

# Review of accreditation of engineering educational programs In Lithuania

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**The paper presents review of the specific features of legislation documents and further implementation of external independent assessment of engineering educational programs in Lithuania.**

**Key words:** Higher education institution, engineering education, engineering degree program accreditation.



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## Introduction

These notes give readers a kind of understanding, perhaps not complete enough, on how accreditation of engineering educational programs in Lithuania is organized. At the same time, they allow us to estimate the level of development of the accreditation system of educational programs (EP) and especially its implementation in the country.

## Organization of the accreditation process of EP

According to the Law on Higher Education and Research [1] only those educational programs of higher education degree that passed through accreditation procedure could be introduced at universities of Lithuania. Since 1999, the accreditation process is based on the external evaluation. The programs can be accredited for 3 years (short term) or for 6 years, moreover all new EP developed at universities may be accredited only for 3 years.

In contrast to many countries, accreditation of educational programs in universities of Lithuania is organized by state agency - Lithuanian Center for Quality Assurance in Higher Education - SKVC<sup>1</sup>), established under the

<sup>1</sup> <http://www.skvc.lt/en/?id=0>

Ministry of Education and Science of the Republic of Lithuania and financed by the state budget. However higher education institutions can apply to any accreditation agency from the list of those that are included in the European Quality Assurance Register for Higher Education<sup>2</sup>. Although one should keep in mind that the final decision on accreditation of EP could be taken only by SKVC based on reports of the external evaluation.

Within 2010 year the Center evaluated 194 educational programs<sup>3</sup>: 95 EP were awarded full term accreditation, 95 got only short term accreditation, 4 educational programs were not accredited. Similar statistics of 2011 year is as follows: total number of evaluated EP - 141 OD, 61 EP (43%) - full term accreditation, 79 EP (56%) - short term accreditation, 1 EP was not accredited.

So, the first thing attracting attention in the accreditation process is that evaluation of EP is performed by an international group of invited experts. Since recently these groups consist of representatives of the academic community from different countries. Of course, it helps to minimize the chance of any

<sup>2</sup> <http://www.eqar.eu/>

<sup>3</sup> Statistics was kindly provided by SKVC governing body

influence on the accreditation result by personal and professional relationships and preferences. On the other hand, this means that the process of accreditation - from self-study report to on-site expert-team visit and preparation of reporting documents is run in English. And this fact still could be a matter of some difficulties for universities applying for accreditation.

One of the main documents regulating external evaluation of educational programs called "Procedure for the External Evaluation and Accreditation of Study Programmes" [2], was approved by the Order of Ministry of Education and Science in 2009. According to the introduction of this document, procedure for accreditation of educational programs has been produced in compliance with Standards and Guidelines of ENQA<sup>4</sup>. The process itself is well structured and regulated. Some materials like sample questionnaires for meetings with administrators, students, etc. were elaborated in order to help experts during on-site visit to the university. Moreover it is also worth mentioning that the assessment of EP is run in a "package" way - one group of experts evaluates several related EP (probably in different higher education institutions). This maximizes the use of professional experience of experts in their fields of scientific and pedagogical competence, although requires moving to other cities to visit different universities<sup>5</sup>.

### Evaluation criteria

Let us consider briefly the Evaluation criteria of engineering educational programs at universities of Lithuania.

**Criterion 1. Program aims and learning outcomes.** First of all, EP objectives and its learning outcomes must be clearly defined and understandable, and information about them should be available to all interested parties. Of course, they must correspond to the

<sup>4</sup> <http://www.enqa.eu/>

<sup>5</sup> In contrast with the accreditation visits organized by AEER (Russia) or CEAB (Canada), where a team of experts can evaluate several EP but at the same university

level of education (Bachelor - Master) and the method of study (full-time or part-time). In addition, the content of the EP should closely match foreseen learning outcomes and qualification awarded upon graduation.

It should be noted that almost all EP, which I had a chance to evaluate satisfied this criterion. In comparison with accreditation practice in Russia - this information is not available at all Russian universities.

