

# Development of Independent Public Accreditation of Engineering Educational Programs in Russia in the 2000-2013 Timeframe

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The article presents the current overview of professional-public accreditation of engineering educational programs in the developed countries and describes the accreditation experience of AEER in Russia. Based on the conducted research and the decisions made at public hearings which were held in Saint-Petersburg, the amendments to the Federal Law "On Education", which are aimed at enhancing quality of engineering educational program accreditation in Russia, are proposed.

Independent professional-public or public-professional<sup>1</sup> accreditation of educational programs of any cycle and any specialty is an effective tool to control and ensure high quality standards of educational programs. It makes possible to escape the conflict of interests that can happen when educational program quality, its implementation conditions and learning outcomes are evaluated by state and affiliated bodies, as well as higher educational institutions (HEIs).

Accreditation of educational programs provides HEI with opportunities to:

- show loyalty to high quality standards of education and training;

- get an independent expert evaluation of educational programs and training quality;
- get recommendations for the improvement of educational programs;
- make a public announcement about reaching a high level of education quality;
- raise its competitive capacity on the Russian educational market;
- initiate the process of penetrating and developing the international education market;
- ensure and increase graduates' employment.

Such tool has been successfully applied in a number of developed countries, such as the USA, Great

<sup>1</sup> In December 2012 the State Duma adopted Russian Federal Law "On education" that defines independent accreditation of educational programs as "professional-public accreditation" (article 96).

Britain, Canada, Japan, Australia, for many years. It resulted in the development of national systems of independent public-professional accreditation of educational programs in engineering. The accrediting bodies are either private agencies or public organizations. Thus, ABET (the Accreditation Board for Engineering and Technology) was established in the USA, EngC (Engineering Council) – in Great Britain, JABEE (Japanese Accreditation Board of Engineering Education) works in Japan, Engineers Canada – in Canada. Being independent organizations, they, however, act with the approval of government and employers, and at the same time they are recognized by academic society (colleges and universities). In some countries the state's role is to keep register of the accrediting bodies.

The accrediting bodies representing national accrediting systems of educational engineering programs make international agreements on mutual recognition of accreditation criteria and procedures. It ensures globalization of engineering education, international recognition of accredited programs and thus, academic mobility development.

The most famous and reputable agreements of that kind are Washington Accord, (WA) is worldwide since 1988 [1], in Europe – the European Network for Accreditation of Engineering Education (ENAE) was founded in 2004 [2]; in Asia – Asia-Pacific Quality Network (APQN) has existed since 2008 [3]. Washington Accord's full members are nowadays 15 countries: the USA, the UK, the Emerald Isle, Canada, Australia, New Zealand, Republic of South Africa, Japan, Hong Kong (China), Taiwan, Singapore, Korea, Turkey, Russia (represented by AEER); ENAE association consists of 12 European countries: Germany, France, the UK, the Emerald Isle, Portugal, Russia, Turkey, Rumania, Italy, Poland, Spain, Switzerland; APQN includes 31 countries. Being a

member of these alliances Association for Engineering Education in Russia (AEER) represents the Russian Federation as an independent public-professional accrediting body for engineering educational programs. The requirements to the accrediting bodies – members of WA and ENAE as well as membership applicants – are very high, which actually provides international legitimacy of the accreditation processes.

Mutual monitoring system of accreditation procedures in the alliances' countries ensures high quality and fair evaluation of the programs under accreditation. In fact, membership in these alliances is similar to being included in the international register of quality assurance agencies. In Europe, there is also EQAR that actually is a register of European quality assurance agencies. However, most national accrediting agencies of Europe included in ENAE (except ASIIN, Germany) are not EQAR's members. Nevertheless, they are recognized both in their own countries and in Europe.

Independent public-professional accreditation of engineering educational programs in Russia was initiated by Independent Accreditation Center (IAC) AEER founded by Nikolay Pavlovich Kalashnikov, professor of Moscow National Research Nuclear University "Mephi". Under his direction IAC has accredited some dozens of engineering educational programs in Russia. In 2000 Accreditation Center (AC) as a part of AEER was established. That was the beginning of the development of educational program accreditation criteria and procedures oriented to international requirements (at that time ABET and WA). At the same time, prof. Shadrnikov V.D., member of Russian Academy of Education and at that time deputy minister of education, initiated the first efforts of Russia (AEER) to sign WA. The development of national system of public-professional accreditation of

engineering educational programs in Russia became possible due to constant working contacts of AEER with the partners from WA and ENAEE member-countries. Pilot project “EURO-ACE” implemented in Russia significantly contributed to that process. It resulted in the development and implementation of AEER accreditation criteria and procedures that meet the requirements of European quality assurance agencies.

In 2005, AEER became a member of ENAEE. Being more experienced in educational program accreditation than other European accreditation agencies-ENAEE members, AEER is authorized to award EUR-ACE® quality label to educational programs of the first and second cycles for maximum 5 years.

