Referencing Lithuanian Qualifications System to the European Qualifications Framework for Lifelong Learning

Research Report

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Vilnius, 2011

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List of abbreviations:

EQF – the European Qualifications Framework for Lifelong Learning

QF-EHEA – the Framework of Qualifications for European Higher Education Area

DD – the Dublin Descriptors

LTQF – the Lithuanian Qualifications Framework

LTQS – the Lithuanian Qualifications System

LE – the Law on Education of the Republic of Lithuania

LVET – the Law on Vocational Education and Training of the Republic of Lithuania

LHE – the Law on Higher Education of the Republic of Lithuania

LHER – the Law on Higher Education and Research of the Republic of Lithuania

Introduction

On April 23, 2008 the European Parliament and the Council endorsed *Recommendation on the establishment of the European Qualifications Framework (EQF) for lifelong learning 2008/C111/01/EB* (hereof – Recommendation). One of the key goals of the Recommendation is to establish mechanisms, by using the EQF as a common reference tool, which would facilitate issuance and international recognition of all levels of qualifications, including general education, vocational training and higher education, promoting in such a way individuals' territorial and professional mobility. One of the first steps on this road is relating qualifications issued within the national systems to the EQF levels. In order to achieve that, in the above mentioned document it is recommended that the member states:

Relate their national qualifications systems to the European Qualifications Framework by 2010, in particular by referencing, in a transparent manner, their qualification levels to the levels set out in Annex II, and where appropriate, by developing national qualifications frameworks in accordance with national legislation and practice ([1], 2 recommendation to member states).

The next step in the Recommendation deals with the practice of issuing qualifications by relating all the qualifications of the member states with the EQF:

Adopt measures as appropriate, so that, by 2012, all new qualification certificates, diplomas and "Europass" documents issued by competent authorities contain a clear reference, by way of national qualifications systems, to the appropriate European Qualifications Framework level ([1],3 recommendation to member states).

If a member state decides to consider the abovementioned recommendations it should prepare a referencing report in which it would be demonstrated that the member state has established provisions for referencing every qualification or qualification degree certificate awarded in the country to a certain level of the EQF the qualification or qualification degree relates to. In order to simplify the process of referencing the national qualification levels to those of the EQF, a set of 10 criteria was established to guide the process. The aim of the research presented in this report is to prepare referencing documents that would allow to formulate responses to two of the abovementioned criteria in a well grounded and reliable way ([3], 2nd and 3rd criteria):

- *there is a clear and demonstrable link between the qualifications levels in the national qualifications framework or system and the level descriptors of the European Qualifications Framework;*

-   the national framework or qualifications system and its qualifications are based on the principle and objective of learning outcomes and linked to arrangements for validation of non-formal and informal learning and, where these exist, to credit systems.

The research is based on the analysis of documents and public reference sources. The report consists of 4 chapters. Chapter 1 deals with the methods of research. Chapter 2 presents an overview of how the system of qualifications and qualification levels has emerged in Lithuania. In Chapter 3, the process of structuring the Lithuanian Qualifications Framework (hereof LTQF) and a satisfactory similarity between the LTQF formulations and the existing (awarded) qualification levels is demonstrated. Chapter 4 presents a comparison of LTQF and EQF level descriptions; in cases of levels 6 to 8 of LTQF, the Framework of Qualifications for the European Higher Education Area (QF-EHEA), [3] is considered too. By applying the *best-fit* principle it is demonstrated to which EQF level a given LTQF level should be referenced. At the end of the report concluding remarks are presented. The Annexes present documents of referencing.

The author of the report is indebted to Prof. Vincentas Dienys for his invaluable insights into the intricacies of the system of education of Lithuania, his advice on methods of research and his unyielding effort to present the procedures and findings in a simple and user-friendly way.

1. Methods of Research

The methodology of the research for referencing Lithuanian Qualifications System to the European Qualifications Framework is based on desk research. For the development of the methodology, the recommendations of the *Criteria and procedures for referencing national qualifications levels to the EQF* [2] were taken into consideration, as well as national reports by the countries which have already completed the referencing process: Ireland [4], Malta [5] and the United Kingdom [6]. Having analysed the materials and with some preliminary insights into the legal regulations of the qualifications system in Lithuania we have come to the conclusion that the research should be carried out in three stages:

Stage 1: analysis of how qualifications system was developing after 1990 and what level qualifications are issued in Lithuania at present;

Stage 2: investigation of how the Lithuanian Qualifications System (hereof LTQS) was designed and demonstration that LTQF as approved by the Government of the Republic of Lithuania on May 4, 2010 presents in an adequate way the system of qualifications issued in Lithuania;

Stage 3: a comparison of the level descriptors of LTQF and EQF and, on the basis of the comparison, referencing LTQF levels to the best fit EQF qualifications levels.

The first stage of the research is based on the analysis of existing legislation, i.e. on national acts and regulations and other national level documents, as well as certificates and diplomas granting a qualification or qualification degree. At this stage previous researches dealing with qualifications are taken into consideration.

The second stage of the research is based on the analysis of documents generated by the project "Creation of the National Qualifications System". Besides, sample training or study programmes for different levels of qualifications are presented to illustrate how the LTQF descriptors are related to the existing practice of granting qualifications in Lithuania.

When selecting methodology for **the third stage of the research**, which is, in fact, an immediate referencing of the LTQF to the EQF, we have faced an essentially different structure of the descriptors of the LTQF and the EQF qualification levels.

The *European Qualifications Framework for Lifelong Learning* consists of 8 levels which are defined by a set of descriptors indicating *the learning outcomes* which are assessed according to three criteria: knowledge, skills and competence. In the context of EQF, *knowledge* is described as theoretical and/or factual. *Skills* are described as cognitive (involving the use of logical, intuitive and creative thinking) and practical (involving manual dexterity and the use of methods, materials, tools and instruments). In the context of EQF, *competence*[1] is described in terms of responsibility and autonomy. For the purpose of illustration, an example of one EQF level descriptor is presented below [1].

Table 1. Descriptors of Level 4 of the EQF.

Level 4	Knowledge	Skills	Competence
The learning outcomes relevant to Level 4 are	Factual and theoretical knowledge in broad contexts within a field of work or study	A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change; supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities

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[1] In the Law on Education of Lithuania, **competence** is described as **ability to perform a certain activity** on the basis of the entirety of acquired knowledge, skills, abilities and values.

The *Lithuanian Qualifications System* is also based on 8 qualification levels. To describe the learning outcomes, characteristics of activities which a person has achieved when attaining a certain qualification are used: complexity of activities, independence of activities and variability of activities ([9], p.40).

The *complexity of activities* is a qualification criterion which is used to define the nature of activities, the scope of tasks and responsibility, relationship with other tasks and performers, the degree of responsibility, etc. The complexity of activities is related to an obligatory education and a certain scope of it ([9] p. 101).

The *independence of activities* is characterized by management and subordination: whether the activities are performed independently (regardless of other participants), or in a team, whether the necessary solutions are made by the actor himself, etc. ([9] p. 101).

The *variability of activities* is a characteristic of activities which are caused by technological and organizational development, prospects, innovation, etc. When judging about the variability of activities, it is taken into consideration how stable and/or how varied they are. Table 2 presents descriptors of level 4 of LTQF ([9] p. 101)

Table 2. Descriptors of Level 4 LTQF.

Level of qualification	Complexity of activities	Independence of activities	Variability of activities
4	The qualification provides for **activities which consist of actions and operations in rather broad fields of technologies and management**. The activities are based on several or numerous specialized action tasks, the appropriate solutions of which have not always been tested or are known. In exercising the activities, the factual and theoretical professional knowledge can be applied in a broad context related to the field of activity. **The activities are autonomous**; in order to ensure the quality of procedures and output, the employee follows routine performance instructions. The qualification provides for supervision and transfer of professional skills to employees with lower qualifications. The activity environment requires the **ability of adapting to the changes in the work place** which are conditioned by the progress in technologies and work organization.		

A comparative analysis of the descriptors in Table 1 and Table 2 reveals that the very different nature of the description does not allow a direct referencing of LTQF to EQF, and in order to ensure high degree of reliability a more detailed analysis is needed. Though EQF and LTQF have the same number of levels, without a systemic analysis there is no reason to claim that every level of LTQS is related to the respective level of the EQF. Thus when referencing the levels, to achieve the expected level of reliability, the *best fit* method was applied (see, for instance, p. 74 [6]), according to which a certain LTQF level N is referenced to three closest EQF levels on the basis of knowledge, skills and competences (see Figure 1).
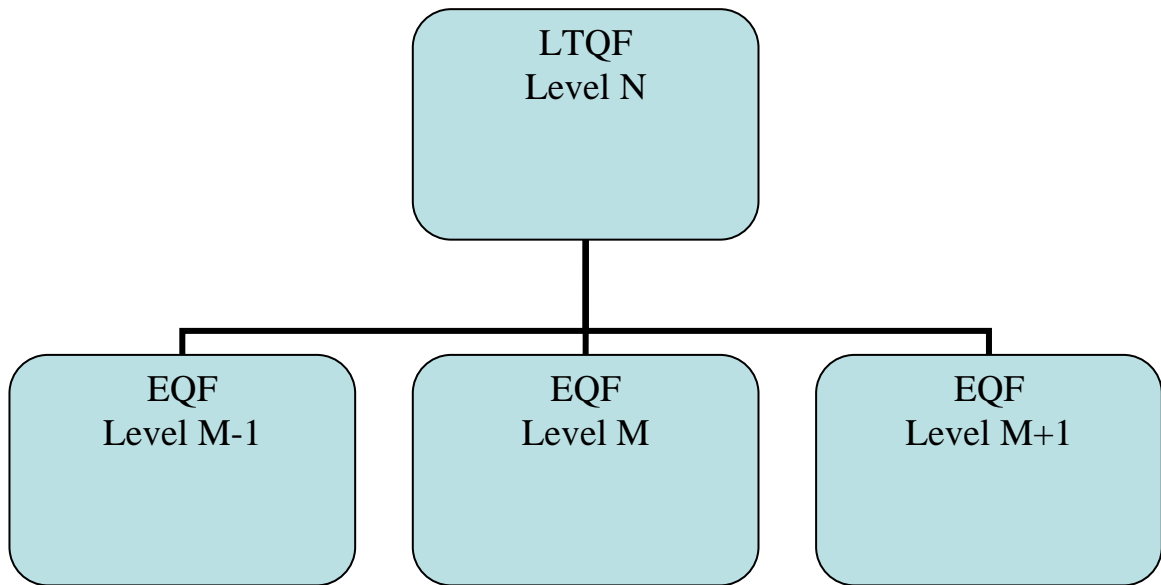
Figure 1. The *best-fit* method

In search of the best fit EQF level for level N of the LTQF a table of referencing structure (see Picture 2) has been developed. The first column indicates the description of the referenced level of the LTQS, the second one presents the descriptors of the EQF; the third one presents conclusions about each referenced level, while the fourth one deals with a generalized conclusion related to the referencing of Level N to the EQF levels.

Description of Level N LTQF	Descriptors of EQF levels	Conclusions about the referencing of each level	General conclusion about referencing of Level N LTQF to the adjacent EQF levels
	Level M-1, EQF		
	Knowledge		
	Skills		
	Competence		
	Level M, EQF		
	Knowledge		
	Skills		
	Competence		
	Level M+1, EQF		
	Knowledge		
	Skills		
	Competence		

Figure 2. The principle of referencing level N, LTQF, to adjacent EQF levels.

When applying the above presented principle, the expected knowledge, skills, and competence needed for the performance of certain activities are extracted from the description of Level N, LTQF; the facts are compared to the EQF level descriptors. The task is complicated by the fact that in the LTQF description direct requirements for knowledge, skills, and competence is not provided;

it is done in an indirect way, by integrating the three factors into the description of activities that a qualified individual is trained for. That is why the third column is filled in by way of expert analysis, with special focus on the assumed knowledge, skills and competences as they are formulated in the LTQF level description.

A similar scheme is applied in referencing levels 6 to 8 LTQF with the QF-EHEA, except that the EQF level descriptors are substituted by the QF-EHEA descriptors.

