

IGIP Russian Monitoring Committee Activity and Development of Academic Mobility

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The globalization process that affects all spheres of life is strengthening in the society. In this connection, despite the rapid development of electronic means of information exchange, the problem of academic mobility in training of highly qualified specialists remains topical. High rates of scientific-technical progress make it especially important for engineering education. Meaning the strengthening of global partnership, the RF President D.A. Medvedev said on 19 March, 2010 in Kremlin that Russia stands for "mobile activity development" [1].

As social experience shows, scientific and technical specialists provide advantages for each country in the global economy. In all countries technical specialists are always significant and important driving force of economic changes so their training should be given priority. The Proceedings of the IX Congress of the Russian Union of Rectors (March 2009) quote the RF Minister of Education and Science A.A. Fursenko: "– Russian engineering education can be referred to the Russian brands – competitive, internationally recognised, with which the country can enter the world market as a full member" [2, p.7] In

order to retain the achievements, systems of highly qualified specialists training, their retraining and professional development should be given much attention.

The processes of education internationalisation are reflected not only in scientific research but also in practical steps. The striking example of pan-European cooperation of Ministers of Education of different countries is the Bologna Declaration that began the Bologna Process to establish European Higher Education Area.

The International Society for Engineering Education IGIP could be named as an example of public organisation aimed at international cooperation in the sphere of engineers training. It was founded in 1972 in Austria [3, p.65]. At present it is an authoritative organisation uniting academic-pedagogical community of engineering universities of many countries in the world. The IGIP developed and approved the "International Engineering Educator ING-PAED IGIP" register, it formulated and regularly updates the qualification requirements for technical university teachers. To be awarded the title "International Engineering Educator"

This article examines the activity of the Russian Monitoring committee of the International Society for Engineering Education (IGIP) aimed at engineering education improvement and academic mobility development. It also highlights the development of TEMPUS projects by Russian technical universities in collaboration with foreign partners.



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and to be included into the ING-PAED IGIP register, a candidate should:

- have the engineer qualification that meets the FEANI "European Engineer- EUR ING" requirements;
- pass engineering and teacher training in one of the accredited Training Centres for International Engineering Educators in the amount of not less than 204 hours (20 ECTS credits) on the approved IGIP curriculum;
- have at least one year of teaching experience.

The IGIP International Monitoring Committee (IMC) is responsible for compliance with the qualification level of "International Engineering Educator (ING-PAED IGIP), quality of the basic standards. In turn, coordination of the IGIP activity in each country is carried out by so called National Monitoring Committees (NMC). The IMC keeps the register, decides on individual applications for register and the ING-PAED IGIP title award that are submitted by National Monitoring Committees. In addition, it decides on applications of National Monitoring Committees for accreditation of Training Centres for International Engineering Educators that provide the ING-PAED qualification recognised by the IGIP.

The title "International Engineering Educator" plays a positive role in the professional activity of teachers. Inclusion in the register guarantees them ongoing professional development, control of their qualification profile, theoretically and practically grounded in the international framework. Awarding of the ING-PAED IGIP title increases the responsibility of engineering university teacher and enhances his/her prestige in society. The teachers who have the ING-PAED IGIP qualifications are the main reserve for the staff of Training Centres for International Engineering Educators that in turn ensures the quality of candidates training at the international level.

Inclusion in the register ensures the competence of engineering university teacher and provides his/her free professional activity not only in the country, but also abroad. The register provides a

potential employer with the detailed information on education and professional experience of the registered person.

Former socialist European countries were not initially involved in the activity of this Society. They actively joined in its work only twenty years later.

The Russian Monitoring Committee (RMC) of the International Society for Engineering Education (IGIP) was established in 1993 at Moscow Automobile and Road State Technical University (MADI). Its activities are aimed, first of all, at solving the urgent problems of engineering education improvement, training of engineering teachers at a new quality level in correspondence with the conditions of Russia's economy modernisation.

So far, the Russian Monitoring Committee as the IGIP subdivision in the Russian Federation has become one of the most authoritative National Monitoring Committees within the IGIP structure.

The RMC practically uses the developed Complex of engineering university teachers training, further disseminates it in Russia and implements the procedure of international certification of teachers applying for inclusion in the ING-PAED IGIP register. It coordinates the receipt of applications from the accredited Training Centres, conducts the initial examination of applications and cooperates with the IGIP governing bodies in the process of applications assessment and approval. The RMC forms databases of the IGIP certified teachers, and keeps records of educational (universities) and professional development institutions that meet the IGIP requirements. The IGIP Russian Monitoring Committee controls training content in the accredited Centres, its compliance with engineering teaching model and curriculum, qualification of teaching staff.

One of the RMC objectives in formation and enlargement of a network of the Russian Training Centres for International Engineering Educators is the planning of their optimal geographical distribution. It is necessary to take into account the real needs of engineering universities in different regions of the country

in training and professional development of teachers of general and specific engineering disciplines.

Up to now, 308 teachers from 30 Russian universities have the IGIP title "International Engineering Educator". Teachers of higher educational engineering establishment from such countries as Ukraine, Kazakhstan, Belorussia, Uzbekistan were trained with the subsequent ING-PAED IGIP certification in the system of the Russian Training Centres for International Engineering Educators supported by the RMC.

Training of highly qualified engineers in the period of Russia's entry into the world educational space requires the formulation of clear requirements for teachers of engineering disciplines based on a single basic standard-minimum. The basis for international certification of teachers trained in the Training Centres for International Engineering Educators forms the system of formation and recognition of the status of engineering university teacher developed by the International Society for Engineering Education. Representatives of Russia are members of the IGIP Executive Committee (V.M. Prikhodko) and the International Monitoring Committee (V.M. Zhurakovsky).

