

Forest higher education in Polish National Qualification Framework

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ARTICLE

Abstract

A new Polish Act on Higher Education, enforced in 2011, introduced National Qualification Framework (NQF) as a basis for all study curricula. Since then all new study programs have to be built in accordance to NQF and all the existing programs have to be adjusted to fulfill the requirements of new regulations.

Based on the analysis of the available official documents, the paper provides an introduction to the concept of qualification framework and learning outcomes as well as the presentation of the qualification required by the „forestry” and other related study programs.

Keywords: qualification, forestry, study programs, knowledge, skills

Streszczenie

Nowe polskie Prawo o szkolnictwie wyższym, obowiązujące od 1 października 2011 r., wprowadziła Krajowe Ramy Kwalifikacji (KRK) jako podstawę wszystkich programów edukacyjnych. Od tej pory wszystkie nowe programy studiów powinny być zbudowane zgodnie z KRK, zaś istniejące programy powinny zostać dostosowane do wymagań nowych przepisów. Nowemu Prawu o szkolnictwie wyższym towarzyszą rozporządzenia regulujące szczegóły ram kwalifikacji. Do szczególnie istotnych należy rozporządzenie z 2 listopada 2011 r. w sprawie Krajowych Ram Kwalifikacji oraz rozporządzenie z dnia 4 listopada 2011 r. w sprawie wzorcowych efektów kształcenia.

W pracy przedstawiono opis koncepcji ram kwalifikacji i efektów kształcenia oraz przeanalizowano nowe przepisy pod kątem wymagań, jakie powinny spełniać programy studiów leśnych na I i II poziomie kształcenia.

Efektywne wprowadzenie KRK powinno ukształtować wiedzę, umiejętności i kompetencje społeczne absolwentów studiów leśnych w taki sposób, że będą oni aktywnymi i skutecznymi uczestnikami współczesnego rynku pracy. Aktywność ta powinna dotyczyć nie tylko tej części rynku pracy, która jest tradycyjnie związana z leśnictwem, usługami dla leśnictwa, ochroną przyrody, ochroną środowiska i jego zarządzaniem. Związane jest to z tym, że dobrzy absolwenci to tacy, których kompetencje takie, jak umiejętność współdziałania w zespole, twórcze myślenie i zdolność do samodzielnej pracy i rozwiązywania problemów, pozwalają im na znalezienie się w innych, również dalekich od leśnictwa, obszarach.

Introduction

A new Polish Act on Higher Education (AHE), which was enforced on 1 October 2011, introduced National Qualification Framework (NQF) as a basis for all study curricula. Since then all new study programs have to be built in accordance to NQF and all the existing programs have to be adjusted to fulfill the requirements of new regulations. The AHE has been supplemented by detailed regulations governing the introduction of the qualification framework. These include in particular regulation of 2 November 2011 on the National Qualification Framework and regulation of

4 November 2011 on the model learning outcomes.

The objective of the paper is to provide an introduction to the concept of qualification framework and learning outcomes and present the qualification required (according to the new AHE) by the „forestry” and other related study programs, based on the analysis of the available official documents.

Qualifications and qualification framework

The term „qualification” means title, grade, etc., which is identified with a corresponding diploma or other document issued after completion of a particular stage of education, including the higher education level. The expression „qualification framework” relates to the description of mutual relations between qualifications integrating different national levels of qualifications. It aims first of all at increasing transparency, access and quality of gained qualifications. National qualification framework for higher education is also a method of description and development of study programs which concentrates on learning outcomes, subordinating them to the whole process of training and orienting the system towards the students.

When using qualification framework for developing a study program, it is necessary to start with specifying the learning outcomes for the entire study program and define what each graduate is supposed to know, understand and be able to do after completing the program. Then, based on specific learning outcomes for the program, one should set the content of the curriculum and teaching methods for the study program as well as the methods of validation of the assumed outcomes. In the scope of Polish framework, learning outcomes have been divided into three parts ie. knowledge, skills and personal and social competences.

Learning outcomes

The key concept related to the introduction of qualification framework is **learning outcomes** (LO). The Act on Higher Education defines them as a stock of knowledge, skills and social competences obtained in the process of learning by the student. At the highest level of generalization, learning outcomes have been identified for studies conducted at different levels (bachelor, master and doctoral).

Learning outcomes for the field of study should be precedent to the study program. The curriculum is a description of the educational process that leads to the assumed outcomes. The study program containing a study plan and the description of particular modules (subjects, disciplines) should be designed on the basis of the learning outcomes defined previously.

According to the new Polish ministry regulations on the conditions of conducting studies in a particular direction and level of education, the assumed learning outcomes should be as follows:

- consistent,
- expressed by means of knowledge, skills and social competences,
- taking into account proper learning outcomes for a particular field of study, selected from the effects for the specific learning domain.

Employing learning outcomes to design study programs and curriculum results in changing the focus of the learning process from teaching towards the students and their activities.

