

# Changes in Higher Education in Baltic Countries after the Bologna Declaration

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**ABSTRACT:** *The main aim of the changes in all Baltic countries was to improve the quality of higher education, competitiveness of graduates in labor market and content of national needs. After the restoration of political independence of the Baltic countries– Estonia, Latvia and Lithuania three tier higher education study system was accepted in all of them. After the first basic, 4-year-duration studies students have been awarded Bachelor's or Engineer's degree. The second tier in 2 years after Bachelor's leads to a Master's degree or in one year after Bachelor's Diploma Engineer's degree is awarded. The third-tier is 4-year doctoral studies after Masters's degree. In twelve years of operation, the accepted system showed shortcomings and the result was the discontent of the society and universities themselves. Bologna Declaration declares the creation of European area for higher education and signing it was a good reason for changes of the existing education model. A 4+2+4 study model remained in Lithuania but the binary system of higher education (non-university level and university level higher education) came into force in 2001. Estonia introduced the undergraduate-graduate system or the so-called 3+2 model with some exceptions in engineering and medicine and 4-year doctoral studies remained. In Latvia the legislation was changed in 2000 and a new degree structure has been implemented since 2002. It will be symmetric for academic and professional studies at universities, and Bachelor/Master system will replace the old 3 to 6-year professional degrees after a transition period during which the two systems will run in parallel. The consolidation of the new system continues, in particular through its extension to the college sector and private higher education institutions.*

## 1 INTRODUCTION

Since 1945 until 1991, all incorporated into Soviet Union Baltic countries - Estonia, Latvia and Lithuania were forced abandon national educational systems and introduce the educational system existing in the Soviet Union. Higher engineering education was one tier with the duration of 5 years. After the restoration of political independence of the Baltic countries three-tier higher education study system has been accepted in all of them. After the first basic, 4-year-duration studies students have been awarded Bachelor's or Engineer's degree. The second tier after Bachelor's, in 2 years leads to a Master's degree or in one year after Bachelor's Diploma engineer's degree has been awarded. The third tier – has been 4-year doctoral studies after Masters's degree. In ten years of operation, the accepted system showed shortcomings and the result was the discontent of the society and universities themselves. Bologna Declaration declares the creation of European area for higher education and signing it was a good reason for changes of the existing education model. The Bologna Declaration has clearly stimulated building of "bridges" between the sub-systems of engineering education systems [1]. The main aim of these changes is efforts to create study system, which allowed avoid dead ends for students (technicum's, college's graduates, persons who change their plans or did not make the right choice in time, etc.). The consolidation of the new system takes time and yet continues, in particular through its extension to the college/polytechnic sector. In Lithuania the new law introducing a binary system come into force from September 2001. In Estonia the Ministry of Education worked out a reforming plan of higher education for 2001-2002. Estonian government approved the plan in June 2001. The new system has already been applied in September 2002. In Latvia the Legislation was changed in 2000 and a new degree structure has been established in 2002. It will be symmetric for academic and professional studies at universities and Bachelors/Masters will replace old 3 to 6-year professional degrees after a transition period during which the two systems will run in parallel.

## 2 EARLY AND PRESENT HIGHER EDUCATION SYSTEM REFORMS

### Lithuanian experience

Following the new European realities since 1991, Lithuanian higher education institutions have been undergoing a process of transformation, restructuring. All of them have made great effort to meet both the fast transformations of the surrounding world and to compensate shortcomings in comparison to the developed Western European countries. After 11 years of transformations that took place in Lithuania's higher engineering education institutions, it is possible now to look over these efforts. In 1991 Lithuania approved the Law on Research and Higher Education which provided three levels of higher studies: - Bachelor's degree studies (4 years), - Master's degree studies (2 year) and Doctor's degree studies (4 years). In creating the system for Doctor's degree studies, the experiences of Western European, North American countries and Japan were considered [3, 5].

Today Lithuanian higher education has consecutive and non- consecutive types of studies. Consecutive studies are carried out following the programmes of higher education institutions that are included into the Registry of Studies and Programmes. After completing a study programme a person is awarded an academic or a qualification degree. Consecutive studies at technical higher education institutions can be of two types:

- University, when an individual is given higher education based on wide theoretical background and scientific investigation;
- Non-university – one-level professional studies intended for preparation for professional activities. An individual acquires professional qualifications on the basis of applied scientific investigation or applied research.