### Criterion 2. Curriculum design.

First of all, the structure and content of the EP must meet the requirements set in the regulations of the Ministry of Education and Science. [3] This applies not only to the general complexity of the EP, but the minimum number of disciplines in each block. So, in EP of bachelor level studies in mathematics and natural sciences must be of at least 24 credits including at least 14 credits for studies in mathematics. At least 30% of study load should be allocated for specialization disciplines, and at least 20 credits must be allocated for an internship. Not less than 10 credits - to prepare the final qualification project (report). At least 5% of the total study load should be available for optional disciplines chosen by students. At the same time, such disciplines may be outside the domain of specialization of the student. It is also allowed to study these disciplines at other departments of the university or other higher education institutions. Study load should be uniformly allocated within one semester as well as throughout all semesters. One of the major informal requirements of this criterion - EP content should reflect the latest achievements in research and technology. When evaluating the EP experts pay much attention to its compliance. In addition, the content of the EP and educational technologies must ensure the achievement of program learning outcomes by all the graduates - and this is also evaluated very carefully.

### Criterion 3. Teaching staff.

It should be noted that ministerial requirements for the teaching staff of EP are quite strict. Thus, at least half of the

teachers involved in the undergraduate programs should be associated professors or professors with some teaching experience within the last three years. They should be actively involved in research in the relevant field of the EP and annually have at least one scientific or educational publication. Teachers are required to be able to speak fluently at least one of the major languages of the European Union (English, French or German). Although, honestly speaking, it must be recognized that this requirement is not always met. Of course, teachers need ongoing retraining, and university should provide appropriate conditions for this. The faculty membership in professional societies and associations are considered as advantage in program evaluation. As a rule, professional skills of teachers are evaluated by students, availability of such evaluation instrument and its efficiency are of important consideration within EP accreditation.

**Criterion 4. Facilities and learning resources.** First of all, all classrooms must meet the requirements of health and safety – and it is quite natural requirement. Lecture rooms should be equipped with modern video and audio presentation equipment – to be fair this requirement is not met everywhere and the situation with classrooms' technical equipment is quite similar to many Russian universities. Each EP should have a plan for regularly renovation, improvement and development of its facilities, including laboratory equipment and software – EP evaluation criteria take into account implementation and effectiveness of such plans. One cannot deny that real equipment used for studying process at universities in Lithuania is modern enough and of high quality, and that is quite obvious. However, at some higher education institutions as a result of co-operation with industry, business and European development programs, the quality of equipment of educational laboratories is really high. Of course, all EP disciplines should be provided with textbooks and access to online information sources – it is an interesting

point to be made that books in Lithuanian, English and Russian languages, including even those published in the Soviet Union are available for students as reference and training materials. As a rule, the level of disciplines' information support is quite high and university authorities pay enough attention to this aspect.

**Criterion 5. Study process and students' performance assessment.** First of all, EP admission rules should be clearly formulated and available to interested parties. Obviously on the undergraduate programs (bachelor level) school graduates are mostly accepted. Applicants submit their applications in a centralized way, indication the first, second and third desired universities and study programs. Universities are naturally interested in admission of first-year students – each of them brings some funding. This funding is fixed for each school graduate and, therefore, there is not any plan of central funding of the educational activities at universities. Like at Russian universities, within the first year quite serious attrition of students about 30% could take place – universities try to take measures to reduce this dropout. However, in contrast to the practice of Russian universities where attrition of students is often caused by insufficient level of training upon school graduating, the main reason for Lithuanian attrition of students is their disappointment in the chosen educational program and a desire to change it.

As for admission to master degree programs – there is a system of entrance tests. And those who were bachelors yesterday are not forbidden to cardinally change their area of specialization – to pass the entrance exam successfully is the most important condition.

An important issue in the analysis of any EP is the system of students' knowledge and progress evaluation. The first and basic requirement – the system must be clear, and the information about it – available to students. As a rule, universities of Lithuania use students' performance assessment system

based on scores and ranking. Meetings with the students of different universities have shown that from the very beginning of studying process they are aware how their academic performance will be assessed and what principle is used for their final assessment.

