

Overview of Activities of the Engineering Academy of the Czech Republic 2008 – 2009

Activities of EACR in the past two years were governed by the Czech Presidency over the EU. EACR aimed to support by its activities priority topics the Czech Republic would monitor during its Presidency. EACR President Prof. Petr Zuna was named for membership of a priority expert group of Czech Presidency dealing with Competitiveness-innovations and knowledge society headed by A. Vondra, Deputy Foreign Affairs Minister of the Czech Republic. From a broader set of priorities introduced by the group, EACR resolved to work on the topic of education and modernization of educational systems from the viewpoint of engineering education and technical universities and prepared for this topic a series of activities which took place in 2008.

At the beginning of 2008 EACR organized in the form of a questionnaire between engineering academies a topically oriented survey aimed at obtaining an overview of the situation in the field of engineering education in countries where academies incorporated in CAETS and Euro-CASE are active. Academies were to answer questions related with characteristic trends, tendencies and requirements in engineering education. The subject of the survey was the Bologna process, length of bachelor and master study programs, their curricula and namely guarantee of their theoretical fundamentals, share of non-technical subjects, attraction of students' interest in engagement in scientific and research activities, their motivation to innovative thinking and interconnection of study with corresponding industrial fields. The survey also included questions aimed at with what criteria should the quality of technical universities be classified and at ways how to enhance interest in study among secondary school students. The obtained documents were presented at a discussion forum dealing with engineering education at the CAETS Council meeting in June 2008 in The Haag. The discussion was moderated by EACR President Prof. Petr Zuna.

Concurrently in June 2008 a national seminar was organized of representatives of technical universities of the Czech Republic. Also at this event the representatives of technical universities reacted in their presentations to questions emphasizing problems related with implementation of the Bologna process and questions related with the reform of tertiary education which at that time was in preparation by the Ministry of Education, Youth and Sports of the Czech Republic.

The apex of the programme of activities devoted to engineering education and modernization of educational systems was an international workshop : "The Role of Engineering Education in Knowledge Society" organized under the auspices of the Euro-CASE platform "Engineering Education" on October 14-15, 2008 in Prague. The workshop summarized knowledge from the discussion forum and seminar and enabled participants of the workshop to elaborate the topic in their contributions and in the discussion. Altogether 13 foreign participants from the total number of 35 – 11 representatives of European engineering academies and engineering academies of Japan and Korea participated in the workshop. Among participants from the Czech Republic were representatives of technical universities, the entrepreneurial sphere, high-ranking representatives of government authorities of the Czech Republic and representatives of the Engineering Academy of the Czech Republic. All participants considered the workshop to be highly beneficial. Also the participants from the sphere of government authorities evaluated the workshop very positively namely the initiatives to the reform of tertiary education.

Simultaneously with the workshop EACR organized in Prague a meeting of the Core Group of the Euro-CASE platform "Engineering Education", a member of which is EACR President Prof. Petr Zuna. The platform qualified the further programme of its activity in the field of engineering education. The programme newly incorporated "Mobility of students", coordinated jointly by Prof. Reiner Kopp (Acatech) and Prof. Petr Zuna and further projects of university assessment "Excellence in Research and Teaching" and "Inspiring Future Engineers".

2008 was the first year when new forms of work were implemented in Euro-CASE. In this respect within the scope of the autumn meeting of the Euro-CASE Council in London, the Royal Academy of Engineering organized a conference on "How Can Europe Meet its Renewable Targets". The conference was to give an answer to the question what are the chances of achieving the strategic goal of the EU in the field of reduction of greenhouse gases based on covering 20% of energy from renewable sources by 2020. A lecture at this conference in the Biomass Section on behalf of EACR was delivered by its member Prof. František Hrdlička. He based his data on results of research performed in the Czech Republic and also from conclusions of the independent committee for assessment of long-term power energy requirements of the Czech Republic established at the Academy of Sciences of the Czech Republic, which Prof. Hrdlička was a member of. The simultaneous meeting of the Euro-CASE Council in London had significant consequences for EACR, since here EACR President was nominated to the Euro-CASE Executive Board.