2. System of levels of education[2], qualifications [3]and qualification degrees in Lithuania

It must be noted that back in history, after gaining its independence in 1918, Lithuania chose to adopt West European, or, to be more exact, German system of education, which was based on an open-for-all national education principle and on a systemic structural approach of the Government towards education goals. That principle survived throughout oppression and was kept after Lithuania regained its independence in 1990 [13]. Thus today different initiatives for upgrading EU systems of education: Bologna Accords, Memorandum on Lifelong Learning, the Copenhagen Process do not introduce cardinal changes into the established Lithuanian system of education, but rather encourage certain aspects of its development.

Launched in 2004, the European Qualifications Framework for Lifelong Learning found immediate response in Lithuania: in 2005 *Creation of the National Qualifications System* project supported by the European Social Fund was launched. Its first outcome was a thorough study on the status of qualifications system, including projection and planning of qualifications, awarding, assessment and recognition, etc. [8]. Those interested in learning more about Lithuanian qualifications system are highly recommended to read the study, while in this chapter we shall limit ourselves to the analysis of what qualification levels are provided in Lithuanian legal acts.

The main act dealing with education is Law on Education of the Republic of Lithuania (hereof LE) [14]. It distinguishes 3 education blocs where State-recognized certificates or diplomas are issued:

- General education

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[2] **Education level** – competence, knowledge, skills, abilities and values, demonstrating a particular level of personal development, attainment thereof is recognised according to a procedure prescribed by the Government or its authorised institution (Law on Education, Article 2, paragraph 5)
[3] **Qualification** – ability and right to engage in a certain professional activity, as recognised according to a procedure prescribed in law or in legislative acts of the Government or its authorised institution (Law on Education, Article 2, paragraph 7)

- Vocational education and training

- Higher education.

The general provision is that the content of all the educational curricula "*is comprised of systemic knowledge, skills, abilities and values*" ([14] article 4, paragraph 1), i.e. the curricula are oriented towards learning outcomes. Let us have a look at what levels of learning outcomes are distinguished in every of the abovementioned blocs.

General education. Formal curricula of general education are developed within the framework of general education and approved by the Minister of Education and Science ([14], article 37, paragraph 4). According to the provisions of the LE, general education provides for three levels of education: primary education, on completion of primary education curriculum ([14], article 9, paragraph 5), basic (*lower secondary*) education, on completion of basic education curriculum ([14], article 10, paragraph 4) and secondary (*upper-secondary*) education, on completion of the secondary curriculum and passing of *matura* examinations ([14], article 11, paragraph 5). Besides, LE provides that learning achievement documents are issued in two cases:

1) a certificate of basic education – upon completion of the basic curriculum;

2) a *matura* attestation – upon completion of the secondary curriculum, which lasts 12 years in the formal system of education and upon passing the *matura* examinations.

Thus, by way of issuance of state-recognized documents two levels of general education are legitimised: basic (*lower secondary*) and secondary (*upper-secondary*).

Vocational education and training. Vocational education and training in Lithuania is regulated by the Law on Vocational Education and Training (hereof LVET). The LVET was adopted in 1997 [15]. The qualification levels have not been defined in the LVET, but it indicates that qualification is awarded on completion of a vocational training curriculum, which complies with " *the requirements set for vocational education and training curricula included into the Register of Study and Education Programmes*" ([15], article 20, paragraph 2). When the Register was being compiled the Minister of Education and Science endorsed Order No 1383, 1997 *"On Recognition of the Levels of Vocational Education and Training"* [16], in which 4 levels of vocational education were recognized. When the reform of higher vocational schools brought in the college system, the descriptors of the levels of Lithuanian vocational education and training were corrected in 2001 [17], without cardinal changes in the descriptors of the first four levels, yet with an introduction of the fifth level of vocational education which should be related to learning outcomes at colleges, since colleges are classified as schools of higher education according to the Law on Higher Education of the Republic of Lithuania (hereof LHE) [18]. Thus, vocational

education and training, which does not provide higher education, is reflected in 4 qualification levels in the present system of Lithuanian qualifications.

Table 3. Lithuanian levels of vocational education [17]

Level of vocational education	Description of the levels of vocational education attainment	Minimal level of general education achieved*
Level I	Ability to carry out simple, routine work operations	-
Level II	Competence to perform specialised work not requiring important autonomous decisions	Primary/basic
Level III	Competence to perform complicated work in areas requiring fairly responsible and independent decisions. Team building skills are developed.	Upper-secondary
Level IV	Competence to perform complicated work in areas requiring responsibility, independence, deep knowledge and specific skills. Organisation and administration skills for team management are acquired.	Upper-secondary

* General education which is necessary for the achievement of a certain level of vocational education can be acquired before or during the vocational education and training (i.e. integrated into the vocational education programme).

Higher education. The reform of Lithuanian higher education system was started as early as 1991: the Law on Higher Education and Research of the Republic of Lithuania [19] provided study programmes of several levels and introduced Bachelor's and Master's degrees: "*In Lithuania, one, two or several levels of studies shall be recognized on completion of which Bachelor's, Master's or other qualification degrees shall be awarded*" [19], Article 27*)*. A more detailed description of study levels was provided in the year 2000 version of the Law on Higher Education of the Republic of Lithuania [18]. It provided that the following study levels should be distinguished ([18], Article 39, Paragraph 2):

- undergraduate studies (first level studies). This level accommodates university studies[4], on graduation of which Bachelor's qualification degree is awarded, and non-university studies[5], on graduation of which a professional Bachelor's qualification degree is awarded;

- Master degree studies, specialised professional studies (second level studies);

- Integrated studies, with the first level and second level studies integrated into one study programme;

- Residency studies, art residency studies, doctoral studies (third level studies).

On April 30 2009 a new Law on Higher Education and Research of the Republic of Lithuania was adopted [20] (hereof LHER); it incorporated the former Law on Research and Higher Education and Law on Higher Education. It provided three study levels ([20], Article 46, Paragraph

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[4] University studies are integrated studies which provide for theoretical background and research-based higher education and qualification, as well as a scientific degree (on the defence of a thesis) ([18], Article 2, Paragraph 13).
[5] Non-university studies are one level, practice oriented professional studies at a higher school providing for a professional qualification based on applied research and/or applied scientific research. ([18], Article 2, Paragraph 25).

2): the first one – vocational Bachelor's studies, Bachelor's studies; the second one – Master's studies, the third one – doctoral studies.

The study programmes and qualifications provided in the higher education system can be judged by issued study attainment documents. Table 4 provides information on the main documents issued in Lithuania on the basis of the data of the Register of Blanks for Education Certificates [20].

Table 4. Main certificates and diplomas issued in the Lithuanian system of education [20]

Education bloc	Title of Document	Comments
General education	Certificate of primary education	Issued on completion of primary education curriculum the length of which in the formal education system is 4 years.
	Certificate of basic education	Issued on completion of basic education curriculum, the length of which in the formal education system is 10 years.
	Matura attestation (School leaving certificate)	Issued on completion of secondary education curriculum the length of which is 12 years in the formal education system and on passing the *matura* examinations.
Vocational education and training	Qualification certificate	Issued on completion of vocational education and training programmes for the attainment of the first level vocational education.
	Qualification certificate	Issued on completion of vocational education and training programmes for the attainment of the second level vocational education.
	Vocational training diploma	Issued on completion of vocational education and training programmes for the attainment of the third level vocational education.
Higher education	Professional Bachelor's diploma	Issued on completion of non-university study programmes the scope of which is 180-240 credits.
	Bachelor's diploma	Issued on completion of university study programmes the scope of which is 180-240 credits.
	Master's diploma	Issued on completion of Master degree study programmes the scope of which is 90-120 credits.
	Certificate of residency	Issued on completion of residency study programme.
	Certificate of Arts Licentiate	Issued on completion of arts post-graduate studies and on having acquired the Arts Licentiate qualification degree.
	Doctor's diploma	Issued on completion of doctoral studies and on having acquired Doctor's scientific degree.

The listed documents are, in fact, yet another proof of the facts that were observed when legal documents were analysed. Just two insignificant differences may be mentioned: one, in the bloc of general education a certificate of primary education is issued, and, second, in the bloc of vocational education and training there are no programmes which would lead to a Level Four vocational education diploma.

3. Consistency of Lithuanian Qualifications Framework and qualifications granted in the education system

In the previous chapter we have demonstrated which qualification levels are legitimized by Lithuanian legal acts. We have also shown that qualifications fall into three levels in higher education system and into four levels in vocational education and training. Before LTQF was established, general education was not interpreted as qualification, though in Lithuania almost one fourth of the employed have only the lower or upper secondary education[6]. Thus with regard to the determination to arrange all levels of education into a compatible system of qualifications in the European Qualifications Framework, the decision was made to distinguish 8 levels of qualifications in the Lithuanian Qualifications Framework [10]:

- Level 1, which would reflect general readiness for activities, not lower than that which is provided in the curricula of primary and lower secondary education [23], without special vocational training;
- Levels 2 to 4, which make provisions for special vocational training within the system of vocational education and training or in the workplace;
- Level 5, which is an interim level between vocational and higher education qualifications;
- Level 6 to 8, which include qualifications attributed to higher education system.

Such a system of levels was approved by the Government of the Republic of Lithuania on the 4th of May in 2010. From this time on all the system of qualification awards shall be based on LTQF provisions; on the other hand, in 2012, when qualification documents will have to bear inscriptions which level of the EQF the awarded qualification ([1], Recommendation 3 to member states) relates to, the majority of graduates will have studied according to programmes not referenced to LTQF. For that reason, while referencing the *Lithuanian qualifications system* to the EQF it is important to make it clear how the Lithuanian Qualifications Framework relates to the existing Lithuanian qualifications system. Only in the case of sufficient consistency further steps of referencing LTQF to EQF can be made.

This chapter presents concrete examples of established requirements for learning outcomes of each qualification level of the LTQF.

Qualification level 1. LTQF has established that this level of qualification is "*acquired by way of general education*" and "*the performance is based on knowledge acquired at the basic*

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[6] The data on employability shows that in 2009 of 1415.9 thousand employed citizens of 15 and above 69.9 thousand had only general lower secondary and 262 thousand had general upper secondary education [22].

(lower secondary) education". These requirements are provided in the Curriculum Framework for Primary and Basic (Lower Secondary) Education [23]. The document states that "*learners' achievements are described with special emphasis on the acquisition of the basics of general competences and essential subject-related competences*". Among the general competences, the competences related to the ability to learn, to communicate, to social and cognitive skills, initiative and creativity, as well as individual competences are brought to light. The reform of general education in Lithuania started soon after the Restoration of Independence in 1990 and systematically sought to make the best of the know-how of other states. The reform has been given a lot of consideration, and the key steps have already been made. The basic education, primary included, takes ten years of school, and the graduates from this level of education are, as a rule, older than 16. Thus there is no reason to doubt that the learning outcomes of the basic (lower secondary) curriculum are too low to perform activities as described in Level 1 of the LTQF.

Qualification level 2. On consulting the authors of the draft version of the LTQF it became clear that this level of qualification in the Lithuanian Qualifications System is meant, first of all, for individuals with learning problems. Its description should be compared to the description of the first level of vocational training: there is no requirement for any general education (see Table 3, p.10). At the moment, this level programmes of vocational education and training are used in adult education, mainly for job seekers' training. The requirements for learning outcomes are set up in national programmes which are included into the Register of Study and Education Programmes [24]. To illustrate the learning outcomes of this level, **Annex 1** presents qualification requirements for *Painter's Primary Knowledge and Skills Learning Programme* on graduation of which painter assistant's qualification is awarded. In principle, two main operations, rather simple in nature, are at the basis of the programme: (1) preparation of the surface for painting and (2) covering the surface with a coat of paint - and knowledge which is needed for this type of operations. The requirements indicate that the activity is performed under the guidance of a qualified worker. All these aspects are consistent with the description of Level 2 of the LTQF.

