

III. Проектирование результатов обучения, способствующих повышению качества подготовки студентов

THE QUALITY OF LEARNING OUTCOMES ALIGNED WITH THE NQF TO SUSTAIN AND IMPROVE THE INNOVATIVE ECONOMY OF A TERRITORY

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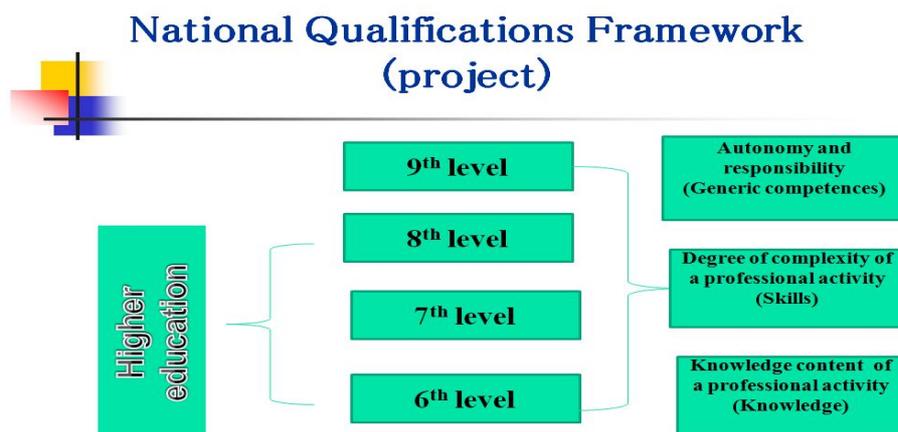
The paper aims at drawing attention to the use of the two basic tools of the European Higher Education Area (EHEA): namely, national quality assurance systems and qualifications frameworks. Both instruments are in line with the European actions, that serve as driving forces for enhancing and supporting the lifelong learning initiatives within the European education and training; the ultimate goal of these initiatives is to provide citizens with diverse learning opportunities, as a result to prepare citizens for employment in a growing knowledge-based labor market.

The financial and economic crisis of 2008-2009 was the first call, which was to make the Russian society to focus on important issues, one of which is the quality of education as a basis for creating and sustaining an innovation ecosystem. Investment in education and the development of the necessary competencies are crucial in improving the competitiveness of the country: these are the competences of graduates that determine the potential productivity of the territory. Russia is facing the challenge of creating the type of economy that would enable attracting highly educated and skilled workers. This initiative is reflected in the federal document - the Conceptual of the Federal Action Programme for the Development of Education for 2016-2020, which determines the quality and competitiveness of the Russian education as the prerogative of the

state policy. The message of the document is stated in a very simple way: Russia will be able to overcome the effects of the financial crisis only in the case the system of higher education provides with the highly qualified workers with excellent innovative and entrepreneurship skills. And this requires transformation of the national educational systems, which today should employ the existing transparency tools, incorporating qualifications frameworks and quality assurance systems.

Though today the Russian Federation is among those few countries where the process of developing the NQF is currently underway, some work has been already done. In 2007 the Ministry of Education and Science in close cooperation with the Russian Union of Industrialists and Entrepreneurs proposed the project of the NQF. Since then the project of the framework has been publicly debated and approved in the process of devising occupational (Ministry of Labor) and educational standards (Ministry of Education and Science of the Russian Federation).

The project of the framework comprises nine proposed levels, compatible with the eight levels of the EQF. The ninth additional level corresponds to the postdoctoral qualification. Levels six through eight are relevant to the system of higher education in Russia. The framework also specifies the ways of achieving qualification levels.

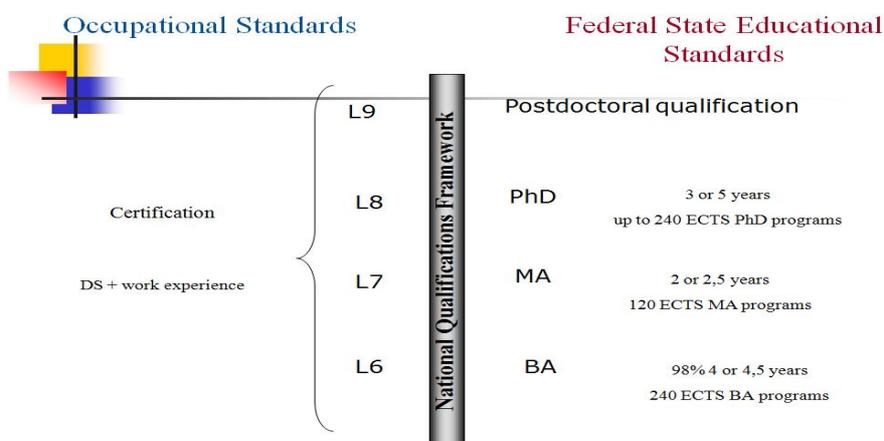


Picture 1. The project of the Russian National Qualifications Framework

Each of the qualification levels is characterized by the system of descriptors. Level descriptors fall into the categories of knowledge, skills and competences. These categories are further described in terms of autonomy and

responsibility, degree of complexity and knowledge content of a professional activity.

