



European Council  
of Engineers Chambers

# Summary

February, 6th 2025

## Empowering Engineers: Bridging Competency and Lifelong Learning for Professional Excellence

[Register for the event](#)



### What to expect

A day full of information and tools that will help you:

- › as an educator, to support your students in their future career path;
- › as an HR representative, to support your colleagues in lifelong learning
- › as an engineer, further your career in engineering.

### Meet the speakers

We are lucky to be joined by some amazing speakers.

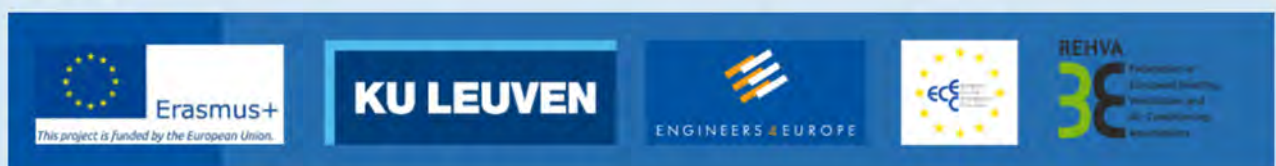
Discover their background and research.

[Meet the speakers](#)

### Practical information

- › 6 February 2025, 13.30 - 17.00 (Belgium Time Zone)
- › Jan Pieter de Nayerlaan 5, 2860 Sint-Katelijne-Waver, Belgium
- › Auditorium K104 - Campus De Nayer - KU Leuven
- › Online participation is also possible (the link will be sent via email prior to the event)
- › You can [register](#) until 2 February.

### Partners



ETHER

# Programme


## Thursday - 06 February 2025

13.30 - 14.00	Registration
14.00 - 14.10	Welcome speech - Prof. Bert Lauwers
14.10 - 14.20	The E4E project - Dirk Bochar
14.20 - 14.30	Support education of (future) engineers - Prof. Greet Langie
14.30 - 14.40	Support engineers in making informed career choices - Sofie Craps
14.40 - 15.00	Support engineers in their life competencies - Kurt Coppens MOOC: <i>Strategic Shift: Professional Development for the Engineer of the future</i>
15.00 - 15.10	Support engineers in creating a personal development plan - Lynn Van den Broek
15.10 - 15.15	Summary and invitation to take a break
15.15 - 15.45	Coffee break
15.45 - 16.45	Panel discussion about 'lifelong learning for engineers' with <ul style="list-style-type: none"> <li>› <b>Klaus Thürriegl</b> (Austria): Chartered Engineering Consultant for Environmental Engineering and Water Management and ECEC Secretary General</li> <li>› <b>Livio Mazarella</b> (Italy): Full Professor of Building Physics and HVAC Systems at Politecnico di Milano and Chair of the REHVA Education and Training Committee</li> <li>› <b>Bram Dehaene</b> (Belgium): P&amp;O Country Head, Siemens</li> <li>› <b>Natalie Dewulf</b> (Belgium): General Manager Smart Buildings, Equans</li> <li>› <b>Margot Vander Elst</b> (Belgium): process engineer at Total Energies, 3 years ago graduated in the Faculty of Engineering Technology of KU Leuven and very recently graduated in the Faculty of Engineering Science of KU Leuven.</li> </ul>
16.45 - 16.55	Questions audience

# Empowering Engineers: Bridging Competency and Lifelong Learning for Professional Excellence

Event KU Leuven, 6.2.2025

## PANEL: Introduction and Keynotes



KU Leuven  
Faculty of Engineering Technology

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Prof. Bert Lauwers

## Celebrating 600 years of curiosity



**1517**  
Desiderius Erasmus inspires a new generation to use **original research**



**1543**  
Andreas Vesalius lays the foundation for **modern anatomy**



**1931**  
Georges Lemaître publishes his **Big Bang theory**



**2021**  
Sofie Claerhout finds way to use DNA to **solve forensic cold cases**





The historic city of Leuven, Belgium, is a hub of scientific learning and home to the 10th-century university where the Big Bang theory was formulated in 1931.  
PHOTOGRAPH BY SCOTT WILSON, ALAMY STOCK PHOTO


TRAVEL

### The Belgian city where the Big Bang theory was born

In Leuven, a new festival celebrates the local priest who first proposed a revolutionary "day without yesterday."



