

# Public and Professional Accreditation of Educational Programmes. Who needs it and why?

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Presently, public and professional accreditation of educational programmes, particularly, of engineering ones, is becoming more and more well-known in Russian and international academic communities [1].

Nevertheless, there are controversial views regarding the necessity of this procedure. These points of view range from total denying to suggesting, for example, that an educational programme should be accredited by several accreditation agencies acting in different countries.

This article is meant to provide some information rather than present a scientific approach. It describes the characteristics of public and professional accreditation of educational programmes; the meaning of this procedure from the point of view of a higher education institution (HEI), students, graduates, employers; Russian and international activity in this area; and the concept of «international accreditation of educational programmes».

First. Presently, the education quality assessment system in Russia includes two types of accreditation: institutional and public and professional. Institutional accreditation concerns a higher education institution as a whole and is performed according to the plan of the Ministry of Education and Science of the Russian Federation under the guidance of the Ministry officials and with the participation of representatives from industry and other HEIs. Although this procedure includes the review of several educational programmes provided by the HEI, the attention is drawn mostly to the HEI's academic resources. In case the HEI receives good ratings for all kinds of academic resources, it obtains accreditation of the Ministry of Education and Science for a five-year period. This type of institutional accreditation is called state accreditation. It implies that all the educational programmes of the HEI hold the state accreditation granted by the Russian education control authority for the next 5 years.

**Public and professional accreditation problems of engineering educational programmes, the accreditation procedure in Russia and abroad are being discussed in the article.**

Public and professional accreditation can be provided to educational programmes only. The main focus here is located on future specialists' professional training evaluation. This type of accreditation is voluntary and is conducted by the independent accreditation agencies in accordance with their requirements. Such agencies invite experienced experts representing academic and professional communities. The best experts also take part in establishing accreditation criteria. On a number of occasions independent accreditation agencies of different countries (national accreditation agencies) conclude agreements on the mutual recognition of national accreditation systems. In this case accreditation of an educational programme by a national accreditation agency obtains the status of international accreditation. This means that a programme accredited by a national accreditation agency is recognized by all the member countries of an agreement.

The independent accreditation agencies have been operating in many countries for a long period of time. For example, ABET (Accreditation Board for Engineering and Technology) has been operating in the USA for several decades already. This independent agency provides engineering educational programmes accreditation across the US and can also conduct substantial equivalency evaluations for educational programmes outside the US. This accreditation body was established in 1932 as Engineers' Council for Professional Development (ECPD) and in 1980 was renamed as ABET.

Similar agencies operate in dozens of other countries. Sometimes there can be several agencies acting independently in the same country. Universities are free to choose any of them to conduct accreditation of their programmes. They can also choose any foreign accreditation agency.

International alliances (agreements) in the sphere of engineering educational programme accreditation comply with the coordinated accredita-

tion criteria and procedure. The most famous agreement between engineering accreditation agencies is the Washington Accord (WA) which was signed in 1989 [2].

#### Signatories

- Accreditation Board for Engineering and Technology (ABET)
- Engineers Canada
- Engineering Council of South Africa (ECSA)
- Engineering Council UK (ECUK)
- Engineers Australia
- Engineers Ireland
- Japan Accreditation Board for Engineering Education (JABEE)
- The Institution of Professional Engineers New Zealand (IPENZ)
- Hong Kong Institution of Engineers (HKIE)
- Institution of Engineers Singapore (IES)
- Accreditation Board for Engineering Education of Korea (ABEEK)
- Institute of Engineering Education Taiwan (IEET)
- Engineering Accreditation Council, Malaysia (EAC)
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#### Provisional members

- Russian Association for Engineering Education (RAEE)
- Fachakkreditierungsagentur für Studiengänge der Ingenieurwissenschaften, der Informatik, der Naturwissenschaften und der Mathematik e.V. (ASIIN)
- All India Council for Technical Education (AICTE)
- Institution of Engineers, Sri Lanka ENAEE (European Network for Accreditation of Engineering Education) includes 18 accreditation agencies from 15 countries [3].

