E4E: Engineering the Future Engineer
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Meeting summary for AECEF 11Apr25 E4E (By Zoom AI Companion) of Socratic Debate

Quick recap

The meeting focused on the future of Engineering Education and of Sustainability, discussing the importance of incorporating ethical considerations, practical skills, and global perspectives into curricula. Participants debated the effectiveness of online learning versus traditional in-person education, emphasizing the need for adaptable teaching methods to engage younger generations and prepare them for global challenges. The discussion also touched on the role of artificial intelligence in engineering, the importance of soft skills development, and the need for continuing professional development to keep pace with technological advancements.

Next steps

• Universities to explore ways to integrate AI into engineering education curriculum.
• Professors to adapt teaching methods to better engage students, including incorporating more interactive elements and real-world examples.
• Universities to consider implementing hybrid learning models that combine in-person and online elements.
• European Skills Council to be established to bridge the gap between academic learning and industry needs.
• Universities to improve the integration of practical, social, and interdisciplinary skills in engineering programs.
• Engineering educators to incorporate more ethical thinking, teamwork, and social awareness into curricula.
• Online learning platforms to integrate better feedback mechanisms and student engagement tools.
• Universities to explore ways to open engineering courses to the wider society for better public understanding.
• Engineering educators to adapt course content and delivery methods based on the audience (undergraduate, postgraduate, professionals, or general public).
• Universities and industry to collaborate on recognizing and implementing micro-credentials in engineering education.

Summary

Sustainability in Engineering: Young Engineers' Role
The meeting involved a discussion on the importance of sustainability in engineering, with a focus on the role of young engineers in driving this change. The panelists agreed that sustainability is crucial for future generations and that it should be incorporated into engineering practices. They also discussed the need for practical experience and soft skills in engineering education. The panelists debated the role of artificial intelligence in engineering and its potential to augment human capabilities. They also discussed the need for continuing professional development for engineers to keep up with technological advancements. The conversation ended with a discussion on the importance of critical thinking and problem-solving skills in engineering.

Sustainability, Energy, and Engineering Education
The discussion covers various topics related to sustainability, energy, and engineering education. It has been emphasized the global nature of climate challenges, noting that Europe's emissions are only 8% of the global total. He suggests that adapting to new renewable technologies could make Europe more competitive. The group discusses incorporating ethics into engineering education, with some mentioning existing oaths or statements in professional societies. There is also a conversation about the need for global cooperation on climate issues, particularly in helping developing countries progress sustainably. The session concludes with a reminder about voting for student projects during the coffee break.

Civil Engineering and Online Learning
In the meeting, one speaker discussed his background in Civil Engineering and Geotechnics, as well as his involvement with the International Society for Soil Mechanics and Geotechnical Engineering. One speaker shared his experience in building physics and life cycle assessment, and his role as director for research and innovation at the University Center for Energy Efficient Buildings. The team also discussed the relevance of online courses for students, with one speaker expressing concerns about the effectiveness of the methodology and the lack of connection with students. Another speaker suggested incorporating practical skills and dialogue in online courses to improve engagement. The team also discussed the importance of motivation in students and the potential for micro-credentials to enhance their learning experience.

Future of Engineering Education
The panel discussed the future of Engineering Education, focusing on the role of online courses and hybrid learning models. Participants debate the necessity and effectiveness of online education, with some arguing for its benefits like accessibility and flexibility, while others emphasize the importance of in-person interaction. The discussion touched on the need to adapt teaching methods to engage younger generations, integrate practical skills with theoretical knowledge, and to prepare engineers for global challenges. The panel also considered the potential impact of artificial intelligence on engineering education and the

importance of developing soft skills alongside technical expertise. There is a consensus that Engineering Education must evolve to include broader skills such as ethical thinking, teamwork, and social awareness.