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Analysis and overview of NQF level descriptors in European countries

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Foreword

Qualifications are important for finding a job and essential for building a career. How qualifications are classified and ranked is going through major change, influenced by the shift to learning outcomes triggered by the rapid development of national qualifications frameworks (NQFs) across Europe.

Level descriptors are essential elements of these frameworks. Almost all 36 countries participating in the European qualifications framework (EQF) have now (spring 2013) defined – and mostly adopted – their levels of learning outcomes. While technical in their character, these descriptors define what is meant by learning outcomes, describing what an individual is expected to know, be able to do and to understand, having acquired a qualification at a particular level. Level descriptors can thus be seen as the single most important element in promoting the shift to learning outcomes.

While the current analysis illustrates the influence of the EQF on national level descriptors, it also demonstrates how countries have adjusted and further developed the learning outcomes approach according to national needs and priorities. National level descriptors can be seen as concentrated expressions of national priorities and have mostly been developed through an extensive dialogue between different stakeholders.

This working paper provides the first ever overview of European level descriptors. It is our hope that this material will stimulate further developments at national level as well as supporting the referencing of national qualifications frameworks to the EQF. It also provides input to evaluation of the EQF, to be concluded by a report of the European Commission to the European Parliament and Council later in 2013.

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1. Introduction

Entering into 2013, almost all the 36 countries in the European qualifications framework (EQF) cooperation ([1]) have finalised their national level descriptors. This gives us for the first time the opportunity to present ([2]) and analyse the profile and range of level descriptors now used across Europe.

The added value of national qualifications frameworks (NQFs) very much depends on their ability to specify levels of learning outcomes. These levels make it possible to approach education and training systems from a new angle, emphasising the content and profile of qualifications rather than focusing on the institution awarding them. This increases the overall transparency of qualifications systems and is seen as a support to mobility and lifelong learning.

The discussion on learning outcomes-based descriptors for qualifications frameworks cannot be treated as a purely technical issue. While conceptual and terminological clarity and consistency is of crucial importance, the role played by level descriptors depends on their ability to act as an agreed and credible reference point for all stakeholders in education and training, lifelong learning and the labour market.

1.1 The function of level descriptors

When used in comprehensive national qualifications frameworks – covering all types and levels of qualifications – level descriptors need to respond to the following challenges:

- they need to be sufficiently detailed and multifaceted to capture the institutional complexities of the national qualification system;
- they need to be sufficiently general to accommodate different parts of education and training systems;
- they need to mirror the way qualifications are valued by economy and society;
- they must be able to reflect how knowledge, skills and competences increase in breadth, depth and complexity when moving from lower to higher levels;

([1]) These countries are: the 27 EU Member States, Croatia, the former Yugoslav Republic of Macedonia, Iceland, Liechtenstein, Montenegro, Norway, Serbia, Switzerland and Turkey.

([2]) See Annex 2, Level descriptors in national qualifications frameworks.

- they need (increasingly) to act as a reference point for international comparison.

The above points indicate the need to increase the transparency of qualifications and to improve communication between stakeholders at national and international levels. Introducing a comprehensive set of learning outcomes-based levels makes it possible to indicate how qualifications from different institutions, subsystems and countries are related and thus clarify how learners can have access to, and progress in, lifelong learning. However, qualifications frameworks and their level descriptors are increasingly being used for reform purposes (as exemplified by Iceland, Ireland, Poland and Sweden). In these cases, the descriptors also need respond to the following challenges:

- they need to provide a tool for dialogue and so serve the interests and needs of different stakeholders, including labour market actors ([3]);
- they need to be able to serve as a reference point for institutional comparison and development, for example by identifying differences in performance ([4]) between similar institutions;
- they must allow stakeholders to identify areas where further development is required ([5]);
- they need to provide a reference point for qualifications currently outside the NQF, potentially allowing for their inclusion (for example private and international qualifications).

The extent to which the emerging national qualifications frameworks – and their level descriptors – will be able to respond to these challenges has yet to be seen and will be the topic of the regular Cedefop mapping of national qualifications frameworks in European countries.

([3]) The example of Scotland shows that level descriptors being used to draft job advertisements and in appraisal schemes and staff development. The framework implementation and impact study in Ireland (2009) emphasised the need to strengthen the visibility of the framework in relation to the labour market in assisting development of career pathways, certifying learning achievement at work, guidance, etc.

([4]) The level descriptors can be used as a basic reference point for institutions working in the same sector of national education and training, pointing to inconsistencies in the delivery of knowledge, skills and competence.

([5]) This could be exemplified by current developments regarding qualifications equivalent to level 5 of the EQF. Several countries, for example Lithuania and Poland, have identified the need to introduce new qualifications at level 5. It can be argued that the introduction of learning outcomes levels, and the alternative perspective introduced, clarified this need.

1.2 Level descriptors: differentiation and convergence

NQF developments in most European countries were triggered by the EQF and so are influenced by the European level descriptors. While close alignment to the EQF descriptors may aid cross-border comparison, this may reduce the ability to capture national specificities and complexities. The following chapters analyse how countries have approached this challenge.

