



The Nordic Engineering Hub

Inese Podgaiska, Secretary General of the Association of Nordic Engineers
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About ANE

- Established May 2007 as an organisation in **partnership** with **engineering associations** (trade unions) in the **Nordic Region**
- Represents **interests of 500.000 engineers**
- Platform for **1) sharing know-how** (learning from each other), **2) influencing policy** both at Nordic and EU level (speaking one voice), **3) generating new knowledge** (joint reports/projects)

About NordenHub



- **5 HEI, ANE** and **NORDTEK** (network of 30 technical universities in Nordic and Baltic countries)
- **Point of reference** for generating and disseminating new ideas on **STEM education**
- Objectives: 1) propose solutions to **modernize engineering education**; 2) **raise interest for STEM education** among the young generation; 3) establish **a stakeholders' network**, including business, policy and academia



Context

- Lack of STEM specialists
- Unclear competences demand versus competences supply
- Contemporary challenges: 1) sustainability, 2) digitalization, 3) employability
- Slow process of transformation and adaptability to new requirements
- Tensions between different traditions of engineering educations
- Lack of commonly shared theoretical and conceptual framework to engineering education



Methodology of the survey: The future of engineering education



**Exploratory research
and
phenomenographic
approach**

3 trends:
**1. Student-centred
learning approach**
**2. Contextual and
practice experiences**
3. Use of digital tools

**5 professors from 5
partner universities**
Biotechnology
Mechanical engineering
Energy engineering
Civil engineering

Questions:

- **How will these trends influence engineering education in the future?**
- **How will the trends influence academic research?**
- **Will there be a parallel development of research and education?**
- **What possible directions can be identified for engineering education in 2030?**



Preliminary results

I see the risk of lack of competences in the future, everyone is trying to be a generalist. It is a contradiction with having in-depth knowledge

I hope the education will evolve regarding the format, I see a clear demand for flexible learning

2 categories:

Category 1: Importance of Change

- > Large variation of perceptions linked to disciplines: reluctance to change and focus on deep-content knowledge in the more science-dominated engineering disciplines, versus a need for change as vital for disciplines that are closer to production

Category 2: The role of future engineering institutions

- > Clear variation of perceptions – universities will adapt to societal change to a large extent versus more passive role for universities (administration and quality control)

!!! Sustainability is seen as the biggest challenge



Next steps



**Final results
Conference
Spring-Summer
2021**

Parallel processes:

1. **Study on attracting young generation into STEM studies - what elements contribute to increasing the attractiveness of STEM among high school students and the effectiveness of university-led STEM outreach activities?**
2. **Developing strategy for Universities' Continuous Education - existing practices and trends, as well as an overview of the supply**
3. **Attracting stakeholders – closer ties with the business representatives**
4. **Forming policy recommendations**



THANK YOU!

Contact:

Inese Podgaiska, Secretary General of ANE

E-mail: ipo@ida.dk

 @NordicEngineers  Association of Nordic Engineers

or

Dr. Lena Gumaelius, Associate Professor

E-Mail: lenagu@kth.se

Website: www.nordenhub.org



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