Learning outcomes for the „forestry” major

In addition to general learning outcomes for bachelor, master and doctoral studies, there are also separate descriptions of LO for broad domains of sciences. For „forestry”, there is a document titled „Description of the learning outcomes for the domain of agricultural, forestry and veterinary studies”, being an appendix No. 7 to the Ministry regulations issued on 2 November 2011.

The description contains lists of learning outcomes for bachelor and master level as well as for

the academic and practical profiles. Learning outcomes cover knowledge, skills and social competences. This is a concept similar to the „Subject benchmark statements”, published by the Quality Assurance Agency for Higher Education in United Kingdom in 2003, which provides a means to characterize programs in a specific subject and in that case it is „Agriculture, forestry, agricultural sciences, food sciences and consumer sciences”.

Outcomes belonging to the category of **knowledge** for the 1st and the 2nd level of study are the same or very similar and usually keep the same scheme: for bachelor level „knowledge” remains on the „basic level” and for master level it is on the „advanced” or „extended” level. This category for the „academic” profile on bachelor (master) level contains 9 specific learning outcomes:

1. (a person having this qualification) has basic (for the master program „extended”) knowledge on biology, chemistry, mathematics, physics and other related sciences, suitable for the particular major,
2. has basic (advanced) economy, law, management and social knowledge suitable for the particular major,
3. has general (in-depth) knowledge about biosphere, chemical and physical processes occurring in it, properties of plant and animal raw materials, basics of technology and environmental development suitable for the particular major,
4. has general (in-depth) knowledge on functioning of live organisms on various levels of complexity, inanimate nature and on technical engineering tasks suitable for the particular major,
5. demonstrates knowledge of basic (advanced) methods, techniques, technologies, tools and materials allowing using and developing the potential of nature to improve the quality of human life,
6. has (an advanced) knowledge of the role and importance of the natural environment and the sustainable use of biodiversity and its threats,
7. has a basic (advanced) understanding of factors determining the status, functioning and development of rural areas,
8. knows and understands the basic concepts and principles for the protection of industrial property and copyright (and the need for intellectual property management), knows how to use the resources of patent information,
9. knows general principles for the creation and development of forms of individual entrepreneurship, using knowledge of the fields of science and scientific disciplines relevant to the particular field of study.

In case of the practical profile, there is a slight change in the content of the 1st outcome (knowledge has to be of applied nature), and remaining outcomes are the same. There are also two new, practical profile-specific learning outcomes:

- has a basic knowledge of maintenance of equipment, facilities and technical systems and technology typical for agricultural and forestry areas and agri-food processing relevant to the particular field of study,
- has basic knowledge of standards and technical norms related to the particular field of study.

As it can be seen, those are very broad and general statements, even though they are already limited to the narrower domain of knowledge. Former Polish ministry standards and current study programs can be easily fitted into the newly adopted standards (learning outcomes) with minor changes (shifted accents). More attention should be paid to the outcome No. 8 (copyrights and industrial properties). Due to the specific feature of Polish forestry (domination of state forests) outcome No. 9 should also be carefully analyzed and properly included in the new adjusted programs.

As far as the category of **skills** is concerned, the master level differs from the bachelor one by the depth of the skills - they should be used not only with understanding but also in the creative and

advanced way, and modified if needed. Graduate of the 2nd level of study should be able to choose a proper (optimal) method of problem solving, analyze results and act independently (without supervision). There are 10 specific skills listed in the regulations for the academic profile:

1. (a person having this qualification) is able to find, understand, analyze and utilize (for the master program: creatively utilize) essential information coming from various sources and in various forms, specific for the particular study program,
2. is able to precisely communicate with various parties in a verbal, written and graphical form,
3. uses basic information technologies for collecting and processing information for agricultural and forestry production,
4. performs (with supervision) simple engineer or project tasks, interprets results and draws conclusions,
5. identifies and analyses in a standard way phenomena influencing production, food quality, health of people and animals, the state of the environment and natural resources, and is able to use and optimize typical techniques of the particular field of study,
6. has the ability to take standard actions using appropriate methods, techniques, technologies, tools and materials, solving problems in food production, animal health, the state of environment and natural resources, and technical engineering tasks in accordance with the field of study,
7. knows advantages and disadvantages of actions aimed at solving the professional problems to catch the experience and competence of engineering excellence,
8. has the ability to prepare typical written works in Polish and a foreign language, considered to be primary for science domain and scientific disciplines relevant to the field of study, related to specific issues, using basic theoretical approaches as well as a variety of sources,
9. has the ability to prepare speeches in Polish and a foreign language on specific issues, using basic theoretical approaches as well as a variety of sources,
10. has language skills in the field of science and scientific disciplines relevant to the particular field of study, in accordance with the requirements at the B2 (B2+) level of Common European Framework of Reference for Languages (CEFR).

