



*Council of Associations of
long cycle Engineers from
a University or a Higher
School of Engineering of
the European Union*



SEII
*European Society
for Engineers
and Industrialists*

CLAIU-EU Conference in partnership with SEII



Employability of Engineering Graduates A Vision for the Future



University Foundation

Rue d'Egmontstraat, 11 - 1000 Brussels - Belgium

13th-14th March 2014

PROGRAMME DAY ONE – Thursday 13th March 2014

13 h 00 Registration and coffee

13 h 45 **Welcome address** by **Alejandro MARIN ARCAS**, President of CLAIU-EU, and **Philippe WAUTERS**, President of SEII

Session 1 – Views from industry

14 h 00 “ **Engineers : leaders for Innovation, Integration and Direction** ”, by **Christian JOURQUIN**, keynote speaker, former CEO of the Solvay Group, member of the Board of Directors of SEII, Belgium



Over the past few centuries, engineers have consistently contributed to innovative solutions to meet the challenges of daily life. At the dawn of this 21st century, the fast evolution and the growing complexity of the challenges that have to be met call for new paradigms in engineering, integrating new disciplines and new ways to share knowledge. Addressing them will require from engineers both teamwork and strong leadership capabilities. This typically defines the profile that industry, services and society at large will look for in the new generation of engineers : innovative personalities, able to integrate expectations from the future and solutions coming from other horizons of science and knowledge, and also able, through their strong leadership, to show the way and give the impulse to multidisciplinary teams for successful projects. But, the question is : how to breed them ?

14 h 50 “ **Engineering education – academic interest versus industry needs** ”, by **Frank-Stefan BECKER**, former Executive of Siemens AG, in charge of Communications, Government Affairs & Higher issues Education, member of the VDI Committee for Engineering Education, Germany



This presentation will focus on the discrepancies between the requirements of an academic training and selection process and the needs of industry. As the gaps are widespread, age-old and have frequently been analyzed – as well as lamented – the reason for their persistence cannot be attributed to a lack of information, but rather to different interest of academia – “producers” – and industry – “customers”. This talk will discuss the underlying mechanisms, try to define “quality” from an industry perspective, highlight the future challenges for industry and derive some conclusions as regards the requirements that professional engineers must meet. Some prerequisites for making universities more autonomous in determining the quality assurance process as responsive as well to their customers’ needs – including students’ interests – will be outlined.

15 h 30 Coffee-break

Session 2 – Views from young engineers

16 h 00 “ **Volunteering & Global Skills : a young engineers perspective** ”, by **Siobhán McGRATH**, General Secretary of EYE (European Young Engineers)



The work of an engineer is increasingly global – projects based in other countries, international teams, ... – and therefore engineers must be able to work globally. Global skills are the non-technical skills needed by engineers to solve today’s engineering challenges. Universities are under pressure to add global skills development to an already overloaded curriculum. Should universities be solely responsible for preparing their students for employability ? Could not young engineers take responsibility for their own professional development ? Many of them volunteer, not only to contribute to the engineering community, but also to enhance their own employability, since volunteering is known for developing global skills.

16 h 30 “ **Engineering education and its impact on young graduates’ employability from a students’ point of view** ”, by **Marta CORTESÃO**, BEST representative (Board of European Students of Technology)



BEST is a constantly growing non-profit organization that strives to develop students of technology through complementary education, educational involvement and career support. Since 1995, BEST also strives to bring the development of European Engineering Education closer to their students, who are the engineers of the future. We have learned that there is currently a gap between employers’ needs and the skills and knowledge provided by the universities. If those needs won’t be assessed and responded to, the gap will become larger as the industry develops while engineering curricula remain unchanged. There are already various opportunities to bridge this gap, but they are not included nor recognized in a classic curriculum. Something has to be done and BEST is ready to participate.

Session 3 – Views from education

17 h 00 “ **Employability of engineering graduates** ”, by **William GRIMSON**, former Head of department of Electrical Engineering and Academic Registrar from Dublin Institute of Technology, Vice President of Engineers Ireland



‘Graduateness’, the expected attainment of programme learning outcomes, and employability are three close, but not identical, perspectives on what constitutes a graduate. There are also three major stakeholders, with sometimes conflicting views on the subject : the academic institution, the employer in a broad sense, and the student (future graduate and employee). Adding different societal norms and cultural values, there is obviously a wide scope for respective expectations to be misaligned and no possibility for a “one size fits all”. A whole system has been build, struggling along to meet the expectations, but causing some tensions around a number of difficult to cross gaps. This paper will review the process of ‘negotiation’ amongst stakeholders, explore the perceived educational gaps or inadequacies and make some tentative proposals as to how such matters can best be addressed.