Founded in 1425



'De humani corporis fabrica' returns home

## A comprehensive university

FACULTIES	BACHELOR DEGREES	MASTER DEGREES	ADVANCED MASTERS
15	48 (DUTCH) 6 (ENGLISH)	120 (DUTCH) 75 (ENGLISH) 1 (FRENCH)	19 (DUTCH) 24 (ENGLISH) 1 (SPANISH)



# 3 groups - 16 faculties



## HUMANITIES & SOCIAL SCIENCES

- Theology and Religious Studies
- Canon Law
- Institute of Philosophy
- Law
- Economics and Business
- Social Sciences
- Arts
- Psychology and Educational Sciences



## SCIENCE, ENGINEERING & TECHNOLOGY

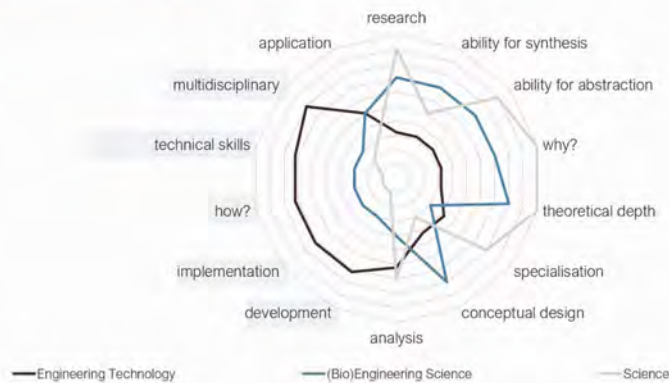
- Science
- Architecture
- Engineering Science
- Bioscience Engineering
- Engineering Technology



## BIOMEDICAL SCIENCES

- Medicine
- Pharmaceutical Sciences
- Movement and Rehabilitation Sciences

## Engineering profiles



## Education at the Faculty of Engineering Technology

### Strong profile of an academic Engineering Technology programme that

- ensures practice orientation and technological knowledge
- pays more attention to
  - collaboration with the industry through practical experience
  - new (basic) technologies and digital transformation
  - multidisciplinary
  - solving complex problems | professional skills | critical reflection
- strengthens embedding in an international context
- offers an attractive, challenging programme aiming to attract more motivated young people with the intended competences
- pays more attention to (lifelong) learning and personal development

### In a multicampus faculty with

- a varied and complementary offer
- a wide range of options
- mobility between campuses



# And also supported by research in education

› Within the group of S&T → LESEC

## LESEC?

LESEC stands for Leuven Engineering and Science Education Center. It is a community of researchers and practitioners contributing to the advancement of education in the Science, Engineering & Technology group. This includes R&D and consultancy activities, and the establishment of a network for cooperation and the exchange of experiences.

› Within the  
Faculty of Engineering Technology  
– Research Group ETHER

Engineering Technology Education Research



## E4E Skills Strategy

Anticipating Skill Requirements  
for the Engineering Profession

Dirk G. BOCHAR, E4E Project Coordinator



Co-funded by the  
European Union  
Co-funded by the  
European Union  
Co-funded by the  
European Union

## Major Objectives of the project:

1. Setting Up a “European Engineering Professional Skills Council”
2. Identify “New Trends in Engineering Education”
3. Develop “Innovative Training” for the Profession



# Consortium partners:

<p><b>Industry &amp; Profession</b></p> 	<p><b>Accreditation</b></p> 	<p><b>Higher Education &amp; Training</b></p> 
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ENGINEERS 4 EUROPE

## SKILLS STRATEGY

ANTICIPATING SKILLS REQUIREMENTS FOR THE ENGINEERING PROFESSION

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# SKILLS STRATEGY

## 2024





# Support education of (future) engineers

Prof. Greet Langie

## Engineering Education Research

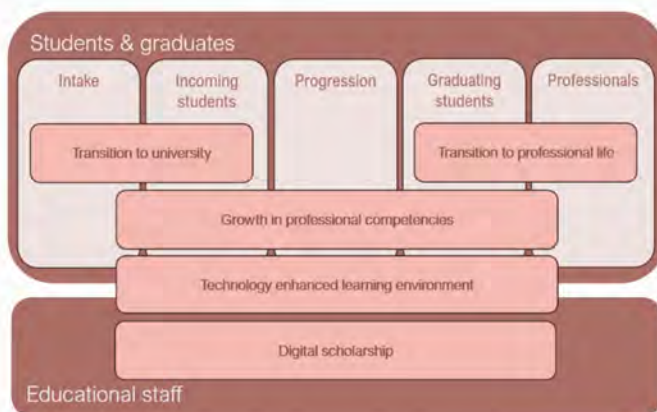


**MISSION:** to contribute to the advancement of engineering education with R&D and consultancy activities, and to establish a network for cooperation and the exchange of experiences in collaboration with



European Society for Engineering Education  
Europäische Gesellschaft für Ingenieur-Ausbildung  
Société Européenne pour la Formation des Ingénieurs

## What do we do?



## Growth in professional competencies





# Support engineers in making informed career choices

dr. Sofie Craps



wake up call...

