



WORKSHOP 3: EUR-ACE STANDARDS: HOW TO MEET GLOBAL CHALLENGES AND QA REQUIREMENTS

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Main goal of the workshop

- To identify answers to the question about how could be met the present global challenges regarding engineering profession and the quality assurance requirements in engineering education

To reach this goal, **two themes** have been considered for discussions:

- The revision of Graduate Attributes and Professional Competences (GAPC) by the International Engineering Alliance (IEA)
- The revision of EUR-ACE Framework Standards and Guidelines (EAFSG) by the European Network of Engineering Education (ENAEE)

The theme regarding the revision of GAPC was addressed by the presentation:

'Sustainable development goals and engineering attributes'

Graduate attributes cover (according to IEA):

1. Engineering knowledge
2. Problem analysis
3. Design and development of solutions
4. Investigation and research
5. Usage of appropriate tools
6. The engineer and society
7. Human, social and environmental impacts
8. Ethics
9. Individual and collaborative team work
10. Communication
11. Project Management and Finance
12. Preparation for lifelong learning



Outcomes from the discussions:

- ✓ Comprehensive presentation of the SDG and examples of how they can be endorsed in the engineering education
- ✓ Regarding GAPC - more emphasis needed on the social dimension and ethics of the engineering profession
- ✓ Sustainable development goals (SDG) to be implemented in the engineering curriculum
- ✓ HEIs have to put effort in preparing the university community (both staff and students) for implementing SDG approach
- ✓ Still a question of how the QA Agency could contribute (in terms of assessment criteria, but also with other activities in cooperation with institutions).

The theme regarding the revision of EAFSG was addressed by the presentation:

‘Revision of EUR-ACE Framework Standards and Guidelines 2021’

Proposal for additional criteria:

- The programme outcomes for Bachelors and Master levels
- The assessment criteria
- New developments in the industry environment e.g. artificial intelligence, cyber security
- Ethical considerations in the new environment
- Modes of delivery
- Assessment in a variety of conditions e.g. online, mixed mode
- Preparation for lifelong learning and professional practice
- External factors such as UN SDGs, Universal Design
- Non-classroom education; apprenticeships
- Industry engagement

Main findings, after analysis of the proposals within the WG:

- Broad discussion of programme outcomes for BA and Master, vs. Sydney Accord and Washington Accord,
- Clarification and comparison of programme outcomes **EAFSG Bachelor vs. EAFSG Master**,
- Considering new study process circumstances and programme evaluation,
- Considering the current conditions for curricula design process and conditions for implementing education process (quality of education)
- Considering the UN Sustainable Development Goals in engineering programmes – determination of the main goals covered in programmes,
- Emphasis on the development of new methods in online teaching/learning ,
- Considering the requirements of the labor market,
- Starting discussion about Institutional Accreditation and in-depth discussion about Transnational Accreditation.

Discussion within WK:

Institutional vs. Programme accreditation
In Europe: opinions are equally divided
In Australia, for example, academic staff is strongly negative about the institutional accreditation, being afraid of losing focus on quality of engineering programmes

Additional points of interest resulting from the presentations and discussion:

1. The need of adapting Graduate Attributes and Professional Competences to Sustainable Development goals.
2. The importance of ethical considerations, not always sufficiently taken into account, regarding interactions between professional competences and sustainable development
3. To contribute to make Higher Education Institutions aware of the above two points, when necessary.
4. The importance of revised of EUR-ACE Framework Standards and Guidelines, to provide Agencies the best updated reference in their evaluation processes.
5. The need of appropriate criteria for developing new methods in on-line teaching/learning processes and developing engineering programmes delivered on-line.
6. The importance of institutional accreditation and transnational accreditation, based on commonly accepted criteria shared by all agencies.