As it was mentioned, during these years (2000–2013) AEER had close contacts with WA signatories. WA experts organized some seminars for Russian experts; they also monitored program accreditation procedures conducted by AEER in Russian Universities. WA vice-president, prof. Andrew Wo, took part in some of these monitoring visits. Due to this work AEER accreditation criteria and procedures were improved and reached the quality level to meet WA requirements. As a result, Russia (represented by AEER) became a WA signatory in 2007 as a Provisional member, and in 2012 as a Full member.

In general, the accreditation criteria and procedures applied by AEER are similar to those of WA signatories and ENAEE members and are fully recognized by them. In this connection AEER accreditation is international. Thus AEER accreditation certificate is signed by ENAEE president (nowadays –Iring Wasser) and by AEER president. (Fig. 1)

Fig. 1.



AEER criteria list [4] consists of 9 criteria that contain the basic requirements to accredited educational programs. They are:

- Criterion 1.** Program objectives
- Criterion 2.** Program content
- Criterion 3.** Students and study process
- Criterion 4.** Faculty
- Criterion 5.** Professional qualifications
- Criterion 6.** Facilities
- Criterion 7.** Information infrastructures
- Criterion 8.** Finance and management
- Criterion 9.** Graduates

### 1. Program objectives

Program objectives should be in full correspondence with the state educational standards and meet the needs of potential consumers. They should be clearly stated and documented.

### 2. Program content

Program content should correspond to not less than 300 ECTS credits for Specialist’s Degree programs, 240 ECTS credits for Bachelor’s Degree programs and 120

ECTS credits for Master's Degree programs. The program curriculum should comply with the program objectives and ensure the achievement of the program outcomes.

### 3. Students and study process

The study process should provide the opportunities for all students to achieve the learning outcomes. Students should have internship opportunities in different enterprises and participation possibilities in academic mobility programs.

### 4. Faculty

Instructors and professors should be highly qualified, be engaged in research activities and realize the role of the disciplines in professional training.

### 5. Professional qualifications

The program should ensure engineering activity training during the whole study period. Graduates should have sufficient knowledge and skills in engineering disciplines, engineering analysis and design, etc.

### 6. Facilities

Facilities should meet the licensed indicators, be modern and adequate to the program objectives. They should be constantly updated and expanded.

### 7. Information infrastructures

The information base should be adequate to the program objectives and be constantly updated and enlarged.

### 8. Finance and management

Financial resources should meet the licensing indicators. Financial and management policies should be focused on the program quality improvement.

### 9. Graduates

The system of graduates' employment study and career support should be applied for further program improvement.

Figure 2 shows the data on AEER accrediting activity in Russian and Kazakhstan Universities. By now AEER has accredited 222 educational programs in 30 Russian and 7 Kazakhstan Universities. 141 of them were awarded with the international recognition label of ENAEE. The full list of accredited engineering educational programs is available on AEER site ([www.aeer.ru](http://www.aeer.ru)).

Graduates of the accredited programs can be awarded with a special certificate, which allows them to apply for Russian and international certification authorities, such as SNIO, FEANI, IPEA, APEC, in order to be awarded with international certificate of professional engineer. At this moment AEER is a member of SNIO, APEC and IPEA and can submit graduates' data to these organizations at the wish of the graduates of the AEER accredited programs.

The system of independent public-professional accreditation of engineering educational programs is to be constantly ready to meet challenges, no matter where they come from: employers, state authorities, international or domestic academic community. Nowadays, the most crucial challenges for the system and AEER are the following:

1. There is no motivation for Universities to submit their educational programs for public-professional accreditation;
2. There is no internationally recognized national system of professional certification;
3. There is no law "On Engineering Qualification in Russia";
4. The Federal Law "On Education in the Russian Federation" №273-Ф3 29.12.2012 (section 96) is inadequate.

The Federal Law "On Education" passed by the State Duma of the RF is the first in Russia to regulate public-professional accreditation of educational programs and higher educational institutions (article 96) [5]. Though regarding it as a positive step for civil society development in Russia, we have to state that the wording of the above mentioned law article was done carelessly and/or non-professionally. That led to contradictions in law interpretations and obstacles for public and professional accreditation associations. In general it seems that the authors of the law are not familiar with international and domestic experience of independent public accreditation procedures.

In this connection, on May 28, 2013 AEER initiated public hearing "Professional-Public Accreditation of Engineering Educational Programs" (St. Petersburg) for analyzing and discussing the content of the article 96 of the Federal Law "On Education": Professional-Public Accreditation of Higher Educational Institutions, Professional-Public Accreditation of Educational Programs. The hearing resulted in couching proposals that may be used as amendments to the Law "On Education".

Initiators of the hearing were AEER and National Research Polytechnic Universities of Tomsk and St. Petersburg. The hearing took place in St. Petersburg State Polytechnic University. Representatives of employers, academic society and the Federation Council actively participated there. The detailed information on the hearings is available on AEER site [6].