One of the sub-criteria of criterion 5 is the availability of opportunities for students to participate in academic mobility programs. According to the accreditation procedure Association for Engineering Education of Russia experts, estimating the performance of this sub-criteria take into account the fact that there is at least a system of informing students about the opportunities of academic mobility. It is no secret that in Russia there is not yet any system of organization and financial support for academic mobility at the state level. As a consequence, this criteria establish quite soft level of compliance for Russian universities. The situation is different in the country-member of the European Union, where there are special programs to support international academic mobility, including the necessary financial arrangements. Against this background, it was surprising to learn that the number of students going to other universities and countries is very little. As an explanation of this fact raised the point that students of master (as well as bachelor) programs, as a rule, have somewhere to work and the lack of a semester is threatening them with loss of their jobs.

Moreover, to provide master students favorable conditions to combine studying with working some universities reserve evening time for classes, believing that this approach to the organization of the training process makes the EP more attractive to students. I must say that an international group of experts, which I had opportunity to join, did not agree with this approach, believing that the efficiency of training in the evening cannot be as productive as in the daytime. In addition, this approach significantly reduces the time available for the students' independent work - and this time is accounted in the study load of

the EP. And finally, not all students have jobs that match their future professional field.

One more sub-criteria of this criterion - most graduates from the EP should work in accordance with the awarded qualification. I must say that at universities of Lithuania that I was able to visit interaction with alumni is organized really well. As a rule, there is a system of graduates' career monitoring and support, graduates' opinion is regularly collected and accounted in order to improve the EP.

**Criterion 6. Program management.** This criterion includes, above all, a clear division of rights and responsibilities to improve the EP (decision-making, monitoring, implementation, etc.) among academic administrators. Information on the implementation of the EP should be regularly collected and analyzed. It should be noted that the primary method for collecting information is to ask students through a survey, which is conducted at the end of the studying process of each EP discipline. In addition, there is a need of regular feedback from graduates and employers - all this information should be used to improve the EP. And it is also very important to make received information available to all stakeholders of the educational process.

In practical terms, experts are often especially interested in two of the following aspects: how (to what extent) students' and employers are involved in the process of improving the EP. According to the experts opinion I had chance to talk with, it is not enough just to make students questionnaire survey and make adjustments of EP. It is also necessary to inform students about how their views are taken into account, and what changes are made in the implementation of the EP on the basis of these opinions. This, according to experts, motivates students to impact surveys, and it is hard to disagree with this fact.

The involvement of employers in the improvement of the academic process in general and specific EP, in

particular, is also the subject of special attention. Industry representatives (business) have to participate in the collective governing bodies of the university. Their opinions should be analyzed and used not only to form set of modules and content of EP disciplines, but also to in develop overall program objectives and learning outcomes. It should be noted that the learning outcomes are not listed in the state educational standards by specialty –there is only a set of frame competencies for almost the entire range of engineering educational programs and universities, based on these framework requirements, formulate learning outcomes for specific EP <sup>6</sup>.

In general, it should be noted that the evaluation criteria of the EP used in Lithuania are very close to those prescribed in the Standards and Guidelines of the European Network of

<sup>6</sup> *This approach resembles the approach taken in higher education system of Great Britain, where universities are guided by a document entitled Benchmark Statement, describing the framework requirements for whole areas of engineering education. Universities then develop learning outcomes for their EP on the basis of these documents.*

Quality Assurance ENQA [4]. It is not surprising, since the Center for Quality Assurance in Higher Education of Lithuania is included into the European Quality Assurance Register. And this is possible only in strict compliance of EP evaluation criteria and procedures with ENQA Standards and Guidelines.

### Conclusion

Review of accreditation of engineering educational programs in Lithuania shows that this system follow the requirements set out in the Bologna process. The system is essentially focused on the opinions and the role of all stakeholders of the educational process, and, as it was noted by the author, finds a good understanding of both teachers and students of Lithuanian universities. However, the system is very strict - the statistics presented in the article proves this fact. Probably it is quite obvious, given that the higher education system of the Republic of Lithuania pays close attention to education quality striving to become an equal partner in the European Higher Education Area.

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