Qualification level 3. The requirements for learning outcomes at this level are formulated in national education programmes which are registered in the Register of Study and Education Programmes [24] and are attributed to the second level of vocational education (see Table 3, 10). An example of the requirements of this level qualification is presented in **Annex 2**. That is a programme for the training of a *painter*. It is obvious, that the requirements for learning outcomes are much higher in this case: the student is expected to know how (1) to prepare surfaces for painting and how to paint not only flat surfaces, but also façades; (2) how to prepare the workplace and tools; how to apply wallpaper, etc. In such a way the requirements include learning outcomes

that are related to several areas of activities, even though these are rather narrow. It is not difficult to notice that requirements for knowledge in this programme are much higher. All these aspects are in harmony with the description of qualification level 3 of the LTQF.

Qualification level 4. At this level, requirements for learning outcomes are formulated in the standards for vocational education and training. The standards are publicly accessible on the website of Qualifications and Vocational Education and Training Development Centre (KPMPC) [25]. They are used for the development of new programmes by providers of vocational education and for assessment of achieved qualifications by assessment panels. **Annex 3** presents requirements for competences formulated in the VET standard for a Decorator's (builder's) occupation. On successful graduation from the VET programme, a third level vocational education is granted (see Table 3, p. 10). It can be seen that a person of this qualification is ready for activities which consist of actions and operations in a rather broad range of technologies applied in the building sector. If Annexes 2 and 3 are compared, it may be clear that the painter's third level qualification covers only one aspect of the decorator's activities: painting the surfaces of a building and wallpapering, while the decorator should know how to insulate and plaster walls, be able to lay tiles and decoration plates, etc. Such a broad area of activities requires deep factual and theoretical knowledge which is applicable to a broad range of activities, and the competences *"provide for supervision and transfer of professional skills to employees with lower qualifications"* (LTQF, level 4), even though the vocational standard does not literally name it. Thus in this case the conclusion can be drawn that the learning outcomes of the programmes granting level 3 of vocational education and training are rather well reflected in the description of LTQF Level 4 qualifications.

Qualification level 5. As it has been mentioned in the previous chapter, there are no programmes at the moment which would grant a fourth level vocational education (see Table 3, p. 10) that would be compatible with level 5 of the LTQF. For this reason, if these qualifications are granted in future, they will have to be granted under the provisions of the LTQF.

Qualification level 6. This level of qualifications is the most complicated one. First of all, since the legal acts on higher education do not recognize the level of short cycle (within the first cycle) studies nor they are exercised in practice, this level of qualifications is on the verge of upper secondary and higher education. Furthermore, this level includes two qualification groups, close in importance. One of those, the college level studies (Professional Bachelor's degree) , is more focused on implementation of innovations, the other one, the first study cycle (Bachelor's degree) university studies, is more oriented towards creation of innovations. According to the existing practice the key document where general requirements for the learning outcomes of this level are set up is the regulations of a certain study area (or a group of study fields). In all the regulations of

study areas developed up till now, except Teacher Training Regulations, requirements for the expected study outcomes are rather well defined, including knowledge, cognitive skills, practical skills and transferable skills. As an example, in **Annex 4** an excerpt from the General Regulations of Sciences in Technology (Engineering) study area for the first study cycle is presented [26]. On comparison of the expected learning outcomes of the Regulations in Annex 4 and the description of level 6 LTQF it may be seen that the requirements formulated in the Regulations are exceeding, to a certain degree, the expected learning outcomes of level 6 of the LTQF.

The descriptions of study areas are the same for college and university studies; for that reason both types of study programmes have been analysed. For college higher education studies the programme of Construction and Building at Vilnius College of Technology and Design was chosen. In **Annex 5** a table is presented illustrating activity areas and professional competences. The chosen format of study objectives, when only the expected vocational competences and competence-related skills are indicated, does not reflect the overall learning outcomes. Yet the broad spectrum of study subjects, including subjects on general education (philosophy, psychology, sociology, etc.), social sciences (administrative and labour law, corporate economics, etc.), general theoretical subjects on engineering (mathematics, applied physics, IT, etc.) and the fundamental subjects in construction and building (building materials, construction mechanics, etc.) and subjects of professional education (building structures, principles of construction estimates, technologies of building) provides sufficient evidence that the range of knowledge is broad, and the contents of separate subjects prove that the theoretical level of knowledge is high. To keep at the forefront of fundamental and applied research a significant number of teaching staff have scientific degrees. In the description of the programme it is indicated that it provides for "*cognitive skills (the ability to apply professional knowledge for solving qualitative and quantitative tasks of different nature; to recognize and analyse problems and develop strategies for their solutions; to interpret new technologies on a theoretical level, to develop lab know-how for experiments needed in engineering; to develop skills for information gathering and processing, interpreting the results of lab observation and measurements; holistic approach to professional solutions), practical skills (the skill to assess engineering solutions from different perspectives; to observe and assess events; to assess the risks of material and conceptual choices and be able to control them; to apply IT, to keep to labour security measures, specific practical skills) and transferable skills (communication skills, skills of selecting and using legal and normative documents; skills of information search, including urgent information search; activities in multi-profile groups; time management skills and organizational skills, etc.)* The fact that intellectual activities prevail in the training programme suggests that the programme belongs to the bloc of higher education. It is also clear that it does not

satisfy the requirements of Level 7 of the LTQF, as little attention is paid to scientific research and innovations.

Unfortunately, we were not successful in obtaining a first cycle (undergraduate) study programme of the field of civil engineering where requirements for learning outcomes would be formulated in a succinct way.

Qualification level 7. In Lithuania this level includes qualifications which are acquired after the second study cycle: Master degree studies, special professional studies and integrated studies. At the moment the only document of national level which lists requirements for learning outcomes of this particular level is "*Description of general requirements for Master degree study programmes*", an order by the Minister of Education and Science of the Republic of Lithuania signed on 03/06/2010. It states that a Master degree programme "*has to provide competences significantly higher than those achieved in the first cycle studies*" [27]. The Description presents concise requirements for the level of knowledge, analytical thinking, practical and transferable competences (see **Annex 6**). If compared, it may be stated the Description truly reflects qualification level 7 of the LTQF.

At this point a Master degree programme in industrial engineering which would highlight learning outcomes in a concise way is not yet selected.

Qualification level 8. This level of qualification is exceptional. In case of doctoral studies, individual work and studies are more important than organized studies. For every doctoral student an individual study programme is developed. His/her achievements are assessed by the quality of the thesis prepared and by its public defence. Yet, in the Regulations of Doctoral Studies the issue of qualification is just briefly touched upon: "*a doctoral student shall have achieved sufficient qualification for a certain area of science and research (i.e. he/she is acquainted with modern methods of research, is able to reveal their strong points and weaknesses in light of other researches in the same field, has general awareness of their application, is able to formulate scientific problems and the purpose of the research)*" [28]. The LTQF description is much more exhaustive and more obliging, but this is the highest qualification, and realistically its level is judged by the requirement that the main scientific publications should be published in referenced scientific periodicals. Therefore we conclude that the qualification level of doctors who have defended their theses in Lithuania may be considered as corresponding to that described in level 8 of LTQF.

In this chapter we have done a comparative study of the learning outcomes in general education, vocational education and training and higher education, as provided in study

programmes, with the descriptions of requirements of LTQF qualification levels for each separate level of qualifications. The results of the comparative study are briefly reiterated in Table 5.

Table 5. Consistency of Lithuanian Qualifications Framework and qualifications granted in the education system.

Qualification level, LTQF	Educational/study programme for a given level of the LTQF
1	Basic education programme granting basic education. Up till recently graduation from this programme was not treated as an acquired qualification.
2	VET programme for Level 1 vocational education*.
3	VET programme for Level 2 vocational education*.
4	VET programme for Level 3 vocational education*.
5	VET programme for Level 4 vocational education*. Programmes granting this VET level are not registered in Lithuania at present.
6	First cycle programmes at colleges and universities. On graduation of the first cycle studies at colleges *professional Bachelor's qualification degree* is awarded; at universities, *Bachelor's qualification degree*.
7	Master study programmes at universities. On graduation *Master's qualification degree* is awarded.
8	Doctoral studies. On graduation *Doctor's scientific degree* is awarded.

*Levels of VET are defined in Order No 821/64, 15/05/2001, "On the Levels of Vocational Education and Training in Lithuania" [17] endorsed by the Minister of Education and Science and the Minister of Social Security and Labour of the Republic of Lithuania.

Summing up the analysis presented in this chapter we can draw the conclusion that descriptions of qualification levels presented in the LTQF quite adequately reflect the present Lithuanian system of qualifications. This allows relating Lithuanian Qualifications System to EQF by way of direct referencing of the LTQF to EQF. This will be done in the next chapter.

4. Referencing LTQF qualification levels to EQF and Dublin Descriptors

At present, qualification system in Lithuania is not homogeneous, as a unity between general education, adult and initial vocational education and training, and higher education has not yet been achieved. In the course of development of Lithuanian Qualifications Framework [7] a consistent approach towards the qualification descriptions was applied on all levels of education. It has eased up the task of referencing of the Lithuanian qualifications system to EQF [1], since, as it has been demonstrated in the previous chapter, the referencing can be done directly referencing LTQF to EQF.

As it has been mentioned in the first chapter of the report (p. 4), where the methods of referencing are discussed, referencing LTQF to EQF is not an easy task, because the EQF and LTQF descriptors are based on different criteria. EQF provides 8 levels of qualifications which are

distinguished on the basis of knowledge, skills and competences; LTQF also falls into 8 levels, which are based on the complexity, autonomy and variability of activities which an individual is ready to take up on acquiring a qualification. The reason for such a choice was triggered by the definition of the term **qualification** as accepted in Lithuania:

Qualification – ability and right to engage in a certain professional activity, as recognised according to a procedure prescribed in law or in legislative acts of the Government or its authorised institution ([14], Article 2, paragraph 7).

Such interpretation of qualification has conditioned the fact that in the LTQF level descriptors, first of all, the requirements for vocational capacity are reflected, while general education in the qualification level descriptors is included as a supplementary, leaping parameter (see Table 3), the requirements for which are established in other documents.

On referencing the *best-fit* method was applied, when a certain LTQF level N was compared with three adjacent EQF levels; the levels were selected in such a way that the analysed LTQF level would refer best to the corresponding EQF level M (see Figure 1, p. 7). **Annexes 7.1, 7.2, 7.4** and **7.6** present tables of such comparison. When assessing correspondence of knowledge, skills and competences we have used a 5 point scale:

- the requirements are higher;
- the requirements are partly higher;
- the requirements are close/similar;
- the requirements are partly lower;
- the requirements are lower.

After having compared all the eight LTQF and EQF levels we found out that the reference is not as simple as it might seem at the first glance, having in mind that the number of levels is the same (see Figure 3).

As has been demonstrated the greatest number of problems is encountered when trying to relate the lowest levels of qualifications. It appears that level 1 LTQF qualification, which is acquired on graduation from the basic education programme matches best the requirements formulated in level 2 EQF (see **Annex 7.1**). Such a discrepancy of levels is founded in the difference of LTQF and EQF conceptions: LTQF qualifications are arranged according to the level of **readiness for specific vocational activities** (what range of knowledge and skills an individual has acquired and what autonomy and responsibility he/she can be delegated in a concrete workplace), while the number of the EQF level is conditioned by the readiness for **potential activity** (i.e. by the general level of knowledge and skills and what autonomy and independence the individual can be delegated in his/her future activities), regardless of whether the activity is a

concrete work task, or a learning opportunity. Since the basic education curriculum does not prepare for any specific vocational activities, and all the needed knowledge and skills are acquired in the workplace, the LTQF has treated the graduation from basic education as level 1 qualification, though it is obvious that knowledge and skills at this point are sufficiently high. 10 years at a lower secondary school provides the student with knowledge in the native language, two foreign languages, mathematics, biology, physics, chemistry, IT, etc.; also, a significant amount of factual knowledge is accumulated, as in the curriculum of the basic education high requirements are posed for cognitive, communicative skills, for initiative and creativity [23, p. 8-9]. An individual who has acquired basic education is in the position of taking up responsibility for his/her learning, "is able to plan and reflect on the learning process and its achievements, to plan for realistic goals" [23, p. 8]. A comparison with EQF level descriptors shows that on the scale of EQF qualification levels such learning outcomes correspond best the requirements of level 2.