An individual, on completing consecutive studies, receives an academic certificate (diploma). An individual enrolled in non-consecutive studies and having collected a sufficient number of credits within a study programme, can also be considered as having completed studies at a higher education level. The workload of studies is measured in credits. One credit corresponds to 40 relevant hours of student work (including contact hours in classes and laboratories, independent work or self-studies etc.), or to one Lithuanian week load of work. A full academic year must result in 40 Lithuanian credits i.e. 60 ECTS (European Credit Transfer System) credits, or one Lithuanian credit = 1.5 ECTS credit.

All higher education institutions use a 10-grade scale. The pass mark is 5.

The study level is a classificatory parameter of study programmes, which is defined by the level of complexity of the programme, the rank of the awarded qualification in the national system of qualifications and other indicators. The first level of studies is aimed at expanding one's general education, providing knowledge and skills which would allow to start professional activity and creatively apply the accumulated knowledge and skills. The second level of studies is aimed at preparing individuals for their career in science, the career requiring scientific knowledge and skills.

There are three modes of consecutive studies: full time, evening and extra-mural. Higher education, obtained upon completing the same level but different modes of studies, is of the same value. The extra-mural studies by using electronic means of learning are more and more popular among the people who have not possibilities to take full time studies.

In Lithuania the possibility for colleges/polytechnics to award Master degree has been debated too. The outcomes of the debate until now are negative for college graduates. The pressure for Master degrees at colleges has given limited results so far [2, 4].

### Latvian experience

Single two-tier (4+2) studies system implemented in early nineties very soon was reformed. The system of higher education in Latvia is binary since the Law on Education Establishments (1995) sets the difference between *academic* and *professional* higher education [9]. The binary structure of higher education system in Latvia however is not strictly institutionalised, therefore one can see universities running professional programmes and institutions not bearing the name of university offering academic

programmes. In general, three groups of programmes can be distinguished: programmes leading to academic degrees, professional programmes based upon the standard of the first academic degree thus making graduates eligible for further academic studies and, finally, applied professional programmes oriented towards higher professional qualifications but not providing the background for direct admission to further academic studies. When applying the *university type/non-university type* approach, the academic programmes and these professional programmes based upon academic degree standard should be attributed to *university type* while the applied professional programmes - to the *non-university type*.

*Academic higher education.* Academic higher education programmes are based upon fundamental and/or applied science; they usually comprise a thesis at the end of each stage and lead to Bachelor and Master degrees. *Bachelor's* degree is awarded after completion of the first stage of studies. The first cycle leads to the award of a Bakalaurs (Bachelor' degree), which in most cases includes the preparation of a thesis. The duration of studies varies from three to four years. Holders are eligible for further studies towards a Magistrs degree or higher professional education qualifications.

The 4-year Bachelor degree is considered to be a complete academic qualification, while a 3-year Bachelor degree is rather an intermediate qualification before the choice between professional programmes or Master studies. *Master* degree is awarded after the second tier of academic education and requires total duration of university studies 5-7 years. The second cycle leads to the award of the Magistrs (Master's degree), a terminal qualification of higher education awarded one to two years after the Bakalaurs. This degree also includes the presentation of a thesis. The total duration of the course of study is no less than five years. In Medicine and Dentistry, studies are not divided into two stages but the degree in Medicine (six year) and degree in Dentistry (five years) are considered equivalent to the Magistrs.

According to the amendments (1999) to the Law on higher education establishments in addition to the academic Bakalaurs and Magistrs degrees, Bakalaurs and Magistrs degrees will be introduced as from 2001.

*Doctoral studies.* The degree of Master (or the equivalent) is required for admission to doctoral studies. The degree *Doctor*, which usually is internationally recognised as a Ph.D., can be achieved at public defence of a doctoral thesis. Doctoral studies last four or (more seldom) three full-time years. They include advanced studies of the subject as well as the research towards doctoral thesis. Publications in internationally quoted scientific journals are required before defence of the doctoral thesis. At present, regular studies in doctoral study programmes at the universities and having thesis research as an integral part of study programme is becoming the main way [7].

