronics	Lavere prioritet	120	162	42	35%	
Diplomingeniør in Mechatronics	1. prioritet	116	127	11	9%	
Diplomingeniør in Mechatronics	Lavere prioritet	111	198	87	78%	
-	-	1033	2253	1220	118%	

We are very happy for these good application numbers in Sønderborg, and the members of the board were also very satisfied with this news. They asked how come the numbers can look like this in Sønderborg with the lower numbers in the amount of young people entering the universities these years. The reason for that is that we are allowed to admit international students in Sønderborg as there is a need for their competences in the local industry. The international ratio in Sønderborg is around 75% international student vs. 25% Danish students. The board expressed a slight concern about the balance and the student retention after ended studies in the area.

For the master programs the picture in relations to number of applications is a bit different:

Tilbudt plads til kandidatuddannelser sommerstart 2023				
	Studieretning	Årgang	Tilbudte studiepladser	Ja tak
	Civilingeniør in Electronics	2023	69	36
nd Business	Civilingeniør in Engineering, Innovation and Business	2023	45	10
	Civilingeniør in Mechatronics	2023	55	27

Only 10 students have accepted the offered seat on the EIB Master program for the upcoming study start. The application period is not yet finished so more students still have time to accept the seat, but it will most probably (again) be a small class starting on the master program in September.

### 3. New master's in supply chain Digitalization (Elias + Discussion)

We have been looking at the current master program in Engineering, Innovation and Business and based on the latest years low uptake on the program, the department has decided to develop a new master program with the title Master of Science in Supply Chain Digitalization and to modify content of the existing program and in time, if possible, change the title to Master of Sciences in Technology Entrepreneurship and Sustainability.

The vision for the master's in supply chain Digitalization is to:

- Educate M.Sc. candidates with state-of-the-art data-driven tools and methods to support digitalizing Danish companies.
- Enable Danish companies to improve their value chain digitalization with a focus on end-to-end operations – this will reduce costs and risks while increasing sustainability and control of their supply chain.
- Support the strategy of making SDU Sønderborg a national hub of digitalization and simulation – it will attract more engineers to the region.

The program will have focus on following competences:

- Strategies for managing supply chains in a digital world
- **End-to-end digitalization**
- Better **visibility** and **integration** of the entire value chain
- Simulate the value chain allowing **data-driven analysis** about distribution, transportation, and strategies for sustainability goals
- **Data science and machine learning** applied to operations and supply chains
- Allow more accurate and **real-time forecasting**
- Product lifecycle management
- Data-driven tools to analyze and **reduce carbon footprint in supply chains**

Elias has investigated the content of other university master programs in Denmark within Supply Chain and none of them have a heavy focus within Digitalization, Simulation or Data Sciences and Machine Learning, so it will be a unique program within this field. We have also had some informal talks with our current students who showed their interest in staying in Sønderborg for their masters if a study programme in operations and/or supply chain is available. We have also discussed the idea with bigger companies, that also have demonstrated their interest in the program.

The department is hoping on reaching following main goals by developing this program:

- To be ready to support Danish companies to the next level of supply chain digitalization
- To attract more engineers to the southern region
- To combine courses with practical cases from companies in the region – focus on supporting companies with their supply chain digitalization strategy while creating a positive and strong relationship between companies and students to increase the retention of talents
- To expand the simulation lab with state of the art tools and software to support the strategy of making SDU Sønderborg the national hub for simulation and digitalization

The board was very positive towards the content of the new proposed program and had some relevant comments. The members asked if the Green Certificate will be part of the program? Is there any focus on sustainability in the program and how to handle the data for all raw materials, as this is a huge problem for companies. And will there be focus on the end-of-life of the product/the reuse of the product? These very relevant comments can be incorporated in the other master program that the department is modifying (in Technology Entrepreneurship and Sustainability).

The supply chain program will focus on a systematic way of handling data and use data driven tools for digitalization and simulation in operations and supply chain. The students will learn how to use machine learning for this (but will not learn how to develop machine learning). So, focus is cross company data sharing/visibility/transparency and how to work with big data and data analysis. The board pointed out that the program maybe should consider following two things:

- The Title – is it the right title?
- Maybe having more ECTS points on the Machine learning part of the program?

After the discussion about both content, competences and the title, the board express that there is a need for students with these competences in their companies. The department is in the process of applying for the program in the Ministry and it is the hope that we can offer the program in September 2025. As part of the application process company representatives will be contacted in the nearest future to express their support for such a program.

#### **4. Modified master's in engineering, Innovation and Business with new title (Marianne + Discus.)**

The board was presented for the modified current master program, with more focus on sustainability. The board again expressed their interest in supporting the suggested modifications, especially the increased focus in sustainability.

Suggestions to the program: maybe it will be possible to combine the course Persuasive communication and negotiation together with IA? The board also suggested that the courses within new technology could be themes coming from companies, with new and relevant technology

challenges. It was also pointed out that the engineering/technology parts of the program should be more visible as the current structure maybe is a bit weak within the engineering topics.

**5. AOB**

A board member asked if it was possible to offer Summerschool courses for Master students as the pool of electives on the master program is very limited – maybe in cooperation with universities abroad, for example Stuttgart University where former employees are located now. The program will investigate the possibilities for doing that.