Level of Lithuanian Qualifications Framework (LTQF)		Level of European Qualifications Framework (EQF)
8		8
7		7
6		6
5		5
4		4
3		3
2		2
1		1

Figure 3. Referencing levels of Lithuanian Qualifications Framework to European Qualifications Framework

Referencing level 2 of LTQF to EQF appeared to be not straightforward as well. As it was already mentioned LTQF level represents the former level 1 of vocational education (see Table 5, p.

17). It describes very simple qualifications that can be acquired by people experiencing learning problems. Therefore no requirements are formulated for the general education in this case (see Table 3, p.10). True this is not directly mentioned in the description of level 2 of LTQF. It may be guessed that in EQF such qualifications are represented by level 1, as it is the only EQF level which does not contain the phrase "in/of a field of work or study" in the description of requirements for knowledge. The arguments referred to and the best-fit comparison with EQF (see **Annex 7.2**) has led to the conclusion that level 2 of LTQF should be referenced to level 1 of EQF. Of course, if a person who has acquired lower secondary general education would complete a vocational training programme leading to learning outcomes corresponding to LTQF level 2 requirements, his/her qualification should be referenced to EQF level 2.

Detailed comparison of LTQF and EQF descriptors using the best-fit method has shown that the remaining LTQF levels should be referenced to EQF levels in a horizontal manner, i.e. LTQF level 3 should be referenced to EQF level 3, LTQF level 4 to EQF level 4, etc. (see Figure 3). Examples of the comparison are presented in **Annexes 7.4** and **7.6**.

It is obvious that even in the best fit case there are some differences between LTQF and EQF descriptions which help notice some general tendencies, which are typical for both frameworks. Below please find the summary of all such observations and conclusions for each level of LTQF.

Table 6. Referencing LTQF to EQF. Level-by-level conclusions.

Qualification level LTQF	Best matching level EQF	Conclusions, remarks
1	2	The differences between LTQF 1 and EQF 2 are as follows: - requirements of knowledge at LTQF 1 are presented in a more concrete way, with special mention that an individual who has acquired this particular level of qualification should have acquired knowledge which is specified in the Curriculum Framework for Primary and Basic (Lower Secondary) Education [23]; - LTQF 1 description is directed to practical activities, while EQF descriptors indicate that further activities include both work and further learning. This complicates significantly the comparison and, eventually, referencing of the descriptions; - the established reference of LTQF 1 to EQF 2 is valid in terms of further learning, while in terms of vocational activities LTQF 1 is compatible with EQF 1.
2	2	When comparing LTQF 2 and EQF 1 the following differences were brought to light: - LTQF 2 refers to basic knowledge in a field of work, while EQF deals with basic general knowledge; - LTQF 2 provides that a person at this level of qualification is expected to perform activities which consist of one or several specialised actions or operations; EQF 1 implies basic skills required to carry our simple tasks. These differences have caused the general conclusion of this particular referencing: LTQF 2 references best to EQF 1. This conclusion is a matter of discussion; as it is, it may be treated as a subjective position of the author.

3	3	A comparison of LTQF 3 to the description of EQF levels 2, 3 and 4 indicates that the requirements for learning outcomes in LTQF 3 are intermediary between EQF 2 and EQF 3. Nevertheless an exhaustive analysis of the descriptions suggests that qualifications of LTQF 3 refer best to qualifications of EQF 3. The main differences observed between LTQF 3 and EQF 3: - In the description of the LTQS 3, supervision and control is emphasized more. In the EQF 3, responsibility is mentioned for the first time. - In EQF 3, again, under the requirements set for knowledge and competence, not only work, but also learning activities are mentioned.
4	4	Requirements for the level of knowledge, skills, and independence and responsibility are similar in LTQF 4 and EQF 4. However, LTQF 4 is oriented exclusively towards vocational activities, while EQF also towards further learning.
5	5	Observed differences: - EQF 5 formulates higher requirements for knowledge and comprehension; - LTQF 5 is more oriented towards practical activities, while EQF is more oriented towards solutions of general problems; - By indicating that activities are planned by an employee of higher qualifications LTQF sets limits to autonomy and independence of activities.
6	6	In essence, the conformity is satisfactory, except that LTQF 6 does not mention responsibility for professional upgrading of other individuals or teams. .
7	7	LTQF 7 and EQF 7 descriptions are very different. That is why a detailed comparison would be a difficult task and the level of subjectivity might be high. However, if you take a holistic approach to the descriptors analysed, the similarities of qualifications pose no doubt as to their similarity. A novelty introduced into the description of the EQF 7 should be mentioned: in the description of competence, reviewing strategic performance of teams is mentioned, i.e. activity strategies come to the fore.
8	8	Requirements for knowledge and competence in the LTQF 8 and EQF 8 are close, while requirements for skills in LTQF 8 are to a certain extent higher than in EQF 8. Such a conclusion is based on the statement included into the LTQF that a professional of level 8 should be able to take decisions on strategically important matters.

Analysis of how levels 6 to 8 LTQF attributed to higher education correspond to 'The framework of qualifications for the European Higher Education Area' approved by European ministers for higher education at Bergen Conference, and known as 'Dublin Descriptors', was carried out too. An example of the best-fit comparison is presented in **Annex 8.1**, while differences observed under the *best-fit* method are demonstrated in Table 7.

Table 7. Referencing LTQF levels to Dublin Descriptors

Qualification level LTQF	Best matching cycle DD	Conclusions, observations
6	Cycle 1	Mismatches: - Requirements for knowledge and understanding in LTQF is partly higher; - The skills to instruct others, to disseminate results are lower in the LTQF 6; - Requirements for metacognitive skills are slightly higher in the LTQF 6 ; - LTQF 6 does not indicate that solutions should be socially and ethically fair.
7	Cycle 2	In terms of requirements LTQF 7 and Dublin Descriptors cycle 2 are rather similar, though the matching as been done by judging very different parameters and descriptions.
8	Cycle 3	Differences observed: - LTQF 8 does not directly insist on the demonstration of systemic

		understanding of the area of research;
		- LTQF 8 does not directly indicate the necessity to keep to the principle of scientific integrity in research;
		- LTQF 8 does not directly mention that scientific research should be published in national or international cited publications;
		- LTQF 8 emphasizes the compentence of strategic analysis and strategic action, while DD 3 does not include it.

5. General Conclusions

This note summarizes the referencing attempts between Lithuanian qualifications system and EQF and Dublin Descriptors and proposes a few generalizing conclusions:

- Lithuanian Qualifications Framework (LTQF) presents a sufficiently exact description of the system of qualifications granted in Lithuania, thus referencing of the system to EQF could be done by way of comparison of qualification descriptions in LTQF and EQF.

- The definition of the term *qualification* ([14], article 2, paragraph 7) as it is used in Lithuania is different from the definition which is presented in the Recommendation of the European Parliament and of the Council on the establishment of the European Qualifications Framework for lifelong learning (EQF)[1]. As a result, all the LTQF qualifications are arranged with consideration of the level of **concrete vocational activities** (what range of vocational knowledge and skills an individual has acquired and what scope of autonomy and responsibility he/she can be granted in a concrete workplace), while the number of a level of EQF is granted on the basis of readiness for **further activities** (i.e. the general level of knowledge and skills and what autonomy and responsibility an individual can have in future activities), no matter work or study is meant under the activities.

- Levels 1 and 2 of the LTQF match best levels 2 and 1 of the EQF, while levels 3 to 8 are, in essence, similar.

- Lower levels of the LTQF project more supervision and control than in the corresponding EQF levels, and requirements for autonomy are lower.

- The EQF is significantly more oriented towards lifelong learning: in all the EQF descriptors, except level 1, it is indicated that a certain qualification may be applied not only at a job place, but also for further learning. This is the reason why it is officially called the *European Qualifications Framework for lifelong learning.* In the LTQF everything is directed towards vocational activities. Two consequences of such a mismatch may be mentioned. First of all, it is not clear what qualification level the qualification granted by the *matura* certificate signifies. Second, the LTQF principle that level 5 can be attained

only by individuals who *"have vocational qualification and an established period of vocational experience"* [7] prevents, in fact, the short cycle study programmes in higher education of Lithuania the way those are interpreted in the Dublin Descriptors. These cases are not in line with the present day concept of the qualification system development.

- In the description of level 8 LTQF there is a clearly stated requirement that an individual who has qualification of level 8 should be able to *independently make strategically important decisions.* The question is if this requirement is not too strict, as it applies to each and every who is awarded a Doctor's degree. Consider how many of the just-defended doctors of science are able to do that. The EQF does not include such a requirement: strategies are mentioned in level 7, but that is done only in the descriptor of competence. This principle, of course, should be supported, as a Master's qualification degree implies that the individual will have developed an interest in strategies at all levels and would not hesitate to express his/her opinion on strategic documents or strategic issues under discussion.

- Within the scope of the report a comparison of the LTQF and Dublin Descriptors has been also carried out. It has been demonstrated that requirements for LTQF levels 6,7 and 8 match best the descriptors of the first, second and third cycle of the Qualifications Framework for the EHEA.

- Keeping in mind the specific features of Lithuanian qualifications framework when implementing the intended referencing of national qualifications system to the European Qualifications Framework the comparison should go beyond a comparison of the LTQF and EQF levels. It should be analysed which certificate/diploma legitimises the formal learning outcomes in Lithuania. Below, the Table provides a sample of such an analysis.

Level EQF	Certificates/Diplomas awarded in the Lithuanian system of education legitimising learning outcomes		Level LTQF
8	Doctor of Science diploma		8
7	Master's degree diploma		7
6	Bachelor's degree diploma Vocational Bachelor's degree diploma		6
5			5
4	Matura Attestation	Certificate of Vocational Qualification Level 3	4
3		Certificate of Vocational Qualification Level 2	3
2	Pagrindinio išsilavinimo pažymėjimas Certificate of Basic Education		2
1		Certificate of Vocational Qualification Level 1	1

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Annexes

Painter's basic knowledge and skills vocational training programme

QUALIFICATION REQUIREMENTS

Activities	Competences
Activity 1. Preparation of surfaces for painting, under supervision of a qualified painter	1.1. To clean and polish different surfaces 1.2. To prime 1.3. To mend chinks and cracks
Activity 2.Painting of surfaces with emulsion and non-emulsion paints, under supervision of a qualified painter	2.1. To cover surfaces with a coat of emulsion paint 2.2. To cover surfaces with a coat of non-emulsion paint 2.3. To paint under safety requirements 2.4. To find out reasons for painting defects and select ways to eliminate them

Painter's vocational training programme

Activity areas	Competences
1. Preparation of surfaces for painting	1.1. Cleaning and pre-washing surfaces 1.2. Using electric and other tools for surface preparation 1.3. Plastering, polishing of surfaces before painting 1.4. Priming and undercoating different surfaces 1.5. Removing old paint, mould, rust, blots, dirt, soot, salts, etc. 1.6. Impregnating wooden surfaces with antiseptics 1.7. Filling in gypsum board seams and screws 1.8. Taking safety measures when surfaces are prepared
2. Painting with emulsion paints	2.1. Selecting and matching colour shades for premises 2.2. Preparing emulsion paints for painting surfaces 2.3. Painting with different types of paints with handheld tools 2.4. Painting with different emulsion paints with mechanical tools 2.5. Removing technical faults from emulsion painted surfaces 2.6. Assessing the quality of emulsion painted surface 2.7. Being able to apply safety measures using emulsion paints
3. Painting with non-emulsion paints	3.1. Preparing for painting with non-aqueous paint 3.2. Painting with non-aqueous paints with handheld tools 3.3. Painting with non-aqueous paint with mechanical tools 3.4. Removing technical faults from non-aqueous coat of paint 3.5. Assessing the quality of non-aqueous coat of paint 3.6. Being able to apply safety measures with non-aqueous paints
4. Preparation and painting of facades	4.1. Preparing facades with different surfaces for painting 4.2. Using installations for the preparation of facades 4.3. Using mechanisms for painting facades 4.4. Painting facades with emulsion and non-aqueous paints 4.5. Being able to apply safety measures when painting faca
5. Walpapering	5.1. Selecting and preparing suitable wallpaper 5.2. Preparing glue for wallpapering 5.3. Marking wall and ceiling surfaces for wallpapering 5.4. Applying tools and devices for wallpapering 5.5. Preparing different surfaces for wallpapering 5.6. Wallpapering different surfaces with different types of wp. 5.7. Wallpapering complex surfaces (ceiling, corners, switches, etc) 5.8. Painting wallpapered surfaces 5.9. Removing flaws of wallpapered surfaces 5.10. Being able to apply safety measures when wallpapering and painting wallpapered surfaces
6. Scaffolding and high-scaling	6.1. Working safely in scaffolding and high-rise conditions 6.2. Mantling and dismantling scaffolding and applying safety measures at work