1.3 The reference point: EQF level descriptors

The descriptors defining the levels of the EQF were developed between 2003 and 2008 in an extensive process building on research ([6]) and widespread consultation involving experts and policy-makers from all countries involved ([7]). The consensus reached on the EQF descriptors can be viewed as one of compromise and acceptance rather than arriving at a perfect solution and total comfort. While agreement on the categories of knowledge and skills was reached at an early stage, the most challenging part of the exercise was related to the definition and description of 'competence'. Several countries see competence as an overarching category referring to the ability of individuals to apply knowledge and skills in a self-directed way; treating it as a subcategory would, it was claimed, give the wrong signal. The consensus and compromise reached in 2008 was to operate with a general definition of competence, stressing the overarching character of the concept, but with descriptors limited to 'autonomy' and 'responsibility'. These discussions on the character of competence have continued in the years following adoption of the EQF and point to differences in the way learning outcomes are perceived in different countries. The basic structure of the EQF descriptors is shown in table 1 ([8]).

([6]) Cedefop (2005). *European reference levels for education and training: promoting credit transfer and mutual trust*. http://www.cedefop.europa.eu/en/Files/5146_EN.PDF [accessed 21.3.2013].

([7]) See responses to the EQF consultation on http://ec.europa.eu/education/policies/educ/eqf/resultsconsult_en.html [accessed 21.3.2013].

([8]) European Parliament; Council of the European Union (2008). Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European qualifications framework for lifelong learning. *Official Journal of the European Union*, C 111, 6.5.2011, pp. 1-7. http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:111:0001:0007:EN:PDF [accessed 26.11.2012].

Table 1 **EQF level descriptors: main elements**

Level descriptor elements		
Knowledge	***Skills***	***Competence***
• factual and/or • theoretical	• cognitive • practical	• autonomy • responsibility

Only three European countries, Ireland, France and the UK, had developed NQFs prior to the EQF ([9]). This means that 32 countries ([10]) have developed NQF level descriptors in response to this approach. Cedefop's analysis divides these countries into three different categories.

1.3.1 Alignment to EQF descriptors

A first group of countries uses the EQF descriptors directly or aligns closely to them: Estonia, Austria and Portugal are examples ([11]). Most of these countries have, however, prepared additional explanatory tables or guides with more detailed level descriptors in order to be able to use the national qualifications frameworks. Estonia has prepared detailed level descriptors for four subframeworks: higher education, general education, vocational education and training, and occupational qualifications. Portugal has drafted guidelines (*Understanding the NQF*) in which a more detailed and fine-tuned description of knowledge, skills, attitudes and context is provided. In the case of 'knowledge', for example, a distinction is made between 'depth of knowledge' ([12]) and 'understanding and critical thinking' ([13]). The skills domain (also identified as know-how) is characterised by depth and breadth and purpose. The third column

([9]) As shown in Annex 2, Level descriptors in national qualifications frameworks, these 'mature' level descriptors vary considerably in form and detail and reflect the particular national policy context within which they emerged. The French level descriptors (divided according to 5 levels) differ considerably from the EQF approach, notably by the fact that qualifications below level 3 of the EQF are not addressed. The UK and Irish level descriptors – although differing from each other – have influenced the EQF descriptors.

([10]) Italy uses EQF level descriptors as a basis for referencing its formal qualifications to the EQF levels.

([11]) Portugal and Estonia use EQF level descriptors directly, but have renamed the third column of competence: Portugal to attitudes and Estonia to scope of responsibility and autonomy activities.

([12]) Considered to increase progressively from the lowest to the highest level.

([13]) Critical thinking is considered at a lower level to be interpretation of information and application in the context and, at the highest, critical awareness of knowledge-related issues in the field and at the interface with other fields.

– 'competence' – covers attitudes (defined as autonomy and responsibility). A context column has been added, defining context of application, predictability ([14]) and complexity. The frameworks of Croatia, Greece and Slovakia are also closely aligned to the EQF descriptors, starting from the three main pillars of knowledge, skills and competence and only introducing limited changes to the detailed descriptors. For instance, Croatia has emphasised social skills in addition to the cognitive and practical skills addressed by EQF.

1.3.2 Broadening the EQF descriptors

A second group of countries is influenced by the EQF descriptors, but has broadened and partly reprofiled their descriptors: Denmark, Finland, Iceland, Netherlands, Norway, Malta, Poland, Romania and Sweden are examples. All these countries refer to 'knowledge' and 'skills' but have renamed the 'competence' column.

For knowledge, many countries go beyond the dimensions of theoretical and/or factual knowledge introduced by the EQF and refer to 'systematic knowledge', 'knowledge of a subject' and 'comprehensive knowledge related to knowledge domain or discipline'. In some countries the articulation of knowledge is closely linked to and inspired by the national curriculum and its emphasis on progressive mastery of knowledge through the educational process ([15]). The link to national curricula is also influenced by study subjects/fields, in some cases addressed as specific requirements in (for example) language, literacy and numeracy, etc.

For skills, several countries seek to go beyond the focus on manual and cognitive skills introduced by the EQF and list 'planning', 'organising', 'social and communication skills', 'evaluation' and judgment skills' as well as 'instrumental and systemic skills' as additional elements to be addressed. Denmark, for instance, has included 'communication, creative and problem solving skills'. Hungary has broadened skills with 'abilities' and 'learning skills', which are also emphasised in the Dutch, Polish or Norwegian frameworks. Romania highlights 'application, transfer and problem solving skills', 'critical and constructive reflection' as well as 'creativity and innovation'.