**Full members**

- FEANI - Fédération Européenne d'Associations Nationales d'Ingénieurs
- ECUK - Engineering Council UK
- CTI - Commission des Titres d'Ingénieur
- ASIIN - Fachakkreditierungsagentur für Studiengänge der Ingenieurwissenschaften, der Informatik, der Naturwissenschaften und der Mathematik
- Ordem dos Engenheiros
- CoPI - Conferenza dei Presidi delle Facolta' di Ingegneria Italiane
- SEFI - Société Européenne pour la Formation d'Ingénieurs
- ENGINEERS IRELAND
- RAEE - Russian Association for Engineering Education
- EUROCADRES - Conseil des Cadres Europeen
- UNIFI - Università degli Studi di Firenze
- IDA - The Danish Society of Engineers
- BBT - Bundesamt für Berufsbildung und Technologie
- MÜDEK - Association for Evaluation and Accreditation of Engineering Programmes
- IGIP - International Society for Engineering Education
- IIE - Instituto de la Ingeniería de España
- ARACIS - The Romanian Agency for quality Assurance in Higher Education
- TEK - Finnish Association of Graduate Engineers

**Associate members**

- CLAIU - Council of Associations of long-cycle Engineers of a University or Higher school of Engineering of the European Union

In case an educational programme has obtained the accreditation of any member country of these agreements, it is automatically recognized by the rest of the agreement members. It is also important to note that these agreements are signed by specific accreditation agencies on behalf of their countries. So, if an educational programme obtains accreditation of an agency which does not participate in any international agreement, it cannot be called international accreditation.

Second. Each university has the right to submit their educational programmes for accreditation by a national, foreign or international accreditation agency. State education control authorities do not have any specific requirements concerning university educational programmes' public and professional accreditation. As we have mentioned before, public and professional accreditation of an educational programme is conducted by a team of appropriately trained and independent peer experts representing professional and academic communities (they cannot participate in accreditation of educational programmes of the university they work for). These teams do not include representatives of any government authorities to avoid the conflict of interests. In other words, the university's job on providing for the educational programme undergoing accreditation procedure cannot be evaluated by a representative of government authorities who are, in fact, responsible for education quality.

Therefore, public and professional accreditation of educational programmes, as opposed to institutional accreditation, is voluntary and independent.

Third. There are at least four reasons why universities can be interested in public and professional accreditation of their educational programmes.

1.Improving educational programmes. A university presents its programme to a team of independent peer experts including representatives from industry in order to disclose its shortcomings and get recommendations on its development and improvement.

2.Ensuring educational programme's recognition. In case of national accreditation, the information about the accredited educational programme is presented in mass media, thus increasing its competitive strength and providing its recognition in professional and academic communities. In case of international accreditation, the programme is recognized in all member countries of accreditation systems' mutual recognition agreement. This significantly widens the opportunities for student academic mobility and developing Double Degree educational programmes in cooperation with foreign partners thus allowing graduates to obtain 2 university degrees. The information about the programme obtaining international accreditation is published in mass media making it more appealing for Russian and foreign applicants and employers.

3.Comparing the educational programme with similar programmes of other universities. In some cases, for example, in the USA there is an educational programme rating based on the results of the public and professional evaluation.

4.Providing graduates with an opportunity to obtain national and/or international professional engineer certificates (this works only for engineering educational programmes). In many countries completion of an accredited programme is a prerequisite for taking part in the registration (licensing) process. In case a specialist graduated an educational programme which does not hold public and professional accreditation,

he/she is not allowed to obtain a title of a professional engineer.

In 2010 Russia as well began developing a system of professional engineers' certification.

Fourth. Public and professional accreditation of engineering educational programmes is a part of the Russian engineering education quality assurance system which includes two parts [4]:

1 .Independent international public and professional accreditation of engineering educational programmes.

2.Certification and registration of professional engineers in the APEC Engineer Register (Asia-Pacific Economic Cooperation) [5] or FEANI Professional Engineers Register (European Federation of National Engineering Associations) [6].

Different agencies conduct public and professional accreditation of educational programmes in Russia, the most well-known are the Russian Association for Engineering Education (RAEE) and the Agency for Higher Education Quality Assurance and Career Development (AKKORK) [8].