AREAS OF ACTIVITIES AND COMPETENCES
of VET Standard for Decorators (Builders)

3rd Level of VET{ tc „3. KOMPETENCIJOS, KOMPETENCIJŲ RIBOS, MOKYMO TIKSLAI, KOMPETENCIJŲ VERTINIMAS" }

Activity areas	Competences
1. General building tasks	1.1. Selecting building materials 1.2. Installation of scaffolding 1.3. Brick laying for simple constructions 1.4. Processing wooden surfaces with handheld tools 1.5. Casting concrete base 1.6. Reading blueprints 1.7. Having skills for working safely
2. Insulation and roughcasting	2.1. Insulating with insulation boards 2.2. Roughcasting with handheld tools 2.3. Roughcasting with mechanical tools
3. Laying decoration tiles	3.1. Laying tiles on horizontal surfaces 3.2. Laying tiles on vertical surfaces
4. Painting and wallpapering surfaces	4.1. Painting with handheld tools 4.2. Painting with mechanical tools 4.3. Wallpapering
5. Mounting decoration panels and trimming profiles	5.1. Fixing gypsum boards 5.2. Mounting decoration panels and trimming profiles

An excerpt from "GENERAL REGULATIONS OF SCIENCES IN TECHNOLOGY (ENGINEERING) FOR THE FIRST STUDY CYCLE"

12. Any programme, its contents and implementation have to ensure that a graduate will have sufficient knowledge (see paragraph 13 of the Regulations), will be able to interpret phenomena related to engineering (see paragraph 14 of the Regulations), will be able to apply engineering competences in practical and professional activities (see paragraph 15 of the Regulations), will be able to act in areas which are not related directly to technologies (see paragraph 16 of the Regulations). The division of requirements of the Regulations into paragraphs 13, 14, 15, 16 is arbitrary.

13. Knowledge:

13.1. knowledge of mathematics: not only counting methods, but also conceptions and principles of mathematics; calculus and integral calculation, linear algebra, differential equations, numerical analysis, probability theory, statistics;

13.2. fundamental knowledge about nature and its phenomena, about quantitative aspects of the phenomena;

13.3. knowledge of humanities and social sciences to achieve both the goals of engineering profession and broader intelligence and philosophical worldview;

13.4. knowledge about materials and elements and their properties in engineering;

13.5 knowledge of design and construction, as well as production methods and ways, technical applications and management, and principles of quality assurance;

14. Cognitive skills:

14.1. skills of applying professional knowledge in solving problems known and unknown problems of qualitative and quantitative nature;

14.2 skills of recognizing and analyzing new problems and planning their solution strategies;

14.3 skills of theoretical comprehension of new technologies;

14.4. lab experience for relating theory to practice, skills to carry out experiments needed in engineering activities;

14.5. skills of information and data assessment, computing and processing; skills of interpreting data drawn from lab observation and computing in terms of their importance;

14. 6. comprehension of new and important problems of scientific research and development in the area of studies;

14.7. holistic approach in professional solutions, in balancing revenues, profit, safety, quality, reliability, appearance and environmental impact.

15. Practical skills:

15.1. Skills of assessing engineering solutions in terms of ethic, social, economic and security aspects;

15.2. Skills of observing and measuring physical and other properties, events or changes of quantitative and qualitative nature, recording and documenting them in a systematic way;

15.3 skills of planning, designing and implementing applied research and/or lab testing, starting with formulation of a problem, choice of technologies and finishing with assessment and qualification of results and findings;

15.4.skills with lab and computing equipment and skills of standard research method application;

15.5. skills of designing systems, processes and their constituent parts;

15.6. skills of assessing the risks of material and phenomena application and ability to control them;

15.7. skills of applying IT, basic software, skills of application of numerical computing methods for solving specific engineering problems, computer applications for extracting and processing data for problem solutions, as well as managing processes, computer aided design, computer graphics, applying other computer applications;

15.8. work safety skills.

16. Transferable skills:

16.1. communicative skills which consist of written and oral communication in fluent Lithuanian and at least one of foreign languages (the development of writing skills is carried out in classes of engineering and other related subjects);

16.2 skills to present results and conclusions of a research to different audiences in a clear and exact way in writing or orally;

16.3. skills of applying legislative and normative acts;

16.4. skills of logical thinking and algorithm applications, skills of problem-related solutions in terms of quantitative and quantitative assessment of information, including situations the assessment of which should be done when there is lack of information or having contrasting information

16.5. mathematic and computing skills, including such aspects like error analysis, calculation accuracy, correct application of measurement and result presentation units;

16.6 skills of information search from primary and secondary information sources, including operating information search;

16.7. skills of application of information technologies, such as application networks and data bases, development of computerized textual and graphic documentation;

16.8. skills of working in a multitask team;

16.9. time management and organizational skills demonstrated through the ability of planning and implementing productive and effective work activities;

16.10. learning skills needed for sustainable professional growth;

Vilnius College of Technologies and Design. Study programme "Construction and Development"
AREAS OF ACTIVITIES AND COMPETENCES

Areas of activities	Competences
1. Designing of buildings, except those of exclusive importance	1.1. Analysing and selecting construction solutions, construction and computational schemes 1.2. Developing constructional part of a building blueprint 1.3. Selecting building materials following construction requirements 1.4. Preparing budgeting documentation
2. Construction of buildings	2.1. Selection and application of building site and land work technologies 2.2. Selection and application of technologies for holding structures and partitions 2.3. Selection and application of technologies for finishing work 2.4. Assessment of technologies of construction engineering systems 2.5. Selection and application of technologies of environmental works 2.6. Analysis and preparation of documentation needed for the start of building works 2.7. Engineering of a building site 2.8. Planning and organization of the process of building 2.9. Organising safety measures and environmental protection on the building site
3. Building repairs	3.1. Recognising cultural heritage of real estate 3.2. Selecting and applying technologies for building repairs 3.3. Organising repair process
4. Management of (a division of) an enterprise	4.1. Assessing the market for building and construction business 4.2. Doing market research for construction and building 4.3. Organising the activities of a construction company

An excerpt from the "DESCRIPTION OF GENERAL REQUIREMENTS FOR MASTER'S DEGREE PROGRAMMES"

16. The study programme shall provide that an individual who has graduated from it and has been granted a Master degree qualification shall have competences significantly higher than those attained in the first cycle studies:

16.1. shall have acquired sufficient knowledge in the field of studies for the development and application of scientific (artistic) ideas (creative skills in a field of arts), shall have been introduced to the recent scientific theories of the field (artistic innovations), methods and technologies;

16.2. shall be able to apply the acquired knowledge and comprehension, as well as use modern methods in practical activities, among those scientific research (original creation), which require analytical skills, innovation and integrated knowledge; shall know the limits of the application of analytical methods (creative techniques), shall be able to evaluate research results and assess their reliability;

16.3. shall have skills to apply the acquired knowledge, understanding and ability for problem solving (finding artistic solutions) in a new, unfamiliar or constantly changing environment and in broad (inter-areal, inter-field) contexts related to his/her study area;

16.4. shall be able to study independently, to learn and critically assess the new aspects of the theoretical and practical novelties of the cognition (creation) field, shall be efficient in cases when there is lack of reliable information and/or instructions, shall be able to motivate own conclusions and to present them to stakeholders of different education levels; shall understand his/her ethic and social aspects of knowledge and decisions taken and shall take responsibility for the effects of the decisions.

Referencing LTQF to EQF: A Comparison of Level 1 of the LTQF against Levels 1, 2 and 3 of the EQF

Level 1 LTQF description	Level descriptors EQF	Referencing conclusions	General conclusion
		Level 1 EQF	The referencing of LTQF 1 description to EQF levels 1, 2 and 3 suggest that level 1 of the LTQF is referenced best to level 2 of the EQF.
The competence is adequate for activities based on elementary, repetitive actions and operations which are characteristic of the majority of jobs. The performance is based on knowledge acquired at the basic (lower secondary) education and applied in the job place.	**Knowledge:** Basic general knowledge	The requirement for knowledge on Level 1 EQF is described in an abstract way. LTQF 1 is described in a more concrete manner, it poses the requirement for knowledge acquired at the basic (lower secondary) education. This level of education, primary education included, is acquired in 10 years. A significant amount of factual knowledge is acquired by learning the mother tongue, two foreign languages, maths, biology, physics, chemistry, IT, etc. Thus it may be proposed that requirements for Level 1 LTQF are higher than those for Level 1 EQF.	The differences between LTQF1 and EQF 2 are as follows: - requirements of knowledge at LTQF 1 are presented in a more concrete way, with special mention that an individual who has acquired this particular level of qualification should have acquired knowledge which is specified in the Curriculum Framework for Primary and Basic (Lower Secondary) Education [23];
The activities are supervised, monitored and supported. The activities consist of elementary actions and operations, they are unvarying and repetitive.	**Skills:** Basic skills required to carry out simple tasks	EQF 1 suggests that an individual is expected to have basic skills to carry out simple tasks, while LTQF 1 suggests that one is expected to carry out elementary, repetitive actions and operations which are characteristic of the majority of jobs. The conclusion may be drawn that requirements are rather close. However, in the Curriculum Framework for Primary and Basic (Lower Secondary) Education [23, p. 8-9] rather high requirements are set up for cognitive, communicative, initiative and creativity skills. Thus it may be stated that requirements for Level 1 LTQF are at least partly higher than those for Level 1 EQF.	- LTQF 1 description is directed to practical activities, while EQF descriptors indicate that further activities include both work and further learning. This complicates significantly the comparison and, eventually, referencing of the descriptions;
	Competence: Work or study under direct supervision in a structured context	Both LTQF 1 and EQF 1 emphasize the invariability or structured nature of the context and indicate the necessity of supervision. Thus the requirements of autonomous activities are similar. The difference lies in the fact that in LTQF 1 only vocational activities are considered, while in EQF 1 work and study are treated as activities. In the Curriculum Framework for Primary and Basic (Lower Secondary) Education [23, p. 8] it is indicated that a person who has acquired basic education "assumes responsibility for his/her learning, persists in achieving his/her goals. He/she is able to plan and reflect on the learning process and outcomes, to set up reasonable aims" [23, 8]. In such a way a person who has acquired LTQF 1 qualification has higher competence for further learning than it is established in EQF 1.	- the established reference of LTQF 1 to EQF 2 is valid in terms of further learning, while in terms of vocational activities LTQF 1 is compatible with EQF 1.
The competence is adequate for activities based on elementary, repetitive actions and operations which are characteristic of the majority of jobs. The performance is based on knowledge acquired at the basic (lower secondary) education and applied in the job		**Level 2 EQF**	
	Knowledge: Basic factual knowledge of a field of work or study.	When referencing LTQF 1 to EQF 1 descriptors for knowledge requirements it was demonstrated that in Lithuania basic (lower secondary)education covers not only basic, but also a rather broad range of factual knowledge. Besides, in the 9-10 year of schooling students choose an attractive branch of economy and learn more about it, about its technological processes. Thus it may be proposed that requirements in LTQF 1 are, to a certain extent, even partly higher than those in EQF 1.	
	Skills:	EQF 2 insists on basic cognitive and practical skills required to use relevant	

place.
 	