For 'competence', the Netherlands refers to 'responsibility and independence', Norway to 'general competence' and Romania to 'transversal competences'. While all these countries include 'autonomy' and 'responsibility' in

([14]) Referring to the stability/changeability of situations. It is assumed that the more situations change, the bigger is the challenge faced by the individual.

([15]) Méhaut, P.; Winch, C. (2012). The European qualifications framework: skills, competences or knowledge? *European educational research journal*, Vol. 11, No 3, pp. 369-381. http://dx.doi.org/10.2304/eerj.2012.11.3.369 [accessed 26.11.2012].

their interpretation of 'competence', they tend to incorporate additional aspects like 'critical thinking', 'creativity' and 'entrepreneurship', 'learning to learn', 'communication' and 'cooperation'. Many countries, for instance Finland, Iceland and Malta, have made an effort to integrate the EU key competences ([16]) in their level descriptors. The inclusion of the term 'evaluation' in the Finnish and Polish frameworks underlines that individuals are expected to reflect critically on their own knowledge, skills and competence and on how these can be improved. In Latvia the terms 'analysis', 'synthesis' and 'assessment' point in the same direction. Poland uses the term 'social competence' instead of 'competence'. This is understood as 'identity' (participation, responsibility, models of conduct), 'cooperation' (including team work, leadership, and conditions) and 'responsibility' (which includes individual and team actions, consequences and evaluation). Ireland, having defined level descriptors prior to the EQF, uses four substrands to define competence: context, role, learning to learn and insight.

Overall, the countries referred to above have all made an effort to broaden and enrich their national descriptors to be better able to mirror the complexities of their national qualifications systems and/or emphasise national priorities. This effort has partly blurred the relationship between the 'skills' and 'competence' categories. It is not obvious, based on the descriptors alone, how a 'problem solving skill' differs from a 'problem solving competence'. The introduction of 'context' as an independent category in national descriptors, for example by the Flemish, Irish, Dutch and Portuguese NQFs, may provide a solution.

1.3.3 Emphasising competence

The interpretation of 'competence' is of particular importance for developing and agreeing on level descriptors. A third group of countries see 'competence' as an overarching concept, thus significantly influencing the way learning outcomes are defined and described ([17]): examples are Belgium (Flemish, French and German

([16]) European Parliament; Council of the European Union (2006). Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning. *Official Journal of the European Union*, L 394, 30.12.2006, pp. 10-18. http://eur-lex.europa.eu/LexUriServ/site/en/oj/2006/l_394/l_39420061230en00100018.pdf [accessed 21.3.2013].

([17]) The distinction between the second and third groups of countries is not always clear-cut. Some countries, e.g. Iceland and Slovenia, use competence as a headline for the third column, but emphasise the integrative and holistic nature of the concept. In the Icelandic qualifications framework, competence involves responsibility, broadmindedness, creativity, moral values, tolerance, and the students' appreciation of their own abilities. Competence involves student analysis of own knowledge and skill by comparing, finding connections, simplifying, drawing conclusions, reflecting, and reasoning. In the Slovenian qualifications framework, competence relates 'to the

communities), Germany, Lithuania, Luxembourg, the Netherlands and Switzerland. These countries emphasise the holistic character of the term 'competence'. Knowledge, skills and attitudes are not 'atomised' entities which can be judged in isolation from each other; individuals have to combine and apply them in the concrete contexts provided by work and learning. The ability of an individual to act in a self-directed way is seen as crucial to the understanding of 'competence' and allows differentiation between levels of competence ([18]). It focuses on the ability of a person to use knowledge, skills, attitudes and other personal, social and/or methodological abilities – in a self-directed way – in work and study situations and to deal with complexity, unpredictability and change.

The practical implication of this perspective is well illustrated by the German qualifications framework where the term *Handlungskomptenz* (action competence') is understood as 'the ability and readiness of the individual to use knowledge, skills and personal, social and methodological competences and conduct him or herself in a considered and individually and socially responsible manner' ([19]). Consequently, the German level descriptors differentiate between professional and personal competence and show how knowledge (of varying depth and breadth), skills (instrumental and systematic, linked to judgement), social competence (communication, teamwork, leadership and involvement) and autonomy (autonomous responsibility, learning and reflectiveness) come together in defining the overall competence of the individual.

In the Netherlands the competence concept is also understood as integrative, aiming to cover a wide range of human abilities to cope with complex tasks. According to Westerhuis (2011, p. 76) ([20]), (the term) 'Integrative stands for the fact that (a) competences are multidimensional and (b) competent performance is only possible if all dimensions are addressed according to a set of standards.' The Belgian-Flemish framework defines competence as 'the ability to

ability to use and integrate knowledge and skills in educational, work, personal and/or professional situations. Competences vary in their complexity, independence and responsibility for action' (Institute of the Republic of Slovenia for vocational education and training, 2011, p. 12).

([18]) Méhaut, P.; Winch, C. (2012). The European qualifications framework: skills, competences or knowledge? *European educational research journal*, Vol. 11, No 3, pp. 369-381. http://dx.doi.org/10.2304/eerj.2012.11.3.369 [accessed 26.11.2012].