1 on 5

engineers change job before the age of 26.

(more than half of them within the first year)

## Narrow perceptions on engineering

› Main reasons for job change



#1

Job content (60%)



#2

Career Opportunities (35%)



#3

Higher salary (29%)



#4

Working in a larger company (16%)

## PREFER

This knowledge alliance project aims to reduce the skills mismatch in engineering by equipping engineering graduates with more adequate tools to get a grip on the complex engineering reality.

*PREFER mission statement*

### Erasmus+

Field: Higher Education

Action: Knowledge Alliances

### Key facts and figures

Partners: 13

Countries: 3

EU grant: € 988,462

Project duration: 2017 - 2020

Professional Roles and Employability of Future Engineers



Lead organisation  
KATHOLIEKE UNIVERSITEIT LEUVEN  
Location: Belgium

Project countries





## Professional Roles Model for Future Engineers (PREFER model)



## Different roles, different demands



## PREFER tests: automated feedback instruments



## Supporting career awareness and personal development



## Supporting study choice



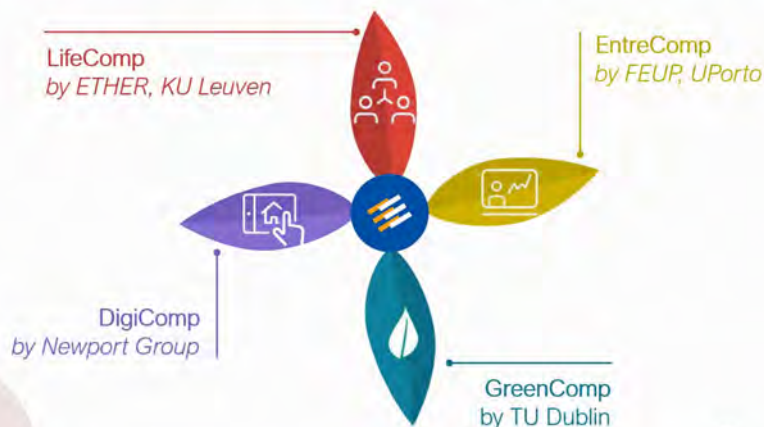
URGENT



# Support engineers in their life competencies

dr. ing. Kurt Coppens

## Development of the E4E Training Suite



## Development of the E4E Training Suite

developed as MOOC

Strategic Shift: Professional Development  
for the Engineer of the Future

**M**assive  
**O**pen  
**O**nline  
**C**ourse



Engineers 4 Europe Learning Platform  
[www.engineers4europe.eu](http://www.engineers4europe.eu)

KU Leuven  
[www.fet.kuleuven.be/e4e](http://www.fet.kuleuven.be/e4e)



# A glimpse of the course

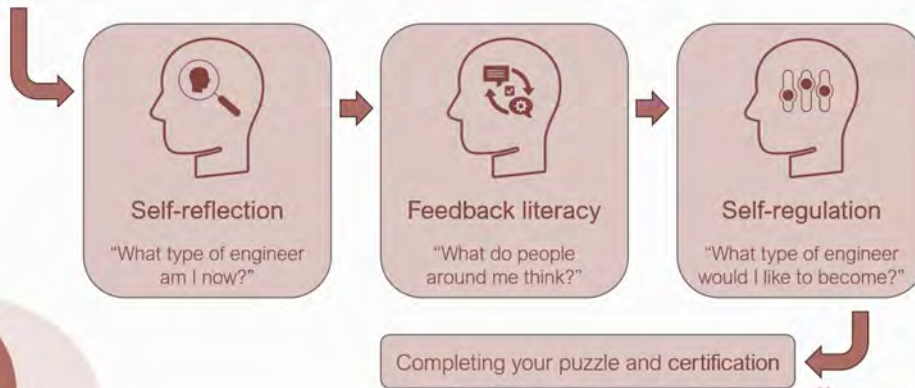
- › Interactive course elements
  - word clouds
  - drag and drop exercises
  - podcasts
- › Reflective exercises
- › Quizzes