    The activities are supervised, monitored and supported.
 	
    The activities consist of elementary actions and operations, they are unvarying and repetitive.
	Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple materials and information	information in order to carry out tasks and to solve routine problems using simple materials and information. On assessing requirements in LTQF 1 it should be taken into consideration that in the Curriculum Framework for Primary and Basic (Lower Secondary) Education [23, p. 8-9] rather high requirements are set up for cognitive, communicative, initiative and creativity skills. Besides, , in the 9-10 year of schooling students choose an attractive branch of economy, learn more about it and acquire some practical skills in the field. Thus it may be concluded that requirements of LTQF 1 are partly lower, if at all, than those of EQF 2.	

	Competence: Work or study under supervision with some autonomy	EQF 2 proposes some autonomy. LTQF 1 suggests that an individual should have basic (lower secondary) education. Such a level of education suggests that an individual who has acquired basic education "assumes responsibility for his/her learning, persists in achieving his/her goals. He/she is able to plan and reflect on the learning process and outcomes, to set up reasonable aims" [23, 8], i.e. is ready for individual learning experience. From the point of view of EQF 2, requirements for competence in LTQF 1 are to a certain extent higher.	
The competence is adequate for activities based on elementary, repetitive actions and operations which are characteristic of the majority of jobs. The performance is based on knowledge acquired at the basic (lower secondary) education and applied in the job place. The activities are supervised, monitored and supported. The activities consist of elementary actions and operations, they are unvarying and repetitive.	**Level 3 EQF**		
	Knowledge: Knowledge of facts, principles, processes and general concepts, in a field of work or study	EQF 3 suggests that at this level a learner should have knowledge of facts, principles, processes and general concepts. Having acquired basic (lower secondary) education (it is imbedded in LTQF 1 requirements) a person has a rather significant amount of factual knowledge, while principles, processes and general concepts are just at the basic level [23]. Thus it should be recognized that requirements for knowledge of LTQF 1 are partly lower than those of EQF 3.	
	Skills: A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information	General education is organized on the principle of subjects, while the contents of education are oriented towards "development of general competences and essential subject-oriented competences" [23, p. 6]. The cognitive, and, especially, practical skills which are emphasized in the description of EQF 3 are given rather little attention and they are not highlighted in the Curriculum Framework for Primary and Basic (Lower Secondary) Education [23]. Thus it should be stated that requirements for skills at level 1 LTQF are lower than at level 3 EQF.	
	Competence: • take responsibility for completion of tasks in work or study; • adapt own behaviour to circumstances in solving problems	As it follows from the description of LTQF 1, an individual who has acquired this level of qualification has a limited autonomy in vocational activities. On the other hand it should be remembered that, when LTQF 1 and EQF 2 were compared, it was emphasized that the person with basic (lower secondary) education is ready to continue individual studies and could assume responsibility for learning objectives. However, the basic education envisages very few options of choice for a learner, thus the person cannot develop the competence of adapting his behaviour to circumstances. Thus a conclusion may be drawn that requirements for competence in LTQF 1 are partly lower than in EQF 3.	

Referencing LTQF to EQF: A Comparison of Level 2 of the LTQF against Levels 1 and 2 of the EQF

Level 2 LTQF description	Level descriptors EQF	Referencing conclusions	General conclusion
The qualification provides for activities which consist of one or several specialised actions or operations. In performing the activities, the basic professional knowledge of the field of work is applied. The environment of the activities is well defined, the activities are based on detailed instructions; occasionally, intensive supervision and leadership by a qualified person is needed. Situations determining the activities, as well as action and operation combinations are regular.	**Level 1 EQF**		The referencing of level 2 LTQF to EQF 1 and 2 suggests that LTQF 2 references best to EQF 1 level of qualifications. When comparing LTQF 2 and EQF 1 the following differences were brought to light: - LTQF 2 refers to basic knowledge of a field of work, while EQF deals with basic general knowledge; - LTQF 2 provides that a person at this level of qualification is expected to perform activities which consist of one or several specialised actions or operations; EQF 1 implies basic skills required to carry our simple tasks. These differences have caused the general conclusion of this particular referencing: LTQF 2 references best to EQF 1. This conclusion is a matter of discussion; as it is, it may be treated as a subjective position of the author.
	Knowledge: Basic general knowledge	With regard to knowledge, level 1 EQF provides basic general knowledge, without mentioning vocational knowledge directly, while level 2 LTQF provides for general vocational knowledge characteristic of vocational activities without prescribing requirements for general knowledge. LTQF 2 also indicates that the activities are not complex, they consist of one or several specialised actions or operations; the performance is strictly guided and the operation combinations are regular. Thus it can be inferred that vocation knowledge is scarce. However, referring to the fact that in both cases basic knowledge is discussed, we may draw the conclusion that requirements for knowledge at level 2 LTQF and level 1 EQF are rather close.	
	Skills: Basic skills required to carry out simple tasks	EQF 1 indicates that at this level qualification implies basic skills required to carry our simple tasks. It can be inferred that in LTQF 2 the activities are also simple as they are specialised and regular, and consist of a small number of actions or operations. Indeed, LTQF 2 refers to the skill of applying basic professional knowledge of the field of work, yet the same implication is found in EQF 1. The formulation of the final conclusion is aggravated by the fact that specialised activities, from a formal point of view, may require not only basic skills. Yet, keeping in mind all the activity background provided in LTQF 2 we suggest that requirements for skills in LTQF 2 are hardly higher than those in EQF 1.	
	Competence: Work or study under direct supervision in a structured context	In terms of competence LTQF 2 is similar to EQF level 1, as EQF provides that an individual can work or study in a structured context, under direct supervision, while LTQF 2 also emphasizes that the activities are based on detailed instructions and that in some cases intensive supervision and leadership by a qualified person is needed.	
The qualification provides for activities which consist of one or several specialised actions or operations. In performing the activities, the basic professional knowledge of the field of work is applied. The environment of the activities is well defined, the activities are based on detailed	**Level 2 EQF**		
	Knowledge: Basic factual knowledge of a field of work or study.	EQF level 2 descriptor of knowledge indicates that this level of qualification is based on basic factual knowledge rather than on basic general knowledge as is the case with EQF 1. Besides, it is indicated that knowledge may be related to work or study, i.e. EQF 2 should be a stepping stone towards a higher level of qualification. This hasn't been a requirement in EQF 1. LTQF2, on the other hand, postulates basic vocational knowledge characteristic of the field of work, without indication whether it provides general understanding or is based on facts. The LTQF 2 description of activities suggests that the potential activities would be rather simple; thus it can be concluded that requirements for	

instructions; occasionally, intensive supervision and leadership by a qualified person is needed. Situations determining the activities, as well as action and operation combinations are regular.		knowledge in LTQF 2 are, to a certain extent, lower than in EQF 2.
	Skills: Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple materials and information	EQF 2 qualifies skills as a range of cognitive and practical skills which, if simple materials and information are applied, would enable to find ways to carry our tasks and solve routine problems. LTQF 2, in its turn, indicates that the activities are based on detailed instructions and that, occasionally, even intensive supervision is needed; that would not be necessary if the person had skills indicated in EQF 2. Thus requirements for skills in LTQF 2 are lower than in EQF 2.
	Competence: Work or study under supervision with some autonomy	On level 2 EQF work or study under supervision with some autonomy is indicated as the key competence. It should be noticed that LTQF 2, though providing for activities based on detailed instructions (which, eventually, would suggest some potential autonomy of activities), immediately refers to intensive supervision and leadership by a qualified person. Thus it may be suggested that autonomy of activities, as implied in LTQF 2, is closer to level 1 EQF.

Referencing LTQF to EQF: A Comparison of Level 3 of the LTQF against Levels 2,3 and 4 of the EQF

Level 3 LTQF description	Level descriptors EQF	Referencing conclusions	General conclusion
The qualification provides for activities consisting of actions and operations in narrow fields of technologies, operations and/or activity management. The activities may cover several or more specialised professional activity tasks, which require application of well known and well tested solutions. In performing the activities, professional knowledge characteristic of the activities is applied. The activities are preformed under partial supervision of a higher-qualified employee or autonomously, with external quality control. The environment of the activities may require the ability to adapt to simple changes in the work place.	**Level 2 EQF**		A comparison of LTQF 3 to the description of EQF levels 2, 3 and 4 indicates that the requirements for learning outcomes in LTQF 3 are intermediary between EQF 2 and EQF 3. Nevertheless an exhaustive analysis of the descriptions suggests that qualifications of LTQF 3 refer best to qualifications of EQF 3. The main differences observed between LTQF 3 and EQF 3: - in the description of competence of LTQF 3 supervision of activity is emphasized, while EQF 3 mentions taking responsibility for completion of tasks for the first time. - In the descriptors of knowledge and competence EQF 3 refers to the fields of work or study, which is not the case in LTQF 3.
	Knowledge: Basic factual knowledge of a field of study	EQF level 2 descriptor of knowledge indicates that this level of qualification is based on basic factual knowledge, while LTQF 3 deals with not only with the basic, but also with all knowledge characteristic of professional activities at that level. Thus it can stated that requirements set in EQF 2 are lower than those in LTQF 3.	
	Skills: Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools.	Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple materials and information. According to the description of level 3 of the LTQF, this level of qualification covers several or more specialised professional activity tasks, which require application of well known and well tested solutions. It does not mention that those tasks and solutions are routine or that the information and materials used are simple. With consideration of these facts it may be stated that the requirements for skills at level 2 EQF are lower, at least to a certain extent, than those of LTQF 3.	
	Competence: Work or study under supervision with some autonomy	Referencing the requirements for competence, it must be recognized that at level LTQF 3 activities are preformed under partial supervision of a higher-qualified employee or autonomously, with external quality control, which indicates that the level of autonomy is very slightly higher than that of EQF 2.	
The qualification provides for activities consisting of actions and operations in narrow fields of technologies, operations and/or activity managment. The activities may cover several or more specialised professional activity tasks, which require application of well known and well tested solutions. In performing the activities, professional knowledge characteristic of the activities is applied. The activities are preformed under	**Level 3 EQF**		
	Knowledge: Knowledge of facts, principles and general concepts, in a field of work or study	EQF 3 provides nowledge of facts, principles and general concepts, in a field of work or study. LTQF 3 refers to qualifications that provide for activities consisting of actions and operations in narrow fields of technologies and/or office tasks. The activities may cover several or more specialised professional activity tasks, which require application of well known and well tested solutions. Thus the requirements for knowledge at this level are similar.	
	Skills: A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information.	EQF 3 defines the skills of this particular level as a range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information. LTQF 3 defines the skills as consisting of actions and operations in narrow fields of technologies and/or management tasks; the activities may cover several or more specialised professional activity tasks. In both cases the anticipated activities are not of innovative nature, they apply well known methods, means and materials. It	

		suggests that requirements for skills in LTQF and EQF are similar.
partial supervision of a higher-qualified employee or autonomously, with external quality control. The environment of the activities may require the ability to adapt to simple changes in the work place.	**Competence:** • take responsibility for completion of tasks in work or study • Adapt own behaviour to circumstances in solving problems	• It must be recognized that EQF 3 sets higher requirements than LTQF 3 in terms of taking responsibility for completion of tasks in work or study and adapting own behaviour to circumstances in solving problems. In case of LTQF 3 the responsibility is not mentioned directly and only partial autonomy is recognized. Also, at this level LTQF deals with vocational activities, while EQF 3 places work and learning at the same level of importance.
	Level 4 EQF	
The qualification provides for activities consisting of actions and operations in narrow fields of technologies, operations and/or activity management. The activities may cover several or more specialised professional activity tasks, which require application of well known and well tested solutions. In performing the activities, professional knowledge characteristic of the activities is applied. The activities are preformed under partial supervision of a higher-qualified employee or autonomously, with external quality control. The environment of the activities may require the ability to adapt to simple changes in the work place.	**Knowledge:** Factual and theoretical knowledge in broad contexts within a field of work or study	EQF 4 provides for factual and theoretical knowledge in broad contexts within a field of work or study, while LTQF 3 provides knowledge in narrow fields of technologies, operations and/or activity management. This can be treated as evidence that requirements for qualifications at level 4 EQF are higher than requirements at level 3 LTQF.
	Skills: A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	EQF 4 puts emphasis on a range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study, while LTQF emphasizes skills for specialised professional activity tasks which require application of well known and well tested solutions. The difference demonstrates that EQF level 4 is higher than LTQF level 3.
	Competence: • Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change • Supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities	EQF 4 deals with competence which includes self-management and some responsibility for own and other individuals' work and study in predictable contexts, while LTQF 3 is significantly lower in terms of competence, as it provides for activities preformed under partial supervision of a higher-qualified employee or autonomously, with external quality control. Thus it may be stated that level 4 of the EQF is higher than level 3 LTQF.