*Professional higher education.* The Law on professional education (1999) provides with higher professional programmes of two levels: *college* programmes leading to Level IV professional qualifications and professional higher education programmes leading to Level V professional qualifications. In a number of professional fields it is possible to establish college programmes as the first cycle of professional higher education. *College programmes* are of at least two-year duration and are considered as the first cycle of higher professional education. These programmes lead to Level IV professional qualifications (theoretical and practical preparedness for performing sophisticated executive tasks and for organisation and management of other specialists' work) and give credit to one's further studies in the second cycle of professional higher education. College programmes are currently being established at both the existing higher education institutions and at the former institutions of post-secondary vocational education. The fields in which college education programmes are first being established are engineering, computer science, business administration, etc. In order to ensure that training in college programmes can give credit for further studies in higher professional education, the quality assessment of college programmes will be carried out together with the appropriate "full" higher education programmes.

*Higher professional education programmes* are aimed at Level V professional qualifications (highest professional qualification of a specialist in a given branch, which provides for practical performance as well as planning and research in the most sophisticated professions). As mentioned above, there are both university-type and non-university type professional higher education programmes in Latvia:

*University-type* professional programmes are based upon an academic degree. They can be either relatively short programmes on top of a *Bachelor's* degree, or independent programmes providing higher professional education but including a standard of Bachelor's *degree*. The graduates of these programmes are eligible for further academic studies.

*Non-university* type professional higher education programmes (ISCED level 5B) are mainly aimed at acquiring of professional skills and acquiring of Level V professional qualifications. They are of at least four-year duration and they can, where possible and feasible, be organised in two cycles having a college programme and Level IV professional qualification as the first cycle [6, 8].

*Quality assessment.* According to the *Declaration on Co-operation in Quality Assurance of Higher Education in the Baltic States*, quality assessment in Estonia, Latvia and Lithuania is carried out using international peers from the three Baltic States and beyond.. According to the Cabinet regulations all the higher education programmes in Latvia should be assessed by the year 2002.

There are four universities and a number of other higher education institutions in Latvia. The main split between university and non-university higher education is between the programmes rather than between the institutions since the law allows academic and professional programmes to be organised within the same institution. All universities and 17 other institutions are state run. In addition, there are a number of private institutions of which 10 are state-recognized. All the recognized institutions enjoy autonomy. Recognition of higher education institutions and programmes is based upon quality assessment, which is carried out as self-assessment followed by an evaluation visit with the participation of foreign experts. Higher education institutions confer academic degrees and professional higher education qualifications.

*Main grading system used by higher education institutions.* All higher education institutions use a 10-grade scale. Some use it in the same way as in secondary education: 4: pass mark; 8 highest "normal" grade, 9-10 special grades reserved for students who perform with distinction. To obtain grades 9 and 10, students usually have to fulfil additional (and more complicated) tasks in the examination. Some institutions however use grades 9 and 10 as normal highest marks and some use 5 or 6 as the pass mark

## **Estonian experience**

After 1990 study system reform substantial changes occurred in all areas of education. Explosive growth of the number of students and private institutions, also autonomy and decentralisation, unfortunately, in some cases brought about a decline of quality and ambiguous educational aims of educational programmes. The result was dissatisfaction of universities themselves, the employers, students, student candidates and their family's [10]. In 2000, a year after European ministers of education signed the Bologna Declaration, Estonian minister of education formed a commission, which worked out a document that raised main problems and also offered solutions. These problems were stated as follows:

- *the system of higher education does not respond to the expectations and developments in the labour market.* The present higher education system in Estonia is binary and consists of academic and non-academic qualifications [11, 12, 13, 14]. Three different types of higher education studies exist in the first stage: *bachelor*-studies (university type of higher education, conducted by universities), *diploma*-studies (applied higher education, conducted by universities and applied higher education institutions) and vocational higher education (conducted by applied higher education institutions and institutions of vocational education). The nominal duration of *bachelor* and *diploma*-studies is 4 years, as a rule, and the duration of vocational higher education studies is 3 years. According to the definition, *diplom*-studies and vocational higher education are quite similar. However, almost no actual differences existed between *bakalaureus*- and *diplom*-studies conducted by universities. It shows that the situation in the first stage of higher education was not the best. *Bachelor* studies were followed by 2-year *Master*-studies. *Master*-studies are post-graduate rather than graduate studies and *Master* degree is a research degree rather than a final qualification for a specialist;