Numerous activities of EACR in 2008 were devoted to the development of bilateral inter academic relations. EACR President Prof. Petr Zuna participated on 8.-15.5.2008 in the Engineering Days in Budapest. Prof. Zuna spoke at the festive meeting of the Hungarian Academy of Engineering and signed a new Memorandum of Understanding with HAE. He further participated in the festive meeting of the Engineering Days in the Hungarian parliament. The same year a Memorandum of Understanding was prepared and signed with the Engineering Academy of Japan and thus commenced a new era of relations with this significant Southeast Asian academy. EACR considers cooperation with EAJ and Japan as very significant which is evidenced by its active participation in the Czech-Japan Technology Days in May 2008 in Prague. EACR members presided at the Czech-Japan Technology Days over individual sections and were authors of contributions presented by EACR. EACR also contributed to the conclusion of an agreement between the Czech Technical University in Prague and TUAT. Prof. Sadanari Mochizuki, who supported the conclusion of the agreement on behalf of Japan, was on this occasion presented with the diploma of "Academy Foreign Member". In 2008 EACR also guaranteed the operation and gave professional support to the Czech Education Centre in Vietnam which prepares Vietnamese students for study at technical universities in the Czech Republic.

At the general assembly of EACR on November 26, 2008, President Prof. Petr Zuna highly valued the broad spectrum of EACR activities in 2008 which it could boast of. He also appreciated that EACR members in this year participated in the preparation of significant reforms of research and development and reforms of tertiary education and were engaged in the work of other institutions. The participation of EACR members in the preparation of international conferences and participation in evaluating committees of leading international industry fairs can also be considered as significant.

Similarly as in 2008 also in 2009 the spectrum of EACR activities was relatively broad including outstanding national and international events.

An important event for the whole research sphere in the Czech Republic in 2009 was the approval of a reform of research and development and passing of an act on the support of research and development. An important component is the establishment of the Technology Agency of the Czech Republic, which was strongly supported from the beginning by EACR. The first analysis of the support of applied research and development and proposals for the structure and activities of the Technology Agency were prepared by EACR for the Research and Development Council of the Czech Government already in 2003. In the task group which prepared the establishment of the TA in 2009 were 5 members of EACR. Two EACR members then became members of the TA executive committee appointed by the government. EACR will thus be able to monitor the development of TA activities and give it every possible support.

Another important event in 2009 was the establishment of an academic consortium formed by the Engineering Academy of the Czech Republic and The Czech Medical Academy. The academic consortium was established on September 4, 2009 on the basis of close cooperation of two prestigious nonprofit organizations: The Czech Medical Academy and the Engineering Academy of the Czech Republic which associate leading experts from medicine and technology. The academic consortium is an independent, non-governmental and nonprofit association the aim of which is to contribute to the development of education, science, research and innovations particularly by means of representations, promotion and popularization of Czech science in all realms of social life in the Czech Republic and abroad including coordination of mutual practice and cooperation with similar foreign organizations.

The consortium aims to reach these goals mainly by:

- Formulating standpoints to serious problems in the field of education, science, research and innovations
- Formulating standpoints to science policy and priorities in the field of education, science, research and innovations
- Participation in analyses in the field of education, science, research and innovations.

The chairman of the consortium for the current year 2009 is Prof. MUDr. Cyril Höschl, DrSc., FRCPsych.(CMA), deputy-chairman Prof. Ing. Petr Zuna, CSc., D.Eng.h.c., FEng.(EACR). The posts of the chairman and deputy-chairman change annually (one year from CMA the next from EACR).