A word cloud with terms like 'learning', 'reflection', 'communication', 'improvement', 'development', 'collaboration', 'evaluation', 'performance', 'growth', 'understanding', 'positive', 'negative', 'self-reflection', 'constructive', 'communication', 'listening', 'growth', 'learning from others', 'understanding', 'development', 'collaboration', 'evaluation', 'performance', 'growth', 'understanding', 'positive', 'negative', 'self-reflection', 'constructive', 'communication', 'listening', 'growth'. Below it is a quiz question: 'Question 6 (Multi-select) What of the following can be used as an instrument for self-reflection?' with options: Cause map, Dracop's What Model, Pareto chart, Fishbone diagram, Kolb's Experiential Learning Cycle, SEAL reflection method.

A microphone icon and a screenshot of a software interface with tabs for 'About Faculty', 'Links', 'Self Assessment', and 'Notes'. The interface shows sections for 'Personal Details', 'Professional Details', and 'Academic Details'.

# A glimpse of the course

Introduction: Puzzling together your professional portfolio



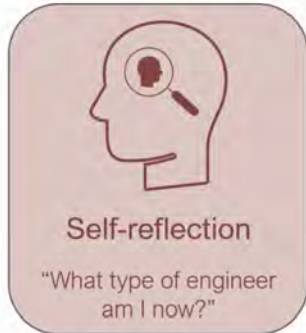
# A glimpse of the course

Introduction: Puzzling together your professional portfolio

- › The use of a portfolio throughout the course
- › Template provided

Three overlapping portfolio templates for 'Self-reflection', 'Feedback literacy', and 'Self-regulation'. Each template has a header with the title and a question, followed by a table with columns for 'Date', 'Description', and 'Reflection'. The templates are branded with 'KU LEUVEN' and 'ETHER' logos.

# A glimpse of the course




- › Multiple model perspectives
- › Overcoming possible barriers to reflection
- › The PREFER model as an initiator of self-reflection
- › Example: reflection tasks using the SEAL reflection method

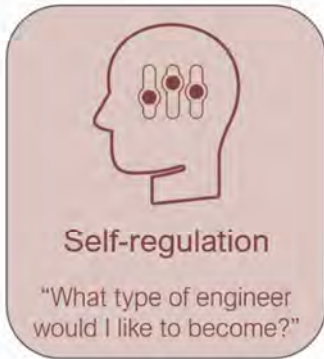


# A glimpse of the course




- › How do you experience feedback?
  - Overcoming triggers that can block feedback
  - Testimonies from young engineers:  
How did they overcome these triggers? 
- › How to make the most out of feedback?
  - Introducing and making sense of feedback literacy
  - Becoming a feedback power user!

# A glimpse of the course



- › Understanding self-regulation using Zimmerman's self-regulation cycle



- › Insights from seasoned professionals  linking self-reflection, feedback, and self-regulation

# A glimpse of the course

Completing your puzzle and certification

- › Wrapping up the course: continuing personal and professional growth
- › Engineers 4 Europe validation survey
- › Request the training certificate





# We invite you to discover our course!

Engineers 4 Europe Learning Platform  
[www.engineers4europe.eu](http://www.engineers4europe.eu)

KU Leuven  
[www.fet.kuleuven.be/e4e](http://www.fet.kuleuven.be/e4e)



## Support engineers in creating a personal development plan

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dr. ing. Lynn Van den Broeck

### **TRAINING ENGINEERS FOR LIFELONG LEARNING THROUGH A PERSONAL DEVELOPMENT PROCESS**

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Rani Dujardin, Lynn Van den Broeck, Sofie Craps, Una Beagon, Caitriona de Poar, Aimee Byrne, Johanna Naukkarinen and Greet Langie