- *too many institutions providing higher education exist in Estonia*, many of those (especially the private ones) being too narrow specialized and having only 200-300 students. Public universities are

autonomous under the administrative jurisdiction of the Ministry of Education. This autonomy gives universities the right to independently determine their academic and organisational structure, the content of the teaching and research work, the organisation of teaching, the conditions for admission and graduation. Private universities or their study programmes are recognised by the state after quality assessment and accreditation. There are 6 public universities in Estonia. Public universities are multidisciplinary, but only one is a type of classical university (Tartu University). Other 5 universities are more or less specialised in certain field(s) – agriculture,); engineering, educational sciences, arts, music. Private university-type of education institutions provide at least one bakalaureus-level study programme. They are financed from their own means but the state may participate in financing certain study programmes in the case of the public demand for the qualifications that they provide. There are 9 private universities. The majority of private universities provide higher education in the field of business administration, law and international relations.

- *academic requirements are very heterogeneous in different universities;*
- *students' support system is dispersed and ineffective;*
- *financing of higher education has not taken into consideration the growth of the number of students.*

The proposals were:

- clear division of higher education to the university type and the non-university type of education. The graduates of both bachelors and applied studies have the right to continue in master level;
- financing of higher education concentrates on the output. The aim is to motivate the universities to improve student counselling to decrease the dropout rates.
- in accordance to the suggestions of the Bologna Declaration, universities have to work out new study programmes that are relevant to the labour market. It means an introduction of the so-called 3+2 model.
- introducing new students' support system that concentrates both on a student's performance and his/her economic situation.

The main aim of the changes was to improve the quality of higher education by regulating the ambiguous system that uses the intellectual and material resources ineffectively. Estonian government approved the plan in June 2001. The new system is applied from September 2002. Technical universities priority in 2001–2005 is to introduce the curricula harmonized with the European higher education environment, the prime output of which is engineers/masters prepared according to a five-year 3+2 model curricula. The existing curricula system before the academic year 2002/2003 consists of 91 curricula. The curricula reform leads to a significant decrease in the number of *bachelor*- and *doctor*- level curricula. The total number of curricula registered in the Estonian Ministry of Education in 2002 is 72, including eight curricula in university colleges.

The curricula of the new curricula system differ from those of the existing ones also by expanded studies of the humanities and social sciences (economics among them) as well as basic mathematics, physics and informatics in the curricula of the domains of Engineering and Natural Sciences. Traditional teaching will be reduced because of 20% reduction of lectures and a related increase of practical training in laboratories and group-work in seminars.

According to the Law on Universities, all study programmes in universities must be evaluated and accredited once every seven years. The accreditation of study programmes is granted by the Higher Education Quality Assessment Council (HEQAC), who forms the evaluation committees. HEQAC makes accreditation decisions and proposals regarding higher education institutions and their operation on the basis of evaluation committees\* recommendations.

The reform concerned *doctor degree* programmes most significantly. As the duration of *doctor degree* studies remained the same, the number of doctoral students will be greatly increased in every programme.

The Estonian higher education system is binary and consists of universities (*ülikool*) and applied higher education institutions (*rakenduskõrgkool*). Since 1999 some post-secondary vocational schools have a right to offer vocational programmes at higher education level. All types of institution offering

higher education can be state, public or private institutions. The administration of higher education is the responsibility of the Ministry of Education.

The Standard of Higher Education specifies requirements to higher education in Estonia and is a fundamental act for granting education licences and for accreditation of study programmes or higher education institutions. The Standard of Higher Education is based on other acts related with higher education and is valid for all stages or forms of higher education irrespective of owners or legal status of higher education institutions. The Ministry of Education take control for confirmation to Standard of Higher Education.

Private higher education institutions require a teaching license from the Ministry of Education in order to carry out instruction on a higher education level. Private higher education institutions or their study programmes are officially recognised after the accreditation. Private higher education institution has the right to award a state diploma or degree after accreditation and only to the graduates having completed the accredited study programme. The unified grading scale is used since 1999/2000 academic year:

Grade	Description	Percentage of the knowledge	Estimated equivalent in ECTS
5 or A	excellent	91 – 100	A
4 or B	very good	81 – 90	B
3 or C	good	71 – 80	C
2 or D	satisfactory	61 – 70	D
1 or E	sufficient	51 – 60	E
0 or F	insufficient	0 – 50	FX/F

According to the Law on Universities (1995), all study programmes in universities must be evaluated and accredited once every seven years. This applies also for applied higher education institutions. The Higher Education Quality Assessment Council forms evaluation committees on the recommendations of which the Higher Education Quality Assessment Council makes proposals regarding universities/applied higher education institutions and their operation. The evaluation committees are made up of representatives of research and development institutions as well as of experts from two foreign countries.