([19]) Arbeitskreis DQR (2011). *The German qualifications framework for lifelong learning adopted by the 'German qualifications framework working group' (AK DQR), 22 March 2011*. http://www.deutscherqualifikationsrahmen.de/de?t=/documentManager/sfdoc.file.supply&fileID=1353327995967 [accessed 20.5.2013].

([20]) Westerhuis, A. (2011). The meaning of competence. In: Brockman, M. et al. (eds). *Knowledge, skills and competence in the European labour market: what's in a vocational qualification?* Abingdon: Routledge, pp. 68-84.

apply knowledge, skills and attitudes when performing social activities, and integrate these into one's actions' ([21]). The Flemish descriptors introduce context as a separate aspect, underlining that knowledge and skills have to be applied in life, work or study to count as competence.

The NQF in Luxembourg uses the term 'competence' to underline the fact that learning outcomes are not an aim in itself, but must be applied actively in work or study contexts. Lithuania differentiates between three categories of competences: cognitive, functional and general ([22]).

Table 2 **Lithuanian descriptor principles**

Functional competences		
Skills	Knowledge	Key skills and abilities
Cognitive competences		
Knowledge	Skills	Key skills and abilities
General competences		
Key skills and abilities	Knowledge	Skills

Source: Laužackas, R. et al. (2009).

1.4 Level descriptors bridging different education and training subsystems

Given their (mainly) comprehensive character, European NQFs need to mirror and include a diversity of qualifications from different education and training subsystems. Balancing the need for broad coverage with attention to specificity and detail is challenging. Countries have largely solved this by writing their descriptors in a general and neutral language, avoiding too specific references to particular sectors or institutional types.

A number of countries, for example Germany, have decided that this general/neutral approach is insufficient and have introduced alternative sets of formulations tailored to the needs of particular sectors and qualifications.

([21]) Flemish Government (2009). *Flemish act on the qualification structure*. http://www.evcvlaanderen.be/files/DecreetVKS_ENG.pdf [accessed 10.10.2012].

([22]) Laužackas, R.; Tūtlys, V.; Spūdytė, I. (2009). Evolution of competence concept in Lithuania: from VET reform to development of NQS. *Journal of European industrial training*, Vol. 33, No 8/9, pp. 800-816.

Box 1 **The German qualifications framework for lifelong learning – Alternative formulations for knowledge at DQR level 6**

Be in possession of broad and integrated knowledge including knowledge of basic scientific principles and the practical application of a scientific subject as well as a critical understanding of the most important theories and methods (corresponding to level 1 – Bachelor level – of the qualifications framework for German higher education qualifications)

or

be in possession of broad and integrated occupational knowledge including current technical developments.

Be in possession of knowledge for the further development of a scientific subject

or

of a field of occupational activity.

Be in possession of relevant knowledge at interfaces to other areas.

Source: Arbeitskreis DQR (2011) ([23]).

Other countries have moved one step further by introducing parallel level descriptors to distinguish between different categories of qualifications. For instance, Austria has chosen to introduce parallel descriptors at levels 6-8 (the 'Ypsilon' approach) respectively addressing qualifications from (academic) higher education and vocational education and training. Norway has chosen a similar approach at levels 4-6, also in this case capturing the differences between VET, general and academic qualifications.

The Polish qualifications framework offers yet another solution by introducing three main sets of level descriptors designed for different purposes and operating with different levels of detail. These are:

- Polish universal descriptors underpinning the Polish comprehensive national qualifications framework;
- Polish descriptors for education and training subsystems and subframeworks, notably for general education, vocational education and training and (academic) higher education;
- descriptors for economic sectors or subject areas.

([23]) The German qualifications framework for lifelong learning adopted by the 'German qualifications framework working group' (AK DQR), 22 March 2011. http://www.deutscherqualifikationsrahmen.de/de?t=/documentManager/sfdoc.file.supply&fileID=1353327995967 [accessed 20.5.2013].
http://www.deutscherqualifikationsrahmen.de/de?t=/documentManager/sfdoc.file.supply&fileID=1353327995967 [accessed 20.5.2013].

The universal descriptors (defined as knowledge, skills and social competence) have been agreed between stakeholders in general education, VET and HE and represent a common reference point for developments at the other two levels, in subsystems and at sector/subject level. The basic distinction between knowledge, skills and social competence will be used at all levels but will differ in terms of specificity. Level descriptors for the third generic degree have yet to be developed.

1.5 The European area of higher education and the 'Dublin descriptors'

The development of qualifications framework within the European area of higher education (EHEA) was formally launched in 2005 ([24]) and thus precedes the EQF and subsequent development of comprehensive NQFs. These framework developments build on the 'Dublin descriptors' ([25]) developed within the 'joint quality' initiative, from 2001 and onwards. The influence of the Dublin descriptors at European and national levels is significant. Building on the same basic understanding of learning outcomes as the EQF, both descriptor-sets describe how the holder of a qualification must be able to demonstrate, apply, gather as well as communicate knowledge and understanding ([26]) and how requirements increase as the context becomes more complex, changeable and unpredictable. While the terminology is different, the overall correspondence is sufficient for the two descriptors to coexist (as is also formally stated by the EQF recommendation, Annex 1). However, the main limitation of the Dublin descriptors lies in their reference to study and research situations. While some

([24]) *A framework for qualifications in the European higher education area. Bologna working group on qualifications frameworks*. Published by the Danish Ministry of Science, Technology and Innovation, Copenhagen, February 2005.

