

STATEMENT ON SCIENTIFIC ENGINEERING EDUCATION AND COMMON TRAINING FRAMEWORK (CTF)

Leuven, 19th June 2017

Having taken note of the [outcome](#) of the [project](#) on 'Common Training Principles for Engineers' executed by the European Council of Engineers Chambers ([ECEC](#)), the Conference of European Schools for Advanced Engineering Education and Research ([CESAER](#)) with this statement expresses its views on scientific engineering education and the Common Training Framework (CTF). As our [fifty-one leading doctorate-granting universities](#) of science & technology from twenty-six countries are the major providers of scientific engineering education in Europe, we take position on the findings from this project, express our views on the proposed steps forward and present alternative routes.

BACKGROUND

The Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs ([DG GROWTH](#)) from the European Commission (EC) contracted ECEC to [develop proposals](#) for Common Training Principles for engineers covering all EEA countries. The ECEC Project Team came forward with the [following recommendations](#):

- In the short term, the ECEC Project Team proposes to strive for a CTF for Civil Engineers across a limited number of Member States (within the requirements of the Directive).
- In the longer term, the ECEC Project Team proposes to continue the efforts for a common approach acceptable for a vast majority of EEA Member States, including:
 - the development of common definitions for all forms of training (theoretical/practical);
 - the question of a description of the activities which a civil engineer should be able to undertake;
 - a definition and evaluation procedure for assessing the "equivalence" of learning outcomes especially with regard to the compensation of academic training.

RECOGNISE RESEARCH- AND INNOVATION-BASED ENGINEERING EDUCATION

We recall two crucial points from our '[Statement on 'Quality Assurance and Accreditation of Engineering Education'](#)' dated 29th October 2005:

- The universities of science & technology united within CESAER deliver highly qualified engineers able to (a) work beyond the boundaries of existing knowledge and technology, (b) promote innovation, and (c) assume leading positions in academia, business, industry and public services. Our research- and innovation-based engineers contribute to the competitiveness and sustainability of Europe.
- Our educational programmes and degrees are strongly based on cutting-edge science & technology and take the newest developments and research results into account. That is why they require a qualification at least at the level of the 2nd cycle, i.e. Master degree.

RESPECT ACADEMIC QUALIFICATIONS, QUALITY ASSURANCE AND ACCREDITATION

In the light of the various approaches towards scientific engineering education applied by universities of science & technology and the inherent dynamism of scientific results in engineering feeding into our education and training programmes, we fundamentally disagree with a legalist approach by governments (regional, national, European or international) forcing compliance with legally defined professional standards. We feel that such a forced compliance by governmental regulations limits our academic freedom and limits our capacity to provide high-quality engineering education based on internationally recognised research in the field of science & technology.

- We underline the importance of internal quality assurance mechanisms and strongly oppose detailed intervention into the contents and structures of engineering programmes and degrees.
- Any formats, processes and structures of scientific engineering education are under the exclusive authority of the universities themselves. Scientific engineering education thus should be subjected solely to the usual (internal) quality assurance and accreditation mechanisms.
- Accreditation, including external professional perspectives, is currently common practice and focuses on both the internal and external quality assurance mechanisms. Its implementation is directed toward continuous quality improvement across the whole education cycle - i.e. from student intake to graduation. Accreditation reflects the underlying educational, institutional and external professional objectives.
- We emphasise that accreditation should be forward looking and directed towards quality and programme enhancement.
- We urge national governments not to intervene in our (academic) scientific engineering education and degrees at any level.

CREATE CHARTERED ENGINEERING STATUS ONLY WHERE NECESSARY

We acknowledge the wish of businesses, industries and public services to safeguard the professional qualifications for specific types of engineers.

- We urge these public services, business, industries and professional associations to engage in a structured dialogue at European level with us universities of science & technology, to agree on those disciplines for which chartered engineering status (professional qualifications) is absolutely necessary and to collaborate with us in developing sound Sectoral Qualification Frameworks (SQFs) for them.
- These SQFs have to build upon the three-cycle academic qualifications provided by the universities (BSc, MSc and PhD), take professional experience and practice as well as the professional environment into account and assign the licensing authority to an appropriate professional body at European level, outside governments and universities.

AUTOMATIC RECOGNITION FOR CHARTERED ENGINEERING PROFESSIONS AT EUROPEAN LEVEL

We point out, that any further substantial progress concerning the recognition of professional qualifications - for a limited number of chartered engineers across borders in Europe and beyond - is only possible if automatic recognition of these qualifications based on SQFs on at least the European level is envisaged. Once the difference between the academic and the professional qualifications is acknowledged, there is no more need to bridge differences in national practices and legislation through a Common Training Framework (CTF).

- We urge the EC and ECEC to cease 1) their attempts to come to a CTF for Civil Engineers in the short term and 2) the efforts for a collective, approach to common training principles for engineers, by way of a 'lowest common denominator approach' across EEA member states.
- In order to promote recognition of this limited number of chartered engineers across borders, we strongly suggest establishing SQFs at the European level exclusively allowing for the automatic recognition of these limited professional qualifications under the directive.

OUR COMMITMENT TO COOPERATE AND CONTRIBUTE

We, universities of science & technology across Europe, translate scientific research and technological and social development into innovative solutions for the benefit of society, and educate and train future generations. Scientific engineering education transforms the world in which we live, and contributes to solving the challenges of tomorrow. Based on our intense collaboration with business, industry and public services, and citizens coupled with the strong culture of entrepreneurship within our institutions, our activities encompass higher education, research and innovation and we strongly bridge between academia, state, market and civil society. We bring open education, open science and open innovation into practice on a daily basis and we are open to the world.

In light of this role and as key providers of scientifically trained engineers in Europe, we are prepared and committed to working together with the EC, member states, associated countries and the European Parliament, and with other institutions and stakeholders, in improving scientific engineering education in Europe. We hereby offer our expertise and constructive input to discuss SQFs at the European level, exclusively allowing for the automatic recognition of these limited professional qualifications, in addition to potentially reviewing the EUR-ACE Framework Standards and Guidelines.

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For more information and enquiries, please contact the Chair of our Task Force Scientific Engineering Education (TFSEE) Ralph Bruder at ralph.bruder@pvw.tu-darmstadt.de.

The Conference of European Schools for Advanced Engineering Education and Research ([CESAER](#)) is a non-profit international association of [fifty-one leading doctorate-granting universities](#) of science & technology from twenty-six countries. We stand for scientific excellence in scientific engineering education and research, and the promotion of innovation through close cooperation with business, industry, public services and citizens in order to ensure the application of cutting-edge knowledge in society. CESAER maintains and promotes the highest quality standards. CESAER's mission is to:

- serve as a close network and platform for mutual learning;
- contribute proactively to European developments by conducting a permanent dialogue with and influencing European institutions and other stakeholders;
- inspire reflections and policy decisions of stakeholders at European and national level;
- foster public understanding of the role of engineering in societal and economic development considering the principles of sustainable development.