The Russian NQF mainly serves for the purpose of defining qualification levels, and devising occupational as well as educational standards.



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Picture 2. The relationship of the NQF with occupational and educational standards

Therefore, when designing or reviewing an educational programme, it is advisable to make evident that programme/module learning outcomes are aligned with appropriate occupational as well as educational standards.

So far, there has not been any practice for aligning programme/module learning outcomes with national qualifications frameworks. The ultimate result of the process of alignment should assure that students' learning experience facilitated them to acquire and

demonstrate the knowledge, skills and competences required for the award of the qualification. Therefore, the review of teaching, learning and assessment mechanisms is also important.

The whole procedure of aligning programme learning outcomes with the occupational and educational standards can be described in a more simple way by the matrix below:

Table 1. Matrix for aligning programme learning outcomes with occupational and educational standards

European Framework of Qualifications Descriptors defining the 7 th level		
Russian National Qualifications Framework (2012 Project) Descriptors defining the 7 th level		
Occupational Standard (OS)	Federal State Educational Standard of HE (FSES)	Educational Programme
<p>I.1.1 Analysis of the general job descriptors (GJD) of the OS and types of professional activity (TPA) of the FSES (OS : Part I. ‘General description’, part III. ‘Characteristics of the general job descriptors’ FSES: part IV ‘Characteristics of the types of professional activity’)</p> <ol style="list-style-type: none"> analyzing of the list of the GJD of the OS selecting of the most meaningful GJD, which are not reflected in the FSES defining the TPA, which correlate with the previously selected GJD relating the types of professional activity with the TPA in the FSES <p>Deliverable: defining the required GJD of the OS which is not included in the FSES</p>		<ol style="list-style-type: none"> Supplementing the list of the regulatory documents to be used for the development of the educational programme (Part 1. ‘General description’ item 1.1) with the following documents: EQF, Russian NQF (2012 project), List of the selected occupational standards Specifying the part 1.4.3 ‘Types of professional activity’
<p>I.1.2 Analysis of the labour functions of the OS and professional tasks of the FSES (OS: part II. ‘Description of the labour functions, included in the OS», FSES: part IV «Characteristics of the types of professional activity)</p> <ol style="list-style-type: none"> analyzing of the list of labour functions (LF) of the OS for the development of the educational programme selecting the most meaningful LF making a list of the tasks of professional activity of a graduate, based on the previously selected LF correlate the list of the tasks of professional activity with the FSES <p>Deliverable: finalize the list of the tasks of professional activity a graduate should be able to perform</p>		<p>Defining item 1.4.4 ‘Tasks of the professional activity’ of the item ‘General description’</p>
<p>Result of the previous steps: aligning the GJD and LF of the OS with the competences indicated in the FSES</p>		<p>Result of the previous step:</p> <ol style="list-style-type: none"> Supplementing the list of the regulatory documents to be used for the development of the educational programme: EQF; Russian NQF; list of the relevant OS; other relevant international requirements; Defining (reviewing) the objectives of the educational programme; Defining the type of the programme (academic, applied) Defining principal and supplementary types of professional activity; Supplementing and defining the learning outcomes, taking into account the selected types of professional activity; Developing the map of competences, which will show the correlation of the learning outcomes with the descriptors
<p>Next step:</p> <ol style="list-style-type: none"> choosing educational technology of a system level (setting the requirements for the level of the competence acquisition (development), sequence and logic of the competence acquisition (development), number of courses/modules each of the which is described with learning outcomes and in ECTS; establishing the appropriate assessment and quality assurance systems which focus on ensuring the cohesion of the educational programme and on functioning of a feedback system; 		
<p>I.1.3 Analysis of the level descriptors of the EQF, Russian NQF, labour functions of the OS and professional competences of the FSES (OS: part II. ‘Description of the LF, included in the OS’, part III. Description of the GJD FSES: part V ‘Requirements to the learning outcomes of a</p>		<p>Reviewing the objectives and learning outcomes of the educational programme (part 1. ‘General description’ Item 1.2. ‘General description of the programme», item 1.2.1. ‘Objective (mission) of the educational programme»; Item 1.5 Graduate’ competences, acquired upon comple-</p>