The content analysis of article 96 and the proposals on its amendment are the following:

#### **Provision 1**

"Educational institutions can be accredited by different Russian, foreign and international accreditation organizations".

It allows any organizations of any level and status to act as an accrediting body.

#### **Proposal:**

"Educational institutions can receive public accreditation by Russian, foreign and international public (professional) organizations that are included in National or/and international registers of accrediting bodies".

#### **Provision 2**

"Public accreditation is regarded as recognition of the fact that educational institution's activity meets the requirements and criteria of Russian, foreign and international bodies".

"Accreditation procedure, evaluation methods and forms as well as the rights given to an accredited educational institution are regulated by a public body conducting accreditation".

The requirements to the status and level of the accrediting body are not specified. A public organization cannot give any rights to an accredited organization.

#### **Proposal:**

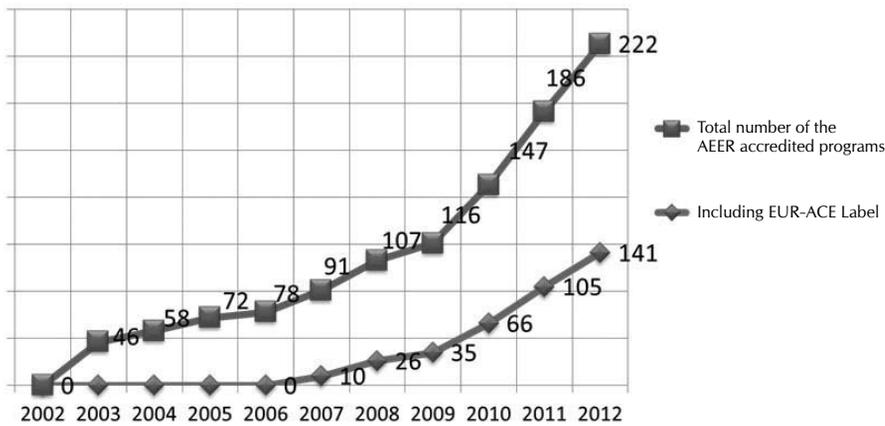
"Public accreditation is regarded as recognition of the fact that educational institution's activity meets the requirements and criteria of Russian, foreign and international bodies that are included in National or/and international registers of accrediting bodies".

"Accreditation procedure, evaluation methods and forms as well as public status of an accredited educational institution are regulated by a public body conducting the public accreditation".

#### **Provision 3**

"Employers and their associations, as well as authorized organizations have the rights to conduct public-professional accreditation of

**Fig. 2. Dynamics of AEER Engineering Educational Program Accrediting Activity (2002-2012 years)**



professional educational programs of a higher educational institution”.

**Proposal:**

“Employers and their associations, as well as authorized organizations have the rights to conduct national or/and international public-professional accreditation of professional educational programs of a higher educational institution in case they (employers and their associations, as well as authorized organizations) are included in national or/and international registers of accrediting bodies”.

**Provision 6**

“Educational program accreditation procedure, evaluation methods and forms as well as the rights given to an educational institution implementing the accredited educational program or to graduates of the accredited programs are regulated by the employers and their associations, as well as authorized organizations that conduct the accreditation”.

**Proposal:**

“Educational program public-professional accreditation procedure, evaluation methods and forms as well as the public status given to an educational institution implementing the accredited educational program or to graduates of the accredited programs are regulated by the employers and their associations, as well as authorized organizations that conduct the accreditation”.

**Provision 8**

“Information on the public or professional-public accreditation status of an educational institution is sent to the accreditation body and shall be regarded during state accreditation”.

**Proposal:**

“Information on the public or professional-public accreditation status of an educational institution is sent to the state accreditation body and is recognized inter alia qualitative indicators during the state accreditation of the educational institution and while establishing quota for state-

funded places for domestic and foreign students”.

**Provision 9**

“National and international public university accreditation and professional-public accreditation of educational programs are conducted on a voluntary basis”.

Proposal:

“National and international public university accreditation and professional-public accreditation of educational programs are conducted on a voluntary basis. The State encourages universities to receive national and international professional-public accreditation of educational programs by devoting funds to state educational institutions for educational program improvement to make the programs meet the requirements of national and international accreditation bodies and for covering accreditation expenses”.

**Conclusion**

Independent public or professional-public accreditation of educational institutions and programs is an effective tool to control quality of professional training. In Russia, such system has been successfully developed over the past few decades by such associations as AEER, NCPA and AKKORK. Thus, the accreditation criteria and procedures applied by AEER are recognized by the most famous and reputable international alliances, which makes AEER accreditation status to be international. The experience accumulated by Russian accreditation organizations can definitely serve as a basis for the Russian laws that regulate the processes of public and professional-public accreditation in education.

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