**TRAINeng PDP**

# What is Lifelong Learning?

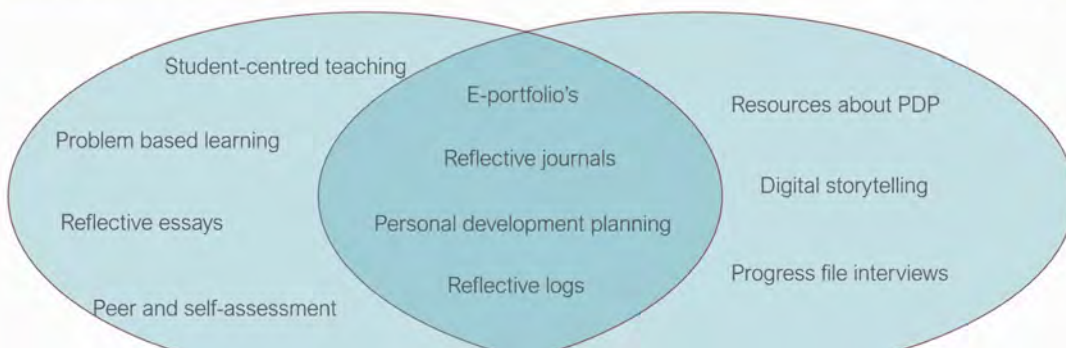
Research-based definition after analysing 40 definitions (Dujardin et al., submitted)

The development of competencies throughout life, undertaken by an individual for personal or professional reasons, through formal, non-formal and informal learning

## How to prepare students for lifelong learning?

Scoping review 1

Scoping review 2



## Portfolios

- › Different portfolios for different goals
  - Highlight progress and development
  - Take ownership of learning process
  - Facilitate communication between professionals/students and mentors
  - Evaluate performance

# Aim of our portfolio

1. Supporting students in the development of self-regulation and reflection
  - › Crucial for lifelong learning
2. Supporting students in their personal development
  - › What kind of engineer do I want to become?
  - › What are my interests?
  - › What are my strengths and weaknesses?
3. Supporting students in the development of professional competencies
  - › Knowledge and skills, but also attitudes

## How to structure?



## Portfolio

### Implementation

- Throughout the whole study programme
- Feedback during the semester
- Each semester go through one PDP cycle

- 
- › Self-assessment of professional competencies
  - › Gather peer feedback
  - › Choose one competency and define concrete action
  - › Execute the action
  - › Monitor learning progress using logs
  - › Reflect on peer feedback
  - › Reflect on feedback



# Portfolio

## The result

- › Develop professional competencies
- › Develop lifelong learning competencies

Bridging Competency and Lifelong Learning for Professional Excellence

Identify  
Prepare  
Act  
Monitor  
Reflect

# Lessons learned


- › Many different interventions for lifelong learning
- › Portfolios as a tool for competency development
- › Ownership over learning
- › The personal development process

Co-funded by Erasmus+ Programme of the European Union  
Grant number: 2021-1-BE02-KA220-HED-000023151




## MY CONTACT INFORMATION

✉ [Lynn.vandenbroeck@kuleuven.be](mailto:Lynn.vandenbroeck@kuleuven.be)


 Lynn Van den Broeck

## TRAINENG-PDP

 [trainengpdp](#)

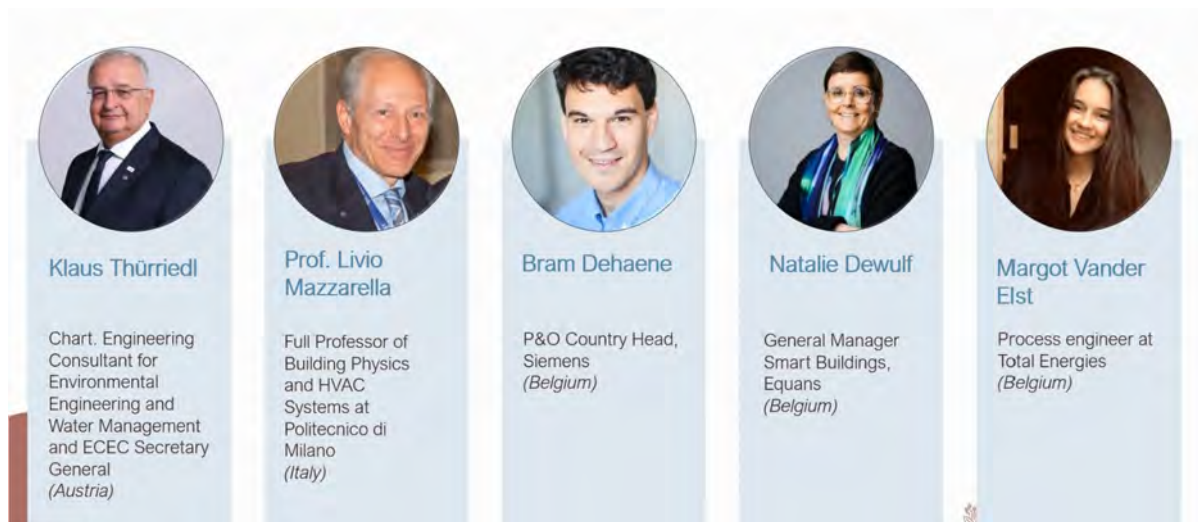


## ETHER

 [ETHER KU Leuven](#)