European Framework of Qualifications Descriptors defining the 7 th level		
Russian National Qualifications Framework (2012 Project) Descriptors defining the 7 th level		
Occupational Standard (OS)	Federal State Educational Standard of HE (FSES)	Educational Programme
master's degree programme' European Qualifications Framework Russian National Qualifications Framework (2012 Project) <ol style="list-style-type: none"> 1. analyzing LF and GJD of the OS 2. selecting the most meaningful LF 3. analyzing the qualification requirements for the selected LF 4. analyzing the 7th level of the EQF 5. analyzing the 7th level of the Russian NQF 6. (2012 project) 7. analyzing the professional and (or) profession-specific competences from the FSES 8. relating the professional, profession-specific competences from the FSES, LF, GJD, the 7th level descriptors of qualifications frameworks 9. defining new competences or their descriptors (knowledge, competences, skills) and/or irrelevant competences 	<ol style="list-style-type: none"> 1. writing a new list of competences taking into account the previously selected labour functions and their qualification requirements, the 7th level descriptors of both EQF and NQF (2012 project) 	tion of the educational programme <ol style="list-style-type: none"> 1. Analyzing the list of newly determined competences, defined with due account for EQF, NQF, FSES and OS 2. Amending the list of professional competences for reviewing the educational programme
Result: amendments in the list of professional competences for the development of an educational programme		

Further below the author describes the matrix and its application. The alignment of all the components of the academic programme can be presented as a system of steps, explicitly describing the procedure.

Step 1. Establish the working team responsible for educational programme alignment

The working team should include representatives of academic community, employers (representing the specified sector of economy), graduates of that or similar educational programme as well as specialists in the sphere of educational technologies, methods of teaching, teaching and learning management.

The WT sets objectives among which are:

- developing a key competence model of a graduate, in other words, defining learning outcomes aligned with programme objectives and the OS;

- establishing the requirements to the level of achievement of competences, coherence and cohesion of the learning process, number of modules, with the description of intended learning outcomes and number of credits;

- establishing appropriate assessment and quality assurance systems. These systems are intended to assure coherence of all the

elements of the educational programme and use of feedback mechanisms;

- writing a guideline for developers of module syllabi.

Step 2. Identify the occupational standards relevant to the educational programme

Educational programmes should reflect real needs of the labor market, employers' associations and society. Successful completion of an educational programme must result in award of the qualification, relevant to the level of development of science, technologies and economy.

Thus, programme developers should relate the requirements of the OS, requirements of the FSES and programme objectives for the purpose of developing the key competence model of a graduate, who is ready for professional performance and able to demonstrate a sufficient level of knowledge, skills, and competences.

Step 3. Analyze the general job descriptors

An educational programme, whose implementation is regulated by the established FSES, should also take into account the qualification requirements, described in the relevant OS. The FSES and the OS can have different wording, but the process of alignment should

focus more on the meaning. Any deviations and differences are to be approved by employers. An executive summary for an educational

programme should include the feasibility for these amendments.

Table 2. Agreement between the areas from the OS and the FSES

Occupational standards	Federal state educational standards of Higher Education
Occupations standard is a descriptor of qualification individuals must achieve when carrying out specified kind of performance.	The FSES is a set of coordinated state educational standards and requirements binding for all state accredited educational programmes of primary, basic general, secondary, secondary vocational education and higher education
Type of professional activities is a set of general labor functions, characterized by similar results and working conditions	Types of professional activities in HE can be research, project, teaching, organizational, management, etc.

It is recommended to:

- analyze the list of general labor functions of the OS that were earlier selected as relevant to the educational programme;
- choose the most relevant general labor functions that are not represented in the FSES;
- define types of professional activity relevant to the chosen general labor functions, and then align these to the types of professional activities in the FSES.

During the process of alignment it is important to understand whether the general labor function, which is not represented in the FSES, needs to be taken into account in the educational programme.

Step 4. Analyze the labor functions

This step specifies the professional activities that a graduate should be ready to perform.

It is recommended to:

- analyze the list of labor functions that were earlier selected as relevant to the educational programme;
- choose the most relevant labor functions;
- write a general list of tasks of professional activity of a graduate of the educational programme

The results of such analysis can be presented in a table.

Table 3. Aligning professional tasks from the FSES with the labor functions of the OS

Requirements of the FSES	Requirements of the OS	Findings
Professional tasks	General labor functions (GLF), labor functions (LF)	

Step 5. Write up a list of competences to be added to the competences from the FSES.