The above-mentioned skills focus on the wide capacities to carry out various results of different nature: both professional and general. It is also worth mentioning that even if they are general bachelor-level skills (not typical for engineers) they denote strong practical, technological and engineering context of studies in the field of agriculture, forestry and veterinary medicine.

Skills of the practical profile are even more practice-oriented. Apart from the enumerated academic ones, they contain also the following learning outcomes:

1. has experience with solving practical engineering tasks, learned in an environment that deals with professional activity corresponding to the particular field of study,
2. has experience related to maintenance of equipment and technical and technological systems typical for agricultural and forestry production, and agri-food processing, suitable for the particular field of study,
3. is able to use engineering norms and standards.

Achieving such outcomes definitely requires more practical training and relatively intensive contacts with the professional environment during the study period.

Social skills for both profiles are identical. They are as follows:

1. (a person having this qualification) understands the need of continuous learning,
2. can collaborate and work in a team, taking various roles in it,
3. is able to properly determine the playing in implementation of tasks set by themselves and others,
4. properly identifies and solves dilemmas of the profession,
5. is aware of the social, professional and ethical responsibility for the production of high quality food, stock of animals and the development and state of the environment,

6. is aware of the risks and is able to assess the effects of the activity in the broad field of agriculture and the environment,
7. is aware of the need for training and self-improvement in their profession,
8. is able to think and act in an entrepreneurial way.

Those skills are very broad and at the same time the most difficult to include into the study programs. They are also very tricky in terms of the validation and represent the biggest challenge for developers of the adjusted study programs.

In addition to the learning outcomes for particular domains and profiles, there are also separate sets of knowledge, skills and social competencies related to the requirements for the engineer qualifications, regardless of the level and field of study.

In the scope of **knowledge**, an engineer from the academic profile:

1. has a basic knowledge on the life cycle of the equipment, facilities and technical systems,
2. knows the basic methods, techniques, tools and materials used to solve simple engineering tasks in the particular field of study,
3. has a basic knowledge necessary to understand the social, economic, legal and other non-technical conditions of engineering activities,
4. has a basic knowledge of management, including quality management and business activities,
5. knows typical engineering technologies of the particular study program.

Additionally, an engineer graduating from the practical profile:

1. has a basic knowledge on maintenance of facilities and systems typical for the particular field of study,
2. has a basic knowledge on standards and technical norms specific for the particular field of study.

As it can be seen, some of the outcomes related to knowledge are the repetition of skills already described for the domain of agriculture, forestry and veterinary medicine. This denotes that study programs in those fields are more related to technology and engineering than in other domains.

Engineer-specific qualifications are primarily focused on **skills**. There are 8 (and 12 for the practical profile) additional skills listed in the requirements. For the 2nd level of studies the complexity and depth of the problems are higher.

An engineer:

1. can plan and perform experiments, including measurements and computer simulations, interpret the obtained results and draw conclusions,
2. is able to use analytical, simulation and experimental methods for formulating and solving engineering tasks,
3. is able to see system and non-technical aspects in forming and solving engineering tasks,
4. can make a preliminary economic analysis of the undertaken engineering tasks,
5. can make a critical analysis of the mode of operation and evaluate existing technical solutions, in particular equipment, facilities, systems, processes and services,
6. can identify and formulate the specification of simple practical engineering tasks,
7. is able to assess the usefulness of routine methods and tools to solve simple engineering tasks of a practical nature and to select and apply appropriate methods and tools,
8. according to the given specification, can design and implement equipment, facility, system or process, applying an appropriate method, technique and tools.

Additionally, for the practical profile, engineer should possess the skills and have experience gained in the professional environment, which is described in the additional set of 4 skills.

Engineers should also have additional **social competences** that include:

1. being aware of the importance and understanding non-technical aspects and effects of engineering activity, including its influence on environment and responsibility for the decisions,
2. thinking and acting in an entrepreneurial way.

The above-mentioned requirements for the study programs aim at the improvement of the preparation of graduates to perform on the modern job market and liquidation of so called „qualification mismatch” (the difference between skills expected by employers and those acquired during the study period).

Summary

Effective implementation of the objectives of the National Qualifications Framework will shape knowledge, skills and competencies of forestry graduates in such a way, that will make them active and effective participants in the labor market. This activity should not only concern this part of the labor market which traditionally is related to forestry, forestry services, nature conservation, environmental protection and management. This is because active graduates are people whose competences, especially the ability to work in a team, creative thinking and independence of action, can allow them to find other, professions, even very distant from forestry.

Thanks to the precise description of learning outcomes it is possible to distinguish more clearly those skills that are specific and necessary in the ongoing work in forestry and those which can also be useful in other branches of economy. Thus, learning outcomes, resulting directly from the qualifications framework, should constitute the key to success, which is undoubtedly finding a suitable job soon after graduation. At the same time they must also contribute to the creation of a natural need for life-long education (ie. using also other forms than university studies, namely self-education in particular) as only such an approach will allow permanent survival on the labor market.

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