([25]) See Annex 2. The Dublin descriptors were built on the following elements (ibid, p. 65):

- knowledge and understanding;
- applying knowledge and understanding;
- making judgements;
- communications skills;
- learning skills.

([26]) It is worth noting that the Dublin descriptors use the term 'competence' only once (in specifying the requirements of the first cycle). It is explained that this is 'a broad definition of competence', allowing for '…. gradation of abilities and skills. It is not used in the narrower sense identified as solely on the basis of a yes/no assessment ….'. (ibid, p. 67).

indirect references are made to the labour market relevance of qualifications (…candidates are expected 'to apply their knowledge and understanding in a manner that indicates a professional approach to their work or vocation…'), this is not done systematically. The EQF descriptors – and indeed most NQF descriptors – acknowledge this limitation and focus on the relevance of learning outcomes in study as well as in work situations. As already outlined in previous chapters, a key concern of the emerging NQFs has been to develop this labour market relevance of the descriptors; notably by emphasising transversal skills and competences relevant to study and work and by insisting on the need for a broader approach to competence.

Eight years since the adoption of the EHEA and five years since the adoption of the EQF, countries are increasingly treating the EQF and the QF-EHEA as elements in the same process when developing comprehensive NQFs, using the EQF and QF-EHEA level descriptors to inform development of national level descriptors ([27]). This not only confirms the close conceptual and terminological relationship between the two framework level descriptors, but also illustrates that countries are giving priority to the development of comprehensive and broad level descriptors to cover diverse qualifications.

1.6 Level descriptors and their relevance to the labour market

An important function of learning outcomes-based level descriptors is to increase the transparency of qualifications for labour market stakeholders. This requires that the level descriptors are able to make visible the learning outcomes that are relevant to occupations and work situations. They need to use language that can be understood by education and training as well as the labour market.

One of the EQF pilot projects ([28]) argues, however, that the EQF level descriptors suffer from a number of weaknesses, reducing their ability to act as a 'mirror of the world of work'. Particular concern is expressed over the ability of the descriptors to differentiate between levels of competence, pointing to inconsistencies in the use of terms (how to express a degree of complexity, the articulation of change and predictability/unpredictability, the role of context, etc.). The main conclusion from this project is that the competence must be further

([27]) A total of 11 countries (Austria, Bulgaria, Croatia, Estonia, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal and Slovenia) have combined the referencing to the EQF with the self-certification to the EHEA by end May 2013.

([28]) DEKRA (2012). *NQF-SQF project – The employability grid*. www.project-nqf-sqf.eu [accessed 21.3.2013].

refined, in particular by addressing the 'character of actions' (in relation to context, objects and others). Others ([29]) have pointed in the same direction, arguing that descriptors must be further developed to capture better 'the scope of occupational activities' covered by a qualification. This development could take place at sectoral and/or occupational level, acknowledging the complex nature of national and European labour markets.

The extent to which countries have responded to this criticism varies. The emphasis given to context and transversal skills and competences can be seen as one response to this concern; the Lithuanian introduction of 'activity' based descriptors another. The Lithuanian descriptors build on the following principles:

- characteristics of activities;
- autonomy of activities;
- variability of activities.

These activity characteristics underline that knowledge, skills and competence can only be fully understood when contextualised. As underlined by other national approaches, for example the Dutch and Belgian descriptors, the complexity of the context directly influences the competences required. In the Lithuanian approach, attention is also drawn to the influence of these activity factors on learning. Lack of autonomy and change at lower levels may reduce the potential for competence development. Descriptors at these levels point to additional measures and initiatives to enhance lifelong learning and skills development ([30]).

Arguments in favour of more employment-relevant descriptors show that level descriptors need to be systematically reviewed and further developed. The current evaluation of the EQF (2013) provides a first opportunity to address and discuss some of the points made nationally, in particular over the concept of competence and the relevance of the descriptors to the labour market.

1.7 Some concluding remarks

The observations made in this working paper are limited to the terminological and conceptual features of the level descriptors. The extent to which descriptors are able to promote transparency at national and international levels depends on how

([29]) Méhaut and Winch (2012). The European qualifications framework: skills, competence or knowledge. *European education research journal*, Vo. 11, No 3, pp. 369-381.

([30]) Laužackas, R.; Tūtlys, V.; Spūdytė, I. (2009). Evolution of competence concept in Lithuania: from VET reform to development of NQS. *Journal of European industrial training*, Vol. 33, No 8/9, pp. 800-816.

they are interpreted and applied by stakeholders and is something we have to come back to in the context of the overall analysis of European NQF developments. This initial analysis, however, points to some important dilemmas and challenges which have to be addressed in the coming years.

1.7.1 Balancing international comparability and national relevance

This working paper shows that there is no single way of developing and defining level descriptors and that the different approaches chosen at national level face different challenges. A group of countries have chosen to align their national level descriptors to the EQF, emphasising international comparability as a key goal. This, however, runs the risk of limiting the national relevance of the descriptors. The EQF descriptors – deliberately using a general language – will not always be able of capturing the complexities of a national qualifications system.