The FSES already have a minimum set of competences a graduate should be ready to demonstrate upon completion of an educational programme.

Although the competences are described in the FSES, the need to expand the list may arise, while aligning the educational programme with the OS. For that purpose it is recommended to:

- analyze Part II ‘Description of the labor functions (functional map of a kind of professional activity)’ and Part III ‘Profile of a kind

of professional activity’ taken from all the OS, which were previously selected for the alignment with the educational programme;

- choose labor functions, that are most relevant for the specific educational programme;
- analyze qualification requirements to the chosen labor functions;
- write up professional competences based on the chosen OS and qualification requirements.

The results of such an analysis can be described in a table.

Table 4. Aligning professional competences from the FSES with the labor functions of the OS

Requirements of FSES	Requirements of OS	Findings
Professional competences specific for each kind of activity	Qualification requirements to the chosen labor functions	

Step 6. Formulate programme learning outcomes embedding the OS

The alignment done with the previous steps can help formulate programme learning outcomes.

The programme learning outcomes should include common (CC), generic (GC), and general professional competences (GPC), as well as professional (PC) and profession specific competences (PSC).

The requirements for formulating programme learning outcomes aligned with the requirements of the OS can be better described with the help of table 4 below.

Step 7. Develop a pool of assessment tools embedding the requirements of the OS (assessment systems)

Programme learning outcomes aligned with the OS can be regarded as a reference point for designing teaching and learning processes. Successful completion of the educational programme can be guaranteed by the use of appropriate formative and summative assessment tools. Types and procedure of assessment, as well as assessment periods totally lie within a university's responsibility and are regulated by university local acts. An obligatory part of the assessment which gives the right to award qualification is the State Final Examination.

This step assumes completing table 4 for programme learning outcomes and later developing a pool of assessment tools.

Table 5. Programme learning outcomes

Types of professional activity	Professional tasks	Professional competences and (or) profession specific competences
1	2	3
TPA 1		PC ...
		PC ...
TPA 2 ...		PC..., PSC...
		PC..., PSC...
General Professional Competences (GPC):		
Generic Competences (GC) or common competences (CC): _		

A pool of assessment tools will generally include the following parts:

- assessment tools for the final examination; assessment tools for examinations and tests in disciplines (modules) and internships;
- formative assessment tools (including diagnostic assessment; coursework assessment, laboratory work assessment, etc.).

While assessing the competences, specific for the type of professional activity (which shows the ability of a learner to use knowledge and skills for professional performance) it is recommended to conduct an integrated assessment of competences.

Thus, the indicator of competence assessment is regarded as a formalized description of the assessed key parameters of the process. The indicators verify the quality of a teaching and learning process. Properly formulated indicators of assessment are a starting point for developing assessment tools for the State Final Examination.

To avoid any mechanical addition of the assessment results of separate knowledge and skills, it is necessary to use comprehensive indicators while assessing competences. One should keep in mind that competences are not a mere statement of knowledge and skills,

therefore, the indicators of their achievement should bear a complex structure.

Indicators of knowledge acquisition can be formulated through the actions that reflect the work with information and performance of different intellectual operations: reciting, understanding, analyzing, comparing, evaluating, etc. The indicators can be defined using a classification system of intellectual skills (Bloom's taxonomy): knowledge, comprehension, application, analysis, synthesis, and evaluation.

Indicators of skill and hands-on experience acquisition should include a description of the types of work performed by students during an on the job training - an indication of the value and (or) quality of performance in accordance with the technology and (or) the requirements of the organization at which the on the job training was undertaken. This part explains the feasibility for the on job training organization choice and the content of tasks for students.

Step 8. Design a structure and content of an educational programme embedding the qualification requirements of the OS

The FSES set general characteristics of programme units as well as the ratio of core and optional parts. The optional part is in a large degree dependent on the level of higher education. HEIs have autonomy in defining a composition of modules, where core elements are set taking into account a model programme (s), and optional elements are set in accordance with the profile of an educational programme.

The qualification requirements of the OS can be taken into account while designing an optional part of an educational programme.

Develop a plan for internships

While determining the content of an educational programme it is essential to keep in mind the learning outcomes, defined in the FSES and aligned with the OS. So, it is recommended to develop a plan for internships.

The content of training can later be added or changed so that it will assure adequate development of intended competences (learning outcomes).

Table 6. Developing the content of internships

Labor functions	Results (competences)	Types of work performed
	1	2
	Type of professional activity _____ Number of credits _____	
	Type of professional activity _____ Number of credits _____	

External evaluation of the educational programme.