The RAEE has been conducting engineering educational programmes accreditation since 1999, granting international quality label since 2005. During this period, the RAEE has accredited 147 educational programmes of 26 Russian universities and 12 educational programmes of 4 Kazakh universities. The RAEE is a full member of the ENAEE and has the right to award EUR-ACE® quality label, thus ensuring the recognition of an educational programme in 14 European countries. Since 2005 66 Russian educational programmes received the EUR-ACE® quality label.

The RAEE also holds the provisional status in the Washington Accord. In case Russia (represented by the RAEE) will be accepted as a signatory of the WA, Russian engineering educational programmes accredited by the RAEE will be recognized in all WA member.

Each of the above-mentioned alliances (agreements) has a set of the coordinated requirements (criteria) for the engineering educational programme quality. These criteria concern the following issues defining the educational programme quality.

1. Programme educational objectives
2. Programme content
3. Students and educational process
4. Faculty
5. Professional qualifications
6. Facilities
7. Information resources
8. Finance and management
9. Graduates

Presently, the RAEE criteria comply with the ENAEE and WA requirements ensuring that the educational programme accredited by the RAEE peer review teams is recognized internationally.

Recently, some steps have been made to establish professional engineers' registration system in Russia as a part of engineering education evaluation and quality assurance system. In the last 3-4 years, the Union of Scientific and Engineering Associations (USEA) has laid the foundations of this process by conducting the professional engineers' contests [9]. In 2009 the USEA became a full member of FEANI - European Federation of National Engineering Associations. Thus, it acquired the right to manage Russian Professional Engineers Register and to nominate Russian engineers for obtaining the FEANI Euro Engineer title.

The USEA established the Monitoring Committee to organize and conduct the selection of nominees for FEANI Russian Professional Engineers Register.

In 2010 the RAEE became a member of APEC Engineering Register - the Asia-Pacific engineering organizations alliance. Following this event the Russian Monitoring Committee of APEC Engineers was established, headed by I. Fedorov, member of the Academy of Sciences, the President of the Technical Universities Association, president

of Bauman Moscow State Technical University; prof. P. Chubik the Vice-President of the RAEE, rector of Tomsk Polytechnic University was appointed as his deputy.

Russian Monitoring Committee of APEC Engineers has already started to organize and conduct selection of nominees for obtaining the status of professional engineers recommended for enrollment in the Russian APEC Engineer Register.

By now, the Russian Monitoring Committee of APEC Engineers has developed a set of methodological instructions and criteria for the selection of nominees to enroll in the Russian APEC Engineer Register.

To be recognized as a professional APEC engineer it is necessary to meet the following requirements:

1. Complete the engineering programme holding public and professional accreditation.
2. Gain a minimum of 7 years practical experience.
3. Spend at least two years (within the 7 years of practical experience) in engineering positions which require taking responsible engineering decisions (present documented confirmation).
4. Pass two exams set by APEC Monitoring Committee to confirm the engineering qualification in a certain field.

After the review of the presented confirming documentation the Monitoring Committee makes a decision to issue the professional APEC engineer certificate to the candidate and to enroll him/her in the Russian APEC Engineer Register.

The international professional engineer certificate provides Russian engineers with wide opportunities to participate in the major international projects which can be beneficial to the Russian economy.

The establishment of the international public and professional accreditation system and professional engineers' registration system (FEANI and APEC registers) in Russia will make

it possible to conduct the unbiased assessment of the national engineering education quality and to find ways of its improvement.

Summary:

1. Public and professional accreditation of educational programmes is an important tool of the independent and objective quality assessment of the Russian engineering education.

2. The international public and professional accreditation of the educational programmes allows higher education institutions to raise their education quality substantially as well as to promote their activity in the sphere of academic mobility for both students and teachers and to enhance the university prestige in Russia and worldwide, to make it more appealing for Russian and foreign applicants and employers.

3. International public and professional accreditation of educational programmes makes it easier both for the students and teachers to study or take an internship in those countries where their accredited programme is recognized.

4. Graduates of accredited programs obtain an opportunity to receive a professional engineer certificate (license) and to take part in the major and remarkable international projects.

5. The employers hiring the graduates of the accredited programmes get a chance to create teams of professional engineers having international certificates (licenses), which allow them to bid on the large-scale projects and increase their chances to win. This will also enhance and strengthen the company's international prestige.

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