1.7.2 Emphasis on transversal skills and competences

A significant group of countries seek to broaden their level descriptors to include transversal skills and competences. This allows them to strengthen the national relevance of the descriptors and to promote particular policies; the inclusion of key competences in the Finnish and Icelandic descriptors exemplifies this aspect. This group of countries is characterised by increasing terminological and conceptual diversity, in some cases demonstrating different interpretation of concepts, for example on where to draw the line between skills and competence.

1.7.3 Competence predominance

Some countries see their level descriptors as providing an alternative to the principles of the EQF descriptors. Countries insisting on the predominance of the holistic concept of competence may fear that using competence along with the knowledge and skills could lead to an ‘atomisation’ and ‘narrowing down’ of education and training and lifelong learning strategies. Competence, it is argued, has to be treated as an overarching concept signalling self-directed ability to interpret and apply knowledge, skills, attitudes and other personal and social abilities in work and study contexts. The EQF approach, seeing competence as autonomy and responsibility, is seen as insufficient for grasping the true character and complexities of learning and the role of a qualified individual.

1.7.4 Interaction between comprehensive and sector-specific descriptors

Most European NQFs seek to cover all levels and types of qualification. This requires that level descriptors are defined in a general and neutral language allowing them to reflect a very complex and diverse reality. This, consequently, may reduce the ability of the descriptors to capture the detailed characteristics

and needs of a subsystem. Countries have identified different solutions to this dilemma, in some cases introducing parallel descriptors to be able to reflect better the character of the specific qualifications. The continued role played by the Dublin descriptors for higher education – as well as the introduction of level descriptors at different levels of generality in Poland – may point to a future solution where countries operate with several layers of descriptors, emerging from the same core set of general descriptors. Without such consistency, however, there is a risk of creating competing and conflicting level descriptors reducing rather than increasing transparency.

1.7.5 Relevance of level descriptors beyond education and training

Compared to the Dublin descriptors developed for the QF-EHEA, the level descriptors triggered by the EQF give more emphasis to the link to the labour market. The importance of indicating levels of 'autonomy' and 'responsibility' is broadly agreed by all countries and has, in some countries, been taken several steps further, notably by adding transversal skills and competences and by clarifying the impact of the context on the understanding of levels. The descriptors of the Lithuanian NQF referring to the 'characteristics, autonomy and variability of activities' point in this direction and will require further attention in the coming period, in particular if NQFs are to be opened to private and non-formal qualifications (as initiated by Sweden and the Netherlands).

1.7.6 Towards a common language

So far (June 2013), 20 countries have referenced their national qualifications levels to the EQF. Overall, this process has been running smoothly, illustrating that countries have taken on board the key terminological and conceptual elements of the EQF descriptors. This common understanding, based on similarities and mutual understanding of differences, seems to outweigh the divergences also identified in this analysis. Terminological convergence, however, can be seen as an important first step but not as sufficient on its own to ensure mutual trust and understanding. The impact of the level descriptors depends on how and by whom they are applied and the extent to which these processes are transparent and subject to continuous quality assurance and improvement.

Annex 1

Level descriptors at European level

Level descriptors in the European qualifications framework ([31])

	Knowledge	***Skills***	***Competence***
	In the context of EQF, knowledge is described as theoretical and/or factual	In the context of EQF, 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 is described in terms of responsibility and autonomy
Level 1 The learning outcomes relevant to level 1 are	basic general knowledge	basic skills required to carry out simple tasks	work or study under direct supervision in a structured context
Level 2 The learning outcomes relevant to level 2 are	basic factual knowledge of a field of work or study	basic cognitive and practical skills required to use relevant information to carry out tasks and to solve routine problems using simple rules and tools	work or study under supervision with some autonomy
Level 3 The learning outcomes relevant to level 3 are	knowledge of facts, principles, processes and general concepts, in a field of work or study	a range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information	take responsibility for completion of tasks in work or study adapt own behaviour to circumstances in solving problems

([31]) European Parliament; Council of the European Union (2008). *Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European qualifications framework for lifelong learning*. Official Journal of the European Union, C 111, 6.5.2011, pp. 1-7. http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:111:0001:0007:EN:PDF [accessed 26.11.2012].

	Knowledge	*Skills*	*Competence*
Level 4 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
Level 5 ([32]) The learning outcomes relevant to level 5 are	comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge	a comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems	exercise management and supervision in contexts of work or study activities where there is unpredictable change review and develop performance of self and others
Level 6 ([33]) The learning outcomes relevant to level 6 are	advanced knowledge of a field of work or study, involving a critical understanding of theories and principles	advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study	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

([32]) The descriptor for the higher education short cycle (within or linked to the first cycle), developed by the 'joint quality' initiative as part of the Bologna process, corresponds to the learning outcomes for EQF level 5.

([33]) The descriptor for the first cycle in the framework for qualifications of the European higher education area agreed by the ministers responsible for higher education at their meeting in Bergen in May 2005 in the framework of the Bologna process corresponds to the learning outcomes for EQF level 6.

	Knowledge	*Skills*	*Competence*
Level 7 ([34]) The learning outcomes relevant to level 7 are	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 issues in a field and at the interface between different fields	specialised problem-solving skills required in research and/or innovation to develop new knowledge and procedures and to integrate knowledge from different fields	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
Level 8 ([35]) The learning outcomes relevant to level 8 are	knowledge at the most advanced frontier of a field of work or study and at the interface between fields	the most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice	demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research

NB: Compatibility with the framework for qualifications of the European higher education area. This framework provides descriptors for cycles, each cycle descriptor offering a generic statement of typical expectations of achievements and abilities associated with qualifications that represent the end of that cycle.