## PANEL/Discussion - Lifelong learning for engineers



### ***Klaus Thürriedl – Lifelong learning is a chance and we should show our competences***

- Lifelong learning is rated equally high as the academic education itself.
- Every 5 to 7 years our basic requirements, regulations and laws and even the (sustainable) materials change completely and therefore we all have the obligation staying up to date.
- We are confronted with a fast-moving working world and we have to learn directly on the job.
- Our chambers are the organizational units, that guarantee the public trust by law and it's our mission to provide knowledge and lifelong learning.
- As liberal professionals or with an industrial background we all need professional skills – even in business development or public relations and the courses of entrepreneurial skills cover these requirements. Our younger colleagues are much more talented in such things.
- As engineers we are working most of the time in the background or are solving problems in the “underground”. Architects can show their beautiful things. We are the basic designers with technical skills and so we need the soft skills to show our importance for the Green and Blue Deal.

### ***Prof. Livio Mazzarella – Never stop learning – that's life!***

- Universities are the bridges to the industry. Our study contents have academic and practical orientation. In the working life we are forced to switch from one field to another.
- The basic understanding is very important – from the basics tools to how gadgets are built. We have to deal with the market changes, which are faster than ever. And with this speed we have to train our students, how somethings works for how they are fit for new innovations.
- Fundamental condition – being openminded and also learn how to study, to repeat and to reflect.
- Our master courses focus with majority on hard skills, but we also have the sensibility for soft skills.
- Engineers are registered in chambers or associations and this is the first point for getting news, legal information and new courses. So stay connected!

### ***Bram Dehaene – Lifelong learning is a mission***

- We should be openminded – not only for lifelong learning but also for every day learning even you need a lot of energy and time.
- Technology and research are fast tracks – that's the evolution in the market. Upskilling is absolutely necessary for professionals and their employees's careers.
- The trend is implementing hard and soft skills in a company framework with cloudbased training documents or trainings on current processes – like AI. The challenge is to find the balance between uncomfortable things, the needs for a better future and creating comfort zones.

### ***Natalie Dewulf – Open for the world and learning from feedback***

- We have to stay up with changing skills and competencies to assort in the market and lifelong learnings guarantees a long professional career.
- New things and technologies need special expertise and so we are pushed to Learn new things for a long career.
- Granting education for the employees is an obligation for companies, because beside academic skills the current company training in technical competences and even soft skills are advantages in competitiveness.
- Young graduates are our future in this open world. So we should teach them everything for a robust business life but we need continuous processes of feedback to improve the growth of knowledge.

### ***Margot Vander Elst – Lifelong learning not only for business although for yourself***

- Getting new information is part of our daily routines. We are forced to be online – at work and private, but we have to focus on implementing things, we really need to do.
- After the study you land in the real world and so trainings and seminars help you going on.
- Everything you do should be for yourself, your future and the next steps in perfecting the own workspace
- Important is the direct cooperation between universities, industries and companies because all courses should be nearer to the companies's needs.

### ***What can we do to attract the courses:***

- **Bram Dehaene:** We should reframe the question. Important are not how many courses, but what you can learn in the courses.
- **Klaus Thürriedl:** Important is to promote the courses within our 17 chambers. As self-governing institutions with our codes of conducts and disciplinaries possibilities we could effort our members, but 90 % are self-interested and act voluntarily.
- **Natalie Dewulf:** Longlife learning is important for the own career. You can over courses, but you can't force employees.
- **Nina Dražin LOVREC (ECEC):** Lifelong learning is obligatory for our professionals. Important for offering courses are the real needs – for example new constructions processes or like in Croatia seismic technologies. So the focus should be the feedback from our members for a continuous evaluation of the offered courses.

### ***Closing Words Dirk Bochar:***

- E4E and now the courses are important steps step and we'll talk about the success on our closing event on 24.6.2025
- Engineering idols are Jeff Bezos, Mark Zuckerberg and Elon Musk
- For us – the basic never changes, but a graduate of 1958 would barely pass an exam of today, but with lifelong learning it would be possible!
-