*Bakalaureus*-level study is the first stage of academic study main purpose of which is to increase students level of general education and develop theoretical knowledge and professional skills for the selected area of employment and further study. *Magister*-level study is the second stage of academic study main purpose of which is to deepen theoretical and specialist knowledge and develop proficiency in research, professional or other creative work for individual use of knowledge and skills. The study programme of research degree must include research with total capacity for no less than 50 %. The study programme for professional degree must include research, development-oriented or other creative work for no less than 25 %.

*Doktor*-study is the third stage of academic study, consisting of comprehensive research, professional or other creative work and interrelated studies. The *doktorikraad* is divided into research and professional degrees. The study programme for the research degree must include research for no less than 70 %. The study programme for professional degree must include research, development-oriented or other creative work for no less than 50 %.

Basic medical study consists of studying and acquiring practical skills. The length of study is six years. Basic medical study is a one-stage academic study and the graduation level corresponds to *magister-studies*.

Study programmes in the field of Veterinary Medicine, Pharmacy, Stomatology and Architecture (*arhitekt-insener-study*) take five years. The graduates will receive a diploma with indication of speciality.

Teacher study is performed in the form of *diplom-study* or passing an additional study programme after *bakalaureus-* or *diplom-study* at universities or *rakenduskõrgkool*. The capacity of the additional teacher study programme is 40 credits (60 ECTS credits).

## Diploma Supplement

Aiming to improve the international ‘transparency’ and at facilitating the academic and professional recognition of qualifications all Baltic countries higher education institutions decided to attach the Diploma Supplement to a higher education diploma. Diploma Supplement includes the following information: identification of the holder’s qualification, its quality, level and function, the contents of all the subjects and results gained, certification of the supplement, information about the national higher education system and additional information if any. The diploma supplement allows the students an easier access to the work or further studies abroad, gives the precise description of their academic achievements, fair judgement about their competence, fosters their employability, etc.

The Diploma Supplement is produced by national institutions according to the recommendations that have been developed by a Joint European Commission, Council of Europe and UNESCO working party. *In Lithuania* a new Diploma Supplement is being introduced in the course of 2002. Until now all universities issue diploma supplements to all students. It can be issued upon request in English or in another language. A working group has been set up with representatives of higher education institutions, of the Ministry of education and science, and of the ENIC/NARIC to prepare all necessary legislation for the implementation of the new Diploma Supplement. *In Estonia* the preparation of the appropriate legislation for Diploma Supplement. is now in progress. This document will be obligatory for higher education institutions as from academic year 2002-2003. It will be issued to all graduates. Until now, it is issued only request of graduates. *In Latvia* all the information about Diploma Supplement is available in Latvian language. The pilot project was organized in the University of Latvia. Some higher education institutions are already issuing the Diploma Supplement. The recommendations for implementation of Diploma Supplement are prepared by Latvian Rectors Council and submitted to Higher education department at the Ministry of Education and Science. The relevant regulations about implementation of Diploma Supplement will be prepared and approved.

## 3 CONCLUSIONS

1. All three Baltic countries in 1990-1991 successfully implemented and practically tested two-tier BSc-MSc (4+2) system of higher engineering education.

2. In more than ten years of operation, the accepted system showed shortcomings and the result was the discontent of the society and universities themselves.

3. Bologna Declaration, which declares the creation of European area for higher education was a good reason for changes of the existing education model and clearly stimulated building the “bridges” between the sub-systems of engineering education.

4. Baltic countries universities share the opinion of the need for the system to easily readable and comparable degrees.

5. For developing of European dimension in education all Baltic countries implemented ECTS and Diploma Supplement

6. In searching of the best model of educational system all three Baltic countries have made different changes in national systems and tried to create and test their own HE system in the highest level corresponding national aspirations and demands of labour market

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