E4E – Engineers for Europe:
a study about the future of Engineering profession

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STRATEGIC MATTERS

1. Initial Goal : **“Put Engineers on the map & how they contribute to Society”**

2. Topics to address: **skills shortage and mismatch, definition of the engineering profession, communication deficit, continuous professional education, societal value of engineers, digitalization of the industry, interdisciplinary nature and evolution of the “engineer profile”, educational reforms, apprenticeships, entrepreneurship and soft skills, LLL, etc.**

3. Challenges: **uniqueness, visibility and continuity of the project outcomes while being complementary to existing initiatives.**

CONSORTIUM PARTNERS

Industry & Profession

Accreditation

Higher Education & Training

STRUCTURE

Cross-Sectoral Working Groups

Linked to EU Priorities and SDGs most relevant for engineering profession

MANAGEMENT COMMITTEE

Management, coordination, operational continuity and financial sustainability

Skills Council

ADVISORY GROUP

Composed of stakeholders feeds back to the Skills Council

WORKING GROUPS

Technical consultations, monitoring, and recommendations to the Council

E4E Skills Council provides tools and solutions to educational systems & inputs to evidence-based policy making

Education & Training

- Skills Catalogue
- Occupational Profiles
- Training content
- Mobility mechanisms
- Placement

Policy Formulation

- Strategic vision for engineering profession
- Identification of priority areas
- Input to evidence-based policy making
- Opinion papers
- Evidence filtering and amplification

SURVEY - 14 insights

1. Role of Education Providers

2. Emphasizing Sustainability

3. Employment Opportunities

4. Partnership

ANALYSIS OF THE DEMAND SIDE

CURRENT SKILLS CHALLENGES FOR EMPLOYERS

ASSESSMENT OF CURRENT SUPPLY

SCENARIO ANALYSIS

ACTION PLAN FOR STRATEGY IMPLEMENTATION

CONCLUSIONS AND RECOMMENDATIONS

BEST PRACTICE EXAMPLES

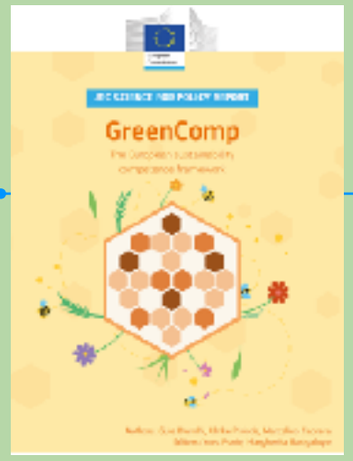
https://engineers4europe.eu/sites/default/files/2024-09/E4E%20Skills%20Strategy_0.pdf

ONLINE MATERIALS

E4E Course on Life Competences
- Module 1 - Empathy
- Module 2 - Flexibility
- Module 3 – Self Regulation

Entrepreneurship Skills
- Module 1 – Financial & Economic Literacy
- Module 2 – Creativity
- Module 3 – Planning & Management

Digital Skills
- Module 1 – Safety / Cybersecurity
- Module 2 – Information
- Module 3 – Data literacy



Green Skills
- Module 1 – Embracing complexity in sustainability
- Module 2 – Envisioning sustainable futures
- Module 3 – Acting for sustainability

ENGINEERS 4 EUROPE

Online Courses

Free
4 courses online
Certificates of attendance and of approval:
5 - Entrepreneurial, 3 - Transversal, 1 - Green, Digital Skills
https://engineers4europe.eu/engineers4europe-learning-platform

Debate panel 1: New trends in Engineering Education

Moderators:

- Profs. Nikolaos Theodossiou, AECEF President
- Cédric D´Mello, City University, UK
- Alfredo Soeiro, AECEF Secretary General

Speakers:

- Eng. Richard Hlaváč, Projekty-hlavac
- Ms. Lara Jovanovic, University Belgrade, IACES Vice President
- doc. Ing. Daniel Hanus, CSc, Czech Technical University in Prague

Rapporteur:

Prof. Michaela Gkantou, Liverpool John Moores University

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Debate panel 1: New trends in Engineering Education

Sustainability and sustainable development have significantly influenced the mindset of civil engineers, with younger generations focusing more on long-term mitigation, while older professionals tend to prioritise immediate adaptation.

The rising global population and increased consumption present challenges for implementing **renewable energy**; the hardest part is fostering a mindset shift toward sustainable practices.

There is a need for **simplification of engineering laws and standards** to make sustainability and innovation more accessible within the profession.

The idea of a **“skills council**” was proposed to bridge the gap between academic learning and industry needs, offering guidance from experienced professionals. While technical knowledge is covered during early career stages, there is a need for better integration of practical, social, and interdisciplinary skills

Debate panel 1: New trends in Engineering Education

The integration of **artificial intelligence** into engineering education is considered essential. Students must not only learn AI but also develop the critical thinking necessary to use it responsibly.

Continuous professional development (CPD) is crucial, particularly for academics, to keep pace with fast-evolving technologies like AI. Practical experience should complement theoretical teaching.

Digitally native students often face a disconnect between available tools and traditional teaching. This generation benefits from visual and practical learning, requiring a rethink of university methods.

There is a growing consensus that **engineering education must evolve to include broader skills**—ethical thinking, teamwork, social awareness, and adaptability—to address global challenges and prepare future engineers.

Debate panel 2: Free online training in Engineering

Moderators:

- Mr. Thibaut Skrzypek, École des Ponts and Secretary General EUCEET
- Prof. Ivica Zazrski, University Zagreb and
- Prof. Roode Liias, Tallinn Technological University (Emeritus)

Speakers:

- Ms. Katrijn Vandenborne, Ghent University (BEST)
- Prof. Antonín Lupíšek, Czech Technical University
- Prof. Sarunas Skuodis, Vilnius Tech and EUCEET President

Rapporteur:

- Prof. Michaela Gkantou, Liverpool John Moores University

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Debate panel 2: Free online training in Engineering

There is concern over the effectiveness of online courses in teaching green, life, digital, and entrepreneurship skills, due to a lack of interaction and dialogue; while **the initiative is positive, much development is still needed**.

Online learning platforms should integrate **feedback mechanisms and student organisations** to better support the development of soft skills and foster engagement

While online and hybrid learning offer flexibility, they often fall short in quality compared to in-person teaching; **a balance must be found to ensure learning outcomes meet industry standards**

Strict quality assurance is essential in flexible systems; adaptability to industry needs should not compromise the depth and rigour of learning.

Debate panel 2: Free online training in Engineering

Engagement strategies such as storytelling, purposeful phone use, and interactive tools can enhance the online learning experience and student motivation.

Online courses should be structured based on learner level—undergraduate, postgraduate, professional—with clearly defined themes and outcomes to avoid superficial content.

Quality assurance and recognition of online learning, especially through micro-credentials, must align with both academic and industry standards to build trust and relevance.

Collaboration with professional bodies and the inclusion of continuous feedback loops are crucial to ensure online qualifications are credible, aligned with market demands, and recognised across sectors

THANK YOU!