17 h 30 “ **Engineering Graduates for Employment** ”, by **Ian FREESTON**, Professor Emeritus - University of Sheffield, Higher Education Adviser - Engineering Council, Member of EUR-ACE Label Committee - ENAEE, United Kingdom



The role of education as a preparation for employment has been debated for many years, particularly within Higher Education. It is directly relevant to engineering education, because activities intrinsic to engineering, such as designing and creating artefacts and processes, imply markets and end users, and consequently employment in production. The issue is sometimes represented as a distinction between engineering science, which stresses the education of the individual student, and engineering technology, which emphasises training for employment in a specific industry. Is it possible to design programmes that will satisfy the requirements of all stakeholders : students (with a variety of interests, aspirations and abilities), employers (with widely differing products and markets), teachers (with career aspirations often based more on research rather than on teaching), universities (interested in academic reputations in many disciplines), and society at large (usually represented by government policy and financing) ? How can these potentially conflicting requirements be resolved without over-prescribing engineering programmes, while encouraging diversity and innovation of content and teaching methods ?

18 h 00 **Conclusion of Day One**

20 h 30 **Conference Dinner (optional)**

PROGRAMME DAY TWO – Friday 14th March 2014

08 h 45 **Welcome and coffee**

Session 4 – Linking education to market needs

09 h 00 “ **Employability of engineers : new challenges within a difficult economic landscape** ”, by **José Ignacio GARBIZU**, Dean of the “Colegio de Ingenieros Industriales de Gipuzcoa”, Spain



Spain’s high unemployment rate prompted the General Council of Official Industrial Engineering Associations to take a deep look at the situation of industrial engineers in the country, including their prospects for employment. Different aspects of the situation were to be analyzed through the answers to a questionnaire that was sent to the 19 Industrial Engineering Associations of Spain. This paper will present the main results of the survey. The speaker will end up with a short description of the action plan that has been drawn to improve the situation.

09 h 15 “ **Employability of engineers : a full vision of new opportunities** ”, by **María NUÑO VALDÉS**, member of the Executive Board of the Spanish Association of Engineers of Telecommunications (AEIT), Spain



Spanish Telecommunication Engineers currently have a high occupancy rate, as compared to the national average of the unemployment rate of industrial engineers. The speaker will present a paper that has been prepared on the basis of the results of a survey that involved more than 1,800 engineers and 320 students in the field of telecommunications.

09 h 30

“Interconnection between mobility and employability of engineers in Europe – A critical review”, by **Massimo GUARASCIO**, Professor of Materials and Environmental Engineering, University *La Sapienza* of Rome, Italy



During the discussions that took place at the previous CLAIU-EU Conference in Bologna last April 2013, many comments were made on the topic of the relationship between mobility and employability of engineers, as well as references to other works on the subject. The speaker, who was the chairman of that conference, will present a summary of these discussions and present his own views on the question.

10 h 00

“Employability of civil engineering graduates & the Bologna process – findings of surveys conducted by the European Council of Civil Engineers”, by **Iacint MANOLIU**, Professor, Technical University of Civil Engineering of Bucharest, and **Barbara KARLEUŠA**, Professor, University of Rijeka, respectively Chair and Vice-chair of the Standing Committee of the European Council of Civil Engineers (ECCE)



The word ‘employability’ does not appear in the Bologna Declaration of June 1999, but only the statement that “the degree awarded after the first cycle shall be relevant to the European labour market as an appropriate level of qualification”. Is it the case now, nearly 15 years later ? This paper tries to answer such a question on the basis of surveys conducted in 2013 by ECCE on the impact of the Bologna process on civil engineering education and profession in Europe, with emphasis put on employability. Academics and professionals from 17 countries were actively involved in the surveys, the findings of which are summarized and commented in the paper.

10 h 30

Coffee-break

Session 5 – Influence of accreditation

11 h 00

“Lessons learnt from the accreditation of civil engineering programmes in Belgium”, by **Bernard REMAUD**, former President of CTI (Commission des Titres d’Ingénieur, France), member of ENAEE



Two agencies – AEQES in Belgium and CTI in France – have organized in 2012-2013 a joint mission in the French speaking Community of Belgium, with a twofold objective : the evaluation of their engineering programmes according to Belgian legal requirements, and their accreditation according to CTI’s and EUR-ACE’s criteria. Discussions are in progress with the Engineering Faculty deans of the Dutch speaking Community in view of organizing their legally required accreditation by CTI. This paper presents the lessons learnt from these experiences : benefits and pitfalls of a joint process between two different agencies, the adaptation of EUR-ACE criteria to different national contexts, and the different views on the issues of engineering graduates’ employability.

Session 6 – Debate

11 h 45

Plenary Discussion between the speakers and the participants

13 h 00

Closing drink and conclusion of the conference



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