Comparison of LTQF level 4 descriptor with EQF descriptors of levels 3, 4 and 5

Descriptor of LTQF level 4	Descriptors of EQF levels	Conclusions about the referencing of each level	General conclusion
The qualification provides for activities which consist of actions and operations in rather broad fields of technologies and office tasks. The activities are based on several or numerous specialized tasks, the appropriate solutions of which have not always been tested or are known. In exercising the activities, the factual and theoretical professional knowledge can be applied in a broad context related to the field of activity. The activities are autonomous; in order to ensure the quality of procedures and output, the employee follows routine performance instructions. The qualification provides for supervision and transfer of professional skills to employees with lower qualifications. The activity environment requires the ability of adapting ot changes in the workplace which are conditioned by the progress in technologies and work organization.		**EQF level 3**	Requirements for the level of knowledge, skills, and independence and responsibility are similar in LTQF 4 and EQF 4. However, LTQF 4 is oriented exclusively towards vocational activities, while EQF also highlights further learning.
	Knowledge: knowledge of facts, principles, processes and general concepts, in a field of work or study	Level 3 EQF suggests that knowledge is related to facts, principle, processes and general principles, i.e. it is of concrete and rather simple nature. LTQF 4 suggests that the activities are based on knowledge of factual and theoretical vocational knowledge which is needed for work in rather broad areas of technologies and office tasks. Thus requirements for knowledge at level 4 LTQF are to a certain extent higher than requirements at level 3 EQF.	
	Skills: a range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information	The requirements for skills on level 4 LTQF and level 3 EQF are presented in two aspects, practical and cognitive. Level 4 LTQF highlights abilities to perform in the workplace of change, which is shaped by the progress in technologies and work organisation; the appropriate solutions are not tested or known. On the other hand quality of output has to be ensured. At the same time level 3 EQF suggests that an individual shall have skills to apply basic methods, tools, materials and information, yet it does not emphasize neither broad context, nor quality performance, nor the necessity to adapt to changes. Cognitive skills on level 3 EQF are limited to applying one's knowledge for accomplishing tasks and solving problems, while cognitive skills on level 4 LTQF imply the ability of transferring vocational skills to employees with lower qualifications and adapting to changes in the workplace. In such a way creativity and initiative in problem solving are emphasized. Thus it may be stated that LTQF 4 range of skills is broader and deeper than that of EQF 3.	
	Competence: • take responsibility for completion of tasks in work or study • adapt own behaviour to circumstances in solving problems	Level 3 EQF highlights responsibility for completion of tasks and adapting own behaviour to circumstances. LTQF 4 emphasizes autonomy of activities, with extra responsibility of supervision and transfer of vocational skills to employees with lower qualifications. Responsibility for activities carried out is expressed through the requirement of ensuring the quality of procedures and output. Thus requirements for competence on level 4 LTQF are higher than on level 3 EQF.	
The qualification provides for activities which consist of actions and operations in rather broad fields of technologies and office tasks. The activities are based on several or		**EQF level 4**	
	Knowledge: factual and theoretical knowledge in broad contexts within a field of work or study	The ability to apply factual and theoretical knowledge in broad contexts is characteristic of Level 4 of both the LTQF and the EQF. Thus the conclusion can be drawn that requirements for knowledge at Level 4 of the LTQF and the EQF are very close.	

numerous specialized tasks, the appropriate solutions of which have not always been tested or are known. In exercising the activities, the factual and theoretical professional knowledge can be applied in a broad context related to the field of activity. The activities are autonomous; in order to ensure the quality of procedures and output, the employee follows routine performance instructions. The qualification provides for supervision and transfer of professional skills to employees with lower qualifications. The activity environment requires the ability of adapting to changes in the work place which are conditioned by the progress in technologies and work organization.	**Skills:** a range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	Individual who has acquired level 4 qualification of the LTQF should be able to organize activities, i.e. to organize measures and operations in rather broad areas of technologies and management areas, just as it is indicated in Level 4 of the EQF. Level 4 of the LTQF qualification provides coaching employees of lower qualifications for higher professional skills; thus it can be referenced directly to Level 4 of the EQF, to skills required to generate solutions to specific problems in a field of study. This comparison reveals the fact that requirements at Level 4 of the LTQF and Level 4 of the EQF are very close.
	Competence: • exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change; • supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities	According to Level 4 LTQF, the environment of activities requires the competence of adapting to the changes in the work place which are conditioned by the progress in technologies and work organization, while the EQF provides for work or study contexts that are usually predictable, but are subject to change, thus it can be stated that LTQF Level 4 competence is closer to EQF Level 5 competence. On the other hand, Level 4 of the LTQF does not provide for some responsibility for the evaluation and improvement of work or study activities, the way it is done at Level 4 of the EQF. Thus it can be stated that the limits of responsibility, and, eventually, of the competence are narrower, i.e. they correspond to Level 4 EQF to a certain extent.
The qualification provides for activities which consist of actions and operations in rather broad fields of technologies and office tasks. The activities are based on several or numerous specialized tasks, the appropriate solutions of which have not always been tested or are known. In exercising the activities, the factual and theoretical professional knowledge can be applied in a broad context related to the field of activity. The activities are autonomous; in order to ensure the quality of procedures and output, the employee follows routine performance instructions. The qualification provides for supervision and transfer of professional skills to employees with lower qualifications.	**EQF level 5**	
	Knowledge: comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge	On level 5 EQF comprehensive, specialized, factual and theoretical knowledge is emphasized; the spectrum of such knowledge must be broad, as it should provide for a range of cognitive and practical skills. On level 4 LTQF a similar requirement for a broad range of knowledge is implied, as a person with that qualification should be ready for work in rather broad fields of technologies and office work, but it is not specified how exhaustive the knowledge should be. Level 5 EQF proposes awareness of the boundaries of that knowledge. LTQF 4 does not state anything of the matter. In such a way a conclusion may be drawn that EQF 5 is higher than LTQF 4 in terms of the level of knowledge acquired.
	Skills: a range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	Level 5 EQF suggests that the range of cognitive and practical skills should be broad. In case of level 4 LTQF it can be implied, as an individual with this qualification must have skills to perform in rather broad fields of technologies and office environment. However the expectation that acquired skills would help generate solutions to specific problems in a field of work or study (EQF 5) indicates high level of skills, higher than that of LTQF 4. There, generation of solutions is not specified, it is only implied, when it states that the environment requires the ability of adapting to changes in the workplace and, second, the potential

The activity environment requires the ability of adapting to changes in the workplace which are conditioned by the progress in technologies and work organization.		activities are oriented towards specific operations, without any emphasis on abstract aspects of activities.
	Competence: • exercise management and supervision in contexts of work or study activities where there is unpredictable change • review and develop performance of self and others	The description of EQF 5 emphasizes management and supervision of others. A similar requirement can be found in the description of LTQF 4. Yet the aspect of analysis and development of own or others' performance is not mentioned in LTQF . Besides, EQF level 5 deals with 'work or study', thus it may be said that the metacognitive (learning to learn) competence is highlighted, while in LTQF 4 the competence of learning to learn is not emphasized. In such a way it can be concluded that in EQF 5 requirements for competence are higher than those in LTQF 4.	

Referencing LTQF to EQF: A Comparison of Level 6 of the LTQF against Levels 5, 6 and 7 of the EQF

Level 6 LTQF description	Level descriptors EQF	Referencing conclusions	General conclusion
The qualification is related to complex activities which are characterized by a variety of tasks and contents. In solving problems in different areas of professional activities, a variety of means and methods is applied. The performance implies application of broad theoretical knowledge built on the results of recent fundamental and applied research or knowledge needed for implementation of innovations. The activities are performed independently, with a free choice of methods of performance and with managing task groups for the implementation of the task. That is the reason why qualification of this level includes the ability to plan activities with consideration of the tasks set, to analyse and record the results of one's own activity outcomes, as well as to submit reports to the coordinating persons; to correct one's activities with regard to the analysis of the activity results and recommendations of experts and to implement varied project activities. The environment of the activities requires to adapt to continuous and unpredictable change, which is caused by the progress of knowledge and technology in a specific area of professional field. The qualification allows to improve and develop knowledge in the professional area and, following the self-assessment, to learn individually (to develop cognitive competences), as caused by the constant change of professional activities.		**Level 5 EQF**	
	Knowledge: comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge	On level 6 of the LTQF, broad theoretical knowledge built on the results of recent fundamental and applied research is implied, while on level 5 of the EQF comprehensive, specialised, factual and theoretical knowledge is expected. Thus requirements for knowledge on level 6 LTQF are higher than those on level 5 EQF.	The referencing of LTQF 6 description to EQF levels 5, 6 and 7 suggests that level 6 of the LTQF matches best level 6 of the EQF. In essence, the conformity is satisfactory, except that LTQF 6 does not mention responsibility for professional development of other individuals or teams.
	Skills: a comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems	Both LTQF 6 and EQF 5 insist on a comprehensive range of cognitive and practical skills. Creativity is mentioned directly in EQF 5, while LTQF 6 reveals it through numerous skills. LTQF 6 indicates the skill of choosing methods of performance and implementing varied project activities, as well as improving and developing knowledge in the professional area. All of this allows to draw the conclusion that requirements for skills at level 6 LTQF are higher than at level 5 EQF.	
	Competence: • exercise management and supervision in contexts of work or study activities where there is unpredictable change • review and develop performance of self and others	Both LTQF 6 and EQF 5 descriptors emphasize independence and management and supervision of others, but LTQF 6 emphasizes responsibility for activity planning and choice of methods of performance. In both cases the unpredictability of change is implied, and in LTQF6 it is stated directly that the activities are in constant change. Learning to learn can be traced in EQF 5 competence, while in LTQF it is mentioned directly. On the other hand, LTQF 6 does not require to review and develop performance of self and others. Requirements for competence at level 6 LTQF are slightly higher than at level 5 EQF.	
The qualification is related to complex activities which are characterized by a variety of tasks and contents. In solving problems in		**Level 6 EQF**	
	Knowledge: advanced knowledge of a field	On level 6 LTQF broad theoretical knowledge is required, it should be based on the results of up to date fundamental and	

different areas of professional activities, a variety of means and methods is applied. The performance implies application of broad theoretical knowledge built on the results of recent fundamental and applied research or knowledge needed for implementation of innovations. The activities are performed independently, with a free choice of methods of performance and with managing task groups for the implementation of the task. That is the reason why qualification of this level includes the ability to plan activities with consideration of the tasks set, to analyse and record the results of one's own activity outcomes, as well as to submit reports to the coordinating persons; to correct one's activities with regard to the analysis of the activity results and recommendations of experts and to implement varied project activities. The environment of the activities requires to adapt to continuous and unpredictable change, which is caused by the progress of knowledge and technology in a specific area of professional field. The qualification allows to improve and develop knowledge in the professional area and, following the self-assessment, to learn individually (to develop cognitive competences), as caused by the constant change of professional activities.	of work or study, involving a critical understanding of theories and principles	applied research, while level 6 EQF highlights advanced knowledge involving critical understanding of theories and principles. Requirements for knowledge in LTQF 6 and EQF 6 are quite similar.	
	Skills: Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study	An individual with qualification 6 LTQF should be able to plan activities; to analyse and record the results of one's own activity outcomes; to manage task groups, to learn individually. All these factors imply the mastery and innovation, as required in EQF 6. Besides, LTQF 6 and EQF 6 insist on skills related to innovative activities (or implementation of a variety of activities) in constantly changing and unpredictable situations. Requirements for skills in LTQF 6 and EQF 6 are quite similar.	
	Competence: • manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts • take responsibility for managing professional development of individuals and groups	LTQF 6, just like EQF 6, emphasizes responsibility for professional and project activities (planning, management, reporting about achievements). But LTQF 6 does not mention responsibility for professional development of other individuals and groups.	
The qualification is related to complex activities which are characterized by a variety of tasks and contents. In solving problems in different areas of professional activities, a variety of means and methods is applied. The performance implies application of broad theoretical knowledge built on the results of recent fundamental and applied research or knowledge needed for implementation of innovations. The activities are performed	**Level 7 EQF**		
	Knowledge: • highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research • critical awareness of	Knowledge built on the results of up-to-date fundamental and applied research or knowledge needed for implementation of innovations should be demonstrated in Level 6 LTQF, while on level 7 EQF knowledge should be forefront, be at the basis of original thinking and/or research; knowledge should mean critical awareness of issues in a field. Requirements for knowledge described in LTQF level 6 are lower than in level 7 EQF.	