Similarly as in previous years also in 2009 EACR members were involved in organizing numerous conferences and seminars on a national and international level. High-level conferences are means of the promotion of EACR and participation of EACR members in scientific, preparatory and honorary conference committees including direct involvement of EACR members are a guarantee of the high quality of such conferences. Among significant events, which EACR participated in (e.g. Mechatronics, Reliability in performance electrical engineering, Metal, Non-destructive testing, Extension of life of power engineering equipment, Steel structures and bridges, etc.) the colloquium "Industry-University Working Together in Europe to Produce the Leaders for Tomorrow" organized by the CTU in Prague under the auspices of the Czech Ministry of Education, Youth and Sports within the scope of Czech presidency over the EU must be accentuated. The scientific secretary of this colloquium was EACR member prof. Michael Valášek, the French party was actively represented by Prof. Eric Spitz nominated as "EACR Foreign Member". The colloquium dealt with the discussion

on the attractiveness of the engineering profession, development of university study programmes and leadership in research and innovations. At the colloquium a new EU system was introduced for classification of the quality of technical universities and their cooperation with industry with numerous strategic goals – QUESTE. The first QUESTE certificate in the Czech Republic was awarded to the field of study "Engineering Mechanics and Mechatronics" at the Faculty of Mechanical Engineering of the CTU in Prague. Among further activities the role must be mentioned of scientific secretary at the For Industry Fair in Prague and participation in the evaluating committee and prize awarding.

In the field of international relations EACR participated in numerous projects and activities of CAETS and Euro-CASE. EACR President participated in the work of a group preparing Euro-CASE Vision and EACR organized an introductory meeting of this group in Prague on March 27 and 28, 2009. An initial document on Euro-CASE Vision was prepared by the Group on this meeting. Prof. Petr Zuna participated in further working sessions of this group in Munich. The final document which the group elaborated was committed to the Euro-CASE Council for discussion on the occasion of its meeting in Stockholm in November 2009. EACR representatives participated in Stockholm in the 2nd Annual Euro-CASE Conference which took place concurrently with the meeting of the Euro-CASE Council. The conference was prepared by the Swedish Engineering Academy on the topic "How to Enhance Interest of Young People in Mathematics, Science and Technology". The questions discussed and experience gained are very interesting from the viewpoint of the present situation in the Czech Republic and EACR will present this knowledge and will support their utilization.

Beneficial was also participation of EACR members in the 18th CAETS Convocation "Global Natural Resources-Management and Sustainability". Two papers on behalf of EACR were presented at the Convocation :

- A.John, J.Mrkos - Challenges in energy research for new EU members
- P. Zuna – Education of new experts for nuclear power

Both papers were highly appreciated and were made account of in the final statement, which is used as a document for government and regional authorities. In the Czech Republic it was committed to the Research Development and Innovation Council of the Czech Government as an official document.

Within the scope of Czech Presidency over the EU Prof. Zuna was named for membership in the professional committee of the conference "Soziale Gerechtigkeit und Wirtschaftssicherheit in Europa" organized by the Czech Embassy in Vienna. Prof. Zuna participated in the conference with a paper "Engineering Education in the Time of Crisis" and also participated in the evaluation of the conference and preparation of proceedings.

Among outstanding international 2009 activities without doubt is the workshop organized by the Australian Engineering Academy and Euro-CASE "Smart Technology for Healthy Longevity" in Paris with Prof. Mařík and co-workers on behalf of EACR participating in its preparation. Their involvement was highly appreciated. In relation with international EACR activities engagement of EACR must be mentioned in the preparation of the workshop "Frontiers of Engineering" for young talented research workers in the field of technical sciences. The workshop organized by the National Academy of Engineering and Royal Academy of Engineering will take place in Cambridge in 2010. Support of the European Technology Institute can be ranked among other activities. EACR answered the appeal of Euro-CASE and summoned its members to register in the EIT expert data base. The appeal was accepted by EACR members with a positive response.

At the general assembly on November 19, 2009 EACR President valuated in his annual report the current year 2009 as a very efficient one a thanked all those who participated in 2009 in the activities of EACR.