The IGIP Russian Monitoring Committee performs the main functions of dissemination of advanced technologies in the field of engineering education in the Russian Federation and outside it. In addition to coordinating the network of the Training Centres for International Engineering Educators at Russian universities, the RMC conducts active international activity. With organisational and methodical support of the RMC, the National Monitoring Committees were established. The Training Centres for International Engineering Educators were opened at universities of such CIS countries as Ukraine, Kazakhstan, Uzbekistan, and Bulgaria.

In addition, the RMC provides information support for university community: wide dissemination of information about the IGIP, the ING-PAED IGIP register and conditions of the title award. It supplies the Training Centres for International Engineering Educators with educational, methodical, reference, regulatory and

other materials; the Russian information portal www.rmciip.madi.ru was created.

The results of this work are regularly published in specialised collections of scientific papers and, mainly, in the annual collection "Engineering Pedagogy" published in MADI since 2000. 13 collections have been published by now. There are works both of the leading experts in the field of higher engineering education and of young. The collection materials are used by teacher in their professional activity for scientific and methodical support of educational process, lectures and practical training, enhance pedagogical competencies of teachers.

The main way of informing about the results of this work at the international level is the RMC participation in the annual Symposia of the International Society for Engineering Education and their organisation. These Symposia are a way for wide international public to discuss the most pressing issues of engineering education, to promote development of academic mobility. By the efforts of the IGIP Russian Monitoring Committee three international Symposia were organised and conducted in the Russian Federation: in 1998 and 2008 in Moscow in MADI, and in 2002 in St. Petersburg (in St. Petersburg Mining University). The 37th Symposium in 2008 in Moscow was attended by over 300 representatives from 23 countries.

The RMC actively uses Report, the press organ of the International Society for Engineering Education, for press coverage of their activities in the dissemination of state-of-the-art methods in engineering education. Since 2006, the Russian Monitoring has been the editor-in-chief of Report Committee. It collects materials, prepares, edits, publishes and distributes the journal in the National Monitoring Committees. In addition, on the RMC initiative the journal Report is translated and published in Russian for Russian higher education community to get acquainted with its materials.

Significant contribution to development of academic mobility was made by the TEMPUS projects financed by the European Commission, in which the RMC members actively participated.

From 2002 to 2010 several consortia of universities of Austria, Germany, Sweden, Russia and Ukraine were established. They successfully implemented four TEMPUS projects focused on the problems of teachers training system improvement in Russian and Ukraine engineering universities:

- project DIERUU NP-22265-2001(2002 - 2004) "Dissemination of pedagogical Innovation for Engineering education in a regional network of Russian and Ukrainian Universities";
- project TREM PP- SCM-T081A04-2004 (2005 - 2006) "Teachers training in the development of electronic learning materials";
- project MULTICEP CD-JEP 24006-2003 (2004 - 2007) "Curriculum development of multimedia course for Russian and Ukraine engineering-pedagogical education";
- project ILAN CD-JEP-27119-2006 (2007 - 2010) "Innovative Language Curricula in Technical Universities".

In these projects the participants put and solved the following tasks(problems):

- development of learning and methodic materials of new generation for teachers training, including multimedia educational materials;
- training of trainers - specialists possessing the qualification for teaching on the improved teachers professional development courses;
- formation of a network for dissemination of engineering and pedagogical innovations.

The national network of dissemination of engineering and pedagogical innovations created through the TEMPUS projects unites 13 higher educational institutions from different regions of Russia, including universities of Moscow, St. Petersburg, Novosibirsk, Krasnoyarsk, Tomsk, Barnaul, Perm, Tambov, Kazan.

The basis of the network is the Training Centers for International Engineering Educators. They operate in most of the participating universities or in the respective region that provide training

by prepared trainers. At the international level the network involves three Ukrainian universities in Kharkov and Odessa as well as a number of technical universities in Austria and Germany. This kind of international partnership allows effective cooperation in the area of implementation and use of unified training courses and teaching materials in order to raise the level of engineering discipline teachers training. The established network operates at the national level through experience exchanges within each of the countries participating in the project, and at the international level through cooperation between universities of Russia and Ukraine, as well as by strengthening the connections between the Russian-Ukrainian network and the EU universities.

Significant result of the consortia activities in the projects on development and improvement of curricula, courses and teaching and learning materials is the training of qualified specialists in use, implementation and dissemination of the developed courses and materials in universities of Russian and Ukraine. As a result, each network university has the team of trainers with advanced teaching skills. They use modern methods and have necessary qualification for teaching the developed courses for other teachers. Qualification of 32 trainers from 16 Russian and Ukraine universities of the network is confirmed by awarding of the ING-PAED IGIP diplomas and the title "International Engineering Educator". Teachers who received the qualification of trainers pass on their skills of working with the teaching and learning materials of new generation to teachers studying in the Training Centres for International Engineering Educators. Thus, the mechanism of development of external as well as internal academic and professional mobility of highly qualified engineering specialists is realised.

Within the frameworks of the TEMPUS projects, the Centre for academic mobility was established in MAD1 to organise engineering and teaching exchange of university teachers from different countries whose level of training depends on their possibilities to acquire knowledge in the universities of their

country as well as in Europe. It works in close cooperation with the RMC. The objectives of the Centre are development of programmes of study abroad, support of joint programmes, expansion of contacts with foreign universities, preparation and organisation of international projects.

The described above activities of the IGIP Russian Monitoring Committee allows to conclude that, along with financial support of governmental organi-

sations for development of academic and professional mobility in order to improve engineering education and reach the strategic objectives of Russia's economy modernisation, the activity of public organisations is necessary and useful.

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