This is the last step in the process of alignment. The step assures the quality of the educational programme. The external evaluation procedures should involve all stakeholders of the educational process:

- representatives of professional associations, employers, including those from the working team, who set the basic rules of aligning the educational programmes with qualification requirements of occupational standards;
- representatives of student community (students, post graduate students) and alumni;

- representatives of the academic community, from those who are involved in the process of educational programme implementation.

Within the Tempus project ALIGN (Achieving and checking the alignment between academic programmes and qualification frameworks) European partners proposed a set of standards. Presumably, the piloted academic programmes from partner-Universities would need to proof with evidence their compliance with the standards. On the other side there are external quality assurance agencies which would need to check whether the alignment

between programme learning outcomes and NQF is achieved. That is why these standards and criteria are an important part of the alignment process. They set relevant areas for consideration in a self-evaluation and external evaluation procedures.

‘Standards:

1 (a) An outcome standard is set: The minimum intended study programme learning outcomes must be consistent with any relevant subject/field standards and any National Qualifications Framework or the Dublin Descriptors.

1 (b) An entry standard is set: The prerequisite learning for participation in the study programme and any other assumptions relating to the study programme’s prospective learners must be made explicit.

2. Learning: a study programme is a process which enables prospective learners to attain specified minimum intended study programme learning outcomes reliably and efficiently in terms of learner effort via:

2 (a) study environment

2 (b) mode of learning

2 (c) staff support

2 (d) workload

2 (e) resources

2 (f) assessment’

Being an external quality assurance agency the National Centre for Public Accreditation (NCPA, the official website <http://ncpa.ru>) will eventually have to check the accomplishment of the alignment process. NCPA has used the standards and criteria of public accreditation complying with the Standards and guidelines for quality assurance in the European Higher Education Area (ESG) since 2009. With newly adopted ESG 2015, NCPA is now approving its standards and criteria, where the ALIGN standards will be embodied in. The table below shows the way the NCPA standards are influenced by ESG 2015. It also specifies a number of criteria that were introduced within the Tempus ALIGN; the last column described the evidence HEI will have to demonstrate to prove the compliance with the standard.

Table 7. An example of Standards and criteria for public accreditation of the National centre for public accreditation

NCPA standard	Criteria description	HEI evidence
Standard 1: Policy for quality assurance ‘...Internal stakeholders should develop and implement this policy through appropriate structures and processes, while involving external stakeholders’	Involvement of all stakeholders (administration and teaching staff, students, employers) in determining the mission, strategic vision of the educational programme, and developing a key competence model of a graduate	Which mechanisms are used to involve internal and external stakeholders in the development of policy for quality assurance?
Standard 2: Design and approval of programs ‘...The qualification resulting from a program should be clearly specified and communicated, and refer to the correct level of the NQF...’	The iPLOs are based on the requirements made by the relevant professional community members Correspondence of iPLO with the descriptors of Bachelor/Master level in the NQF	Which mechanisms are used to involve students and employers in the procedure for the development and approval of the programmes? How is the compliance of awarded qualification with the certain level of the NQF/EQF confirmed? How are the places for internships selected? Which reporting procedures are implemented following the results of an internship?
Standard 4: Student admission, progression, recognition and certification	Specification of the knowledge, skills and competences at lower levels of the Framework and their inclusion in the study programme’s prerequisites	Are the admission rules and procedures for the educational programme publicly available?

	<p>Use of the appropriate mechanisms ensuring that the students' receive the documents clearly stating the qualification awarded, learning outcomes achieved, etc.</p>	<p>Does the HEI have rules and procedures for students admission from other HEIs (the recognition and taking into account credits, obtained by students during academic mobility)?</p> <p>How is the collection, monitoring and management of the information about students' academic career conducted?</p> <p>Does the programme provide DS? Which data does this document contain?</p> <p>How is the interaction between graduates and employers organized in order to enhance the programme quality?</p>
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There is still much work to be done as regard to the adoption of the Russian NQF. But the society cannot wait for the ministries to act, and the community demands the first steps to be taken. Russia needs to introduce legal and regulatory framework, which will enable the higher education system to meet the requirements of the industrial and entrepreneurial sectors by improving the quality of gradu-

ates' learning outcomes. The higher education system has to focus on aligning with the world of work, with the heart of the process lying on the improvement of the quality of educational programmes that reflect the real needs of the social-economic environment of a territory. The effectiveness of the implementation of such a process will determine the innovative economy of the territory.

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