independently, with a free choice of methods of performance and with managing task groups for the implementation of the task. That is the reason why qualification of this level includes the ability to plan activities with consideration of the tasks set, to analyse and record the results of one's own activity outcomes, as well as to submit reports to the coordinating persons; to correct one's activities with regard to the analysis of the activity results and recommendations of experts and to implement varied project activities. The environment of the activities requires to adapt to continuous and unpredictable change, which is caused by the progress of knowledge and technology in a specific area of professional field. The qualification allows to improve and develop knowledge in the professional area and, following the self-assessment, to learn individually (to develop cognitive competences), as caused by the constant change of professional activities.	knowledge issues in a field and at the interface between different fields	
	Skills: specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields	Though LTQF 6, just like EQF 7 includes skills of implementing innovation and LTQF 6 suggests more than that, it suggests skills of improving and developing knowledge in the professional area, however the EQF 7 requirements seem to be on a higher level, as EQF 7 deals with specialized problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields. Thus requirements for skills proposed in LTQF 6 are lower than on level 7 EQF.
	Competence: • manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches • take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams	EQF 7 suggests competence of managing and transforming work or study contexts that require new strategic approaches. Besides, an individual who has acquired EQF level 7 qualification should be ready to take responsibility for contributing to new knowledge and practical skills and for reviewing the strategic performance of teams. LTQF suggests that qualification at this level includes ability to plan activities with consideration of tasks set, to analyse and record the results of one's own activity outcomes, as well as to submit reports to the coordinating persons; to correct one's activities with regard to the analysis of the activity results and recommendations of experts and to implement varied project activities. Thus creative and initiative aspects provide a lower degree competence than in EQF 7. Requirements for competence on level 6 LTQF are lower than on level 7 EQF.

Referencing LTQF to DD: A Comparison of Level 6 of the LTQF against Short, First and Second cycles of DD

Level 6 LTQF description	Dublin descriptors	Referencing conclusions	General conclusion
The qualification is related to complex activities which are characterized by a variety of tasks and contents. In solving problems in different areas of professional activities, a variety of means and methods is applied. The performance implies application of broad theoretical knowledge built on the results of recent fundamental and applied research or knowledge needed for implementation of innovations. The activities are performed independently, with a free choice of methods of performance and with managing task groups for the implementation of the task. That is the reason why qualification of this level includes the ability to plan activities with consideration of the tasks set, to analyse and record the results of one's own activity outcomes, as well as to submit reports to the coordinating persons; to correct one's activities with regard to the analysis of the activity results and recommendations of experts and to implement varied project activities. The environment of the activities requires to adapt to continuous and unpredictable change, which is caused by the progress of knowledge and technology in a specific area of professional field. The qualification allows to improve and develop knowledge in the professional area and, following the self-assessment, to learn individually (to develop cognitive competences), as caused by the constant change of professional activities.	**Short cycle (within the first cycle)** Qualifications are awarded to students who:		Though the correspondence is not ideal, it can be stated that LTQF 6 references best to DD cycle 2. Mismatches: - Requirements for knowledge and understanding in LTQF are partly higher; - The skills to instruct others, to disseminate results are lower in LTQF 6; - Requirements for metacognitive skills are slightly higher in LTQF 6 ; - LTQF 6 does not indicate that solutions should be socially and ethically fair.
	have demonstrated knowledge and understanding in a field of study that builds upon general secondary education and is at the level supported by advanced textbooks; such knowledge provides an underpinning for a field of work or vocation, personal development, further studies to complete the first cycle;	LTQF 6 requires knowledge which is built on the results of recent fundamental and applied research or knowledge needed for implementation of innovations; Dublin descriptors indicate at this level that knowledge is at the level supported by advanced textbooks. Requirements for knowledge at level 6 LTQF are higher than in the DD short cycle descriptor.	
	can apply their knowledge and understanding in occupational contexts;	LTQF 6, just like DD short cycle requires to apply knowledge in occupational contexts; LTQF also emphasizes that the qualification enables further improvement and development of knowledge in the professional contexts and for individual learning. The requirements for knowledge application and understanding are slightly higher in LTQF 6 than in the DD short cycle (within the first cycle).	
	have the ability to identify and use data to formulate responses to well-defined concrete and abstract problems;	LTQF 6 does not mention identifying or using data, but the requirement to analyse and record the results of activity outcomes indicates the students' capacity to use data at hand and ability to gather new one. The skills of working with data seem to be higher in LTQF 6 than in DD short cycle (within the first cycle).	
	can communicate about their understanding, skills and activities, with peers, supervisors and clients;	Communicative skills are not mentioned directly in the LTQF 6, but the necessity for such skills is formulated in the requirement of managing task groups for implementation of a task. The requirements of communicative skills are similar in both cases.	
	have the learning skills to	The learning skills to undertake further studies in LTQF 6	

	undertake further studies with some autonomy	are higher, as the requirement is not only to have skills for individual learning, but also to be able to develop cognitive competences and to do self-assessment.	
The qualification is related to complex activities which are characterized by a variety of tasks and contents. In solving problems in different areas of professional activities, a variety of means and methods is applied. The performance implies application of broad theoretical knowledge built on the results of recent fundamental and applied research or knowledge needed for implementation of innovations.

    The activities are performed independently, with a free choice of methods of performance and with managing task groups for the implementation of the task. That is the reason why qualification of this level includes the ability to plan activities with consideration of the tasks set, to analyse and record the results of one's own activity outcomes, as well as to submit reports to the coordinating persons; to correct one's activities with regard to the analysis of the activity results and recommendations of experts and to implement varied project activities.

    The environment of the activities requires to adapt to continuous and unpredictable change, which is caused by the progress of knowledge and technology in a specific area of professional field. The qualification allows to improve and develop knowledge in the professional area and, following the self-assessment, to learn individually (to develop cognitive competences), as caused by the constant change of professional activities. | **First cycle** | | |
| | Qualifications are awarded to students who: | | |
| | have demonstrated knowledge and understanding in a field of study that builds upon their general secondary education, and is typically at a level that, whilst supported by advanced textbooks, includes some aspects that will be informed by knowledge of the forefront of their field of study; | LTQF 6 requires to get and apply knowledge which is built on the results of up-to-date fundamental and applied results, while DD cycle 1 requires demonstrating knowledge and understanding in a field of study that is supported by advanced textbooks and includes some aspects that will be informed by knowledge of the forefront of their field of study.

    The requirements for knowledge and understanding in LTQF 6 are somewhat higher than in the DD first cycle. | |
| | can apply their knowledge and understanding in a manner that indicates a professional approach to their work or vocation, and have competences typically demonstrated through devising and sustaining arguments and solving problems within their field of study; | The skills to apply knowledge and understanding are emphasized in both cases. The competence is mentioned directly, when speaking about devising and sustaining arguments, in DD; in LTQF 6 these skills are reflected in the description of activities, such as planning and choice of a variety of methods, correction of activities, etc.

    In LTQF 6 and DD cycle 1 similar requirements are formulated for knowledge and understanding. | |
| | have the ability to gather and interpret relevant data (usually within their field of study) to inform judgments that include reflection on relevant social, scientific or ethical issues; | Work with relevant data is not mentioned directly in LTQF 6, but the LTQF 6 does not mention identifying or using data, but the requirement to analyse and record the results of activity outcomes indicates the students' capacity to use data at hand and ability to gather new one.

    Besides, it is indicated that LTQF 6 also emphasizes that the qualification enables further improvement and development of knowledge in the professional contexts and for individual learning.

In terms of data gathering and analysis the requirements in LTQF 6 and in DD cycle 1 are close. | |
| | can communicate information, ideas, problems and solutions to | The communication of information, ideas, problems and solutions to other individuals is not highlighted in LTQF. | |

	both specialist and non-specialist audiences;	The skills can be implied in the requirement to be able to manage task groups. The skills of communicating information and activity results are lower in LTQF than in DD cycle 1.	
	have developed those learning skills that are necessary for them to continue to undertake further study with a high degree of autonomy.	In LTQF 6 the requirement to learn individually to adapt to constant and mostly unpredictable changes is emphasized, while in DD cycle 1 the learning skills have to be developed for further studies with a higher degree of autonomy. To a certain extent LTQF 6 poses higher requirements for learning skills than the requirements in DD cycle 1.	
The qualification is related to complex activities which are characterized by a variety of tasks and contents. In solving problems in different areas of professional activities, a variety of means and methods is applied. The performance implies application of broad theoretical knowledge built on the results of recent fundamental and applied research or knowledge needed for implementation of innovations. The activities are performed independently, with a free choice of methods of performance and with managing task groups for the implementation of the task. That is the reason why qualification of this level includes the ability to plan activities with consideration of the tasks set, to analyse and record the results of one's own activity outcomes, as well as to submit reports to the coordinating persons; to correct one's activities with regard to the analysis of the activity results and recommendations of experts and to implement varied project activities. The environment of the activities requires to adapt to continuous and unpredictable change, which is caused by the progress of knowledge and technology in a specific area of professional field. The qualification allows to improve and develop knowledge in the professional area and, following the self-	**Second cycle** Qualifications are awarded to students who:		
	have demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with the first cycle, and that provides a basis or opportunity for originality in developing and/or applying ideas, often within a research context;	LTQF 6 insists on application, which in fact means acquiring broad knowledge which is built on the results of recent fundamental and applied research or knowledge needed for implementation of innovations. Besides, it is indicated that LTQF 6 also emphasizes that the qualification enables further improvement and development of knowledge in the professional contexts and for individual learning. The requirements are insignificantly lower than those in DD cycle 2, which provides a basis or opportunity for originality in developing and/applying ideas, often within a research context.	
	can apply their knowledge and understanding, and problem solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study;	The description of DD cycle 2 indicates that knowledge and understanding should provide an individual with problem solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study; in qualification description of LTQF 6 we may observe only elements of such requirements. The description of LTQF 6 formulates lower requirements than DD cycle 2.	
	have the ability to integrate knowledge and handle complexity, and formulate judgments with incomplete or limited information, but that include reflecting n social and	DD cycle 2 requires that an individual of such a qualification should have the ability to integrate knowledge and handle complexity, and formulate judgments with incomplete or limited information, but that include reflecting n social and ethical responsibilities. Such skills are not indicated in LTQF 6.	

assessment, to learn individually (to develop cognitive competences), as caused by the constant change of professional activities.	ethical responsibilities linked to the application of their knowledge and judgments;	Thus the requirements of LTQF 6 in this respect are lower than in DD cycle 2.	
	can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously;	Little attention in LTQF 6 is paid to the skills of communication of knowledge to other people. In this respect requirements in LTQF are much lower than in DD cycle 2.	
	have the learning skills to allow them to continue to study in a manner that may be largely self-directed and autonomous.	In both descriptions it is required to have such learning skills which may be largely self-directed and autonomous. In this respect the requirements in LTQF 6 and in DD cycle 2 are close.	