([34]) The descriptor for the second cycle in the framework for qualifications of the European higher education area agreed by the ministers responsible for higher education at their meeting in Bergen in May 2005 in the framework of the Bologna process corresponds to the learning outcomes for EQF level 7.

([35]) The descriptor for the third cycle in the framework for qualifications of the European higher education area agreed by the ministers responsible for higher education at their meeting in Bergen in May 2005 in the framework of the Bologna process corresponds to the learning outcomes for EQF level 8.

Level descriptors in the framework for qualifications of the European higher education area ([36])

	Outcomes	ECTS Credits
Short cycle (within or linked to the first cycle) qualification	Qualifications that signify completion of the higher education short cycle (within or linked to the first cycle) are awarded to students who: • have demonstrated knowledge and understanding in a field of study that builds upon general secondary education ([37]) and is typically at a level supported by advanced textbooks; such knowledge provides an underpinning for a field of work or vocation, personal development, and further studies to complete the first cycle; • can apply their knowledge and understanding in occupational contexts; • have the ability to identify and use data to formulate responses to well-defined concrete and abstract problems; • can communicate about their understanding, skills and activities, with peers, supervisors and clients. • have the learning skills to undertake further studies with some autonomy.	Approximately 120 ECTS credits
First cycle qualification	Qualifications that signify completion of the first cycle 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, while supported by advanced textbooks, includes some aspects that will be informed by knowledge of the forefront of their field of study; • can apply their knowledge and understanding in a manner that indicates a professional ([38]) approach to their work or vocation, and have competences ([39]) typically demonstrated through devising	typically include 180-240 ECTS credits

([36]) Danish Ministry of Science, Technology and Innovation (2005). *A framework for qualifications in the European higher education area: Bologna working group on qualifications frameworks*. http://www.bologna-bergen2005.no/Docs/00-Main_doc/050218_QF_EHEA.pdf [accessed 21.5.2013].

([37]) General secondary education also includes vocational education with a sufficiently general component.

([38]) The word 'professional' is used in the descriptors in its broadest sense, relating to those attributes relevant to undertaking work or a vocation and that involves the application of some aspects of advanced learning. It is not used with regard to those specific requirements relating to regulated professions. The latter may be identified with the profile/specification.

([39]) The word 'competence' is used in the descriptors in its broadest sense, allowing for gradation of abilities or skills. It is not used in the narrower sense, identified solely on the basis of a 'yes/no' assessment.

	Outcomes	ECTS Credits
	and sustaining arguments and solving problems within their field of study; • 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; • can communicate information, ideas, problems and solutions to both specialist and non-specialist audiences; • have developed those learning skills that are necessary for them to continue to undertake further study with a high degree of autonomy.	
Second cycle qualification	Qualifications that signify completion of the second cycle 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 ([40]) 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; • have the ability to integrate knowledge and handle complexity, and formulate judgements with incomplete or limited information, but that include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgements; • can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously; • have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous.	normally carry 90-120 ECTS credits – the minimum requirements should amount to 60 ECTS credits at the second cycle level

([40]) The word ‘research’ is used to cover a wide variety of activities, with the context often related to a field of study; the term is used here to represent a careful study or investigation based on a systematic understanding and critical awareness of knowledge. The word is used in an inclusive way to accommodate the range of activities that support original and innovative work in the whole range of academic, professional and technological fields, including the humanities, and traditional, performing, and other creative arts. It is not used in any limited or restricted sense, or relating solely to a traditional 'scientific method'.

	Outcomes	ECTS Credits
Third cycle qualification	Qualifications that signify completion of the third cycle are awarded to students who: • have demonstrated systematic understanding of a field of study and mastery of the skills and methods of research associated with that field; • have demonstrated the ability to conceive, design, implement and adapt a substantial process of research with scholarly integrity; • have made a contribution through original research that extends the frontier of knowledge by developing a substantial body of work, some of which merits national or international refereed publication; • are capable of critical analysis, evaluation and synthesis of new and complex ideas; • can communicate with their peers, the larger scholarly community and with society in general about their areas of expertise; • can be expected to be able to promote, within academic and professional contexts, technological, social or cultural advancement in a knowledge based society.	Not specified

Annex 2

Level descriptors in national qualifications frameworks ([41])

Austria

Main NQF level descriptor elements in Austria

Level descriptor elements		
Knowledge	***Skills***	***Competence***
• factual and/or, • theoretical	• cognitive • practical	• autonomy and • responsibility

Descriptors for levels 1-8 ([42])

	Knowledge	***Skills***	***Competence***
Level 1	He/she has: • elementary-level general education, including fundamental knowledge of reading, writing, arithmetic and use of modern information and communication technologies; • knowledge about social norms and values; • knowledge about the accepted and common ways of behaving in everyday situations; • an insight into the world of work and	In his/her field of work or study he/she is able to: • communicate properly using language, participate in discussions and share his/her views; • deal with simple everyday activities under given framework conditions with the use of literacy and numeracy skills; • look for different possible solutions to simple problems, select the appropriate solution and use this to carry out the task;	In his/her field of work or study he/she is able to: • deal with simple situations under given framework conditions and with corresponding assistance.

