

The Nordic Engineering Hub

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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).

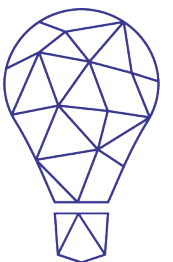
About NordenHub

- **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 representatives



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 – maintaining viability and relevance
- Tensions between different traditions of engineering educations: scientific university, entrepreneurial university and environmental university
- Lack of commonly shared theoretical and conceptual framework to engineering and 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 both 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!

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