([41]) National level descriptors available in English were included.

([42]) Austrian Ministry of Education, Arts and Culture; Ministry of Science and Research (2012). *Austrian EQF referencing report.* http://www.oead.at/fileadmin/lll/dateien/lebenslanges_lernen_pdf_word_xls/nqr/EQR-Zuordnungsbericht/Austrian_EQF_Referencing_Report.pdf [accessed 26.11.2012].

	Knowledge	***Skills***	***Competence***
	occupations, which enables him/her to make a decision on education and profession; • the ability to acquire available knowledge independently; • knowledge which enables transfer to further school-based education or training at the upper secondary level.	• gather basic information about simple themes from common, including computer-aided sources, form a subject-related and value-oriented opinion and take up a corresponding stance; • develop his/her own position on issues which affect him/her using social norms and values as a basis; • take part in social events and find his/her own role within a community.	
Level 2	He/she has: • a sound general education; • knowledge of fundamental business connections; • basic knowledge of the structure of the labour market and how it works; • elementary-level previous professional qualifications in a specific field; • knowledge which enables transfer to further school-based or vocational education or training.	In his/her field of work or study he/she is able to: • use given instruments, methods and procedures appropriately; • cope with simple routine tasks autonomously; • deal with simple standard challenges independently; • develop certain independent and logical thought; • actively take part in discussions on familiar themes and take up his/her own viewpoint; • understand and use information to fulfil his/her tasks from given sources; • present facts and circumstances from his/her experience orally and in writing using the correct standard language.	In his/her field of work or study he/she is able to: • act autonomously in simple situations; • cope with simple challenges under given framework conditions and with a certain amount of assistance; • successfully deal with new, more specific activities with corresponding support and guidance to develop the self-confidence required to take on more extensive tasks.
Level 3	He/she has: • a well-founded general education; • fundamental knowledge in his/her field of work or study (e.g. about facts and circumstances, principles, materials, processes, methods, connections,	In his/her field of work or study he/she is able to: • select basic instruments, methods and procedures and use them appropriately; • independently cope with simple activities while the framework conditions remain	In his/her field of work or study he/she is able to: • act autonomously and on own responsibility in simple situations; • act autonomously and on own responsibility to cope with simple challenges under

	Knowledge	***Skills***	***Competence***
	regulations and norms) to deal independently with simple tasks and challenges provided the framework conditions remain unchanged; • the ability of business-related thinking and critical consumer behavior; • knowledge needed to carry out simple professional activities.	unchanged; • demonstrate different approaches to solutions for everyday problems and use these independently to solve the problems after prior consultation; • develop independent and logical thought; • take part in simple discussions on familiar themes, present his/her own viewpoint and give reasons to substantiate this; • independently research relevant information to fulfil his/her tasks from given sources, critically assess this and use it after prior consultation; • present common contents in appropriate form (i.e. according to the situation and the target audience) and also technically correct while using the correct language.	framework conditions which remain unchanged; • adapt his/her behaviour independently to the circumstances in common situations.
Level 4	He/she has: • an in-depth general education; • theoretical knowledge in his/her field of work or study (e.g. about facts and circumstances, principles, materials, processes, methods, connections, regulations and norms) to deal independently with common tasks and challenges, including with changing framework conditions; • fundamental company-related business and legal knowledge; • a university entrance qualification or knowledge needed to directly exercise a profession.	In his/her field of work or study he/she is able to: • select common instruments, methods and procedures and use them appropriately; • independently cope with standard tasks, including under changing conditions; • analyse everyday problems taking into account theoretical knowledge, demonstrate different approaches to solutions and solve these problems independently; • develop certain creative and networked thinking; • take part in discussions in standard situations with familiar themes, present his/her own viewpoint and give reasons to substantiate this; • independently research relevant information	In his/her field of work or study he/she is able to: • handle routine situations independently and behave appropriately according to the circumstances; • work in a team and instruct/supervise others in common tasks.

	Knowledge	***Skills***	***Competence***
		to fulfil his/her tasks from largely given sources, critically assess this and use it; • present information in appropriate form (i.e. according to the situation and the target audience) and also technically correct while using the correct language and using common communication techniques/technologies.	
Level 5	He/she has: • extensive theoretical knowledge in his/her field of work or study (e.g. about facts and circumstances, principles, materials, processes, methods, connections, regulations and norms) to deal independently with tasks and challenges, including in unpredictable situations; • awareness of what effects using this knowledge has on the field of work or study; • in-depth company-related business and legal knowledge for taking on managerial tasks and/or heading a company; • knowledge needed to exercise a high-level profession.	In his/her field of work or study he/she is able to: • independently cope with tasks including in unpredictable contexts; • assess the implications of such tasks and draw conclusions here for how to proceed subsequently; • analyse challenging and multilayered problems using logical, abstract and networked thinking and solve these autonomously while complying with the respective applicable norms, regulations and rules; • use his/her own creative contributions to solve problems; • understand connections between ecological, economic and social mechanisms, establish interconnections and use the knowledge gained here in common and also unpredictable situations; • form an opinion on new facts and circumstances, explain his/her own viewpoint and present this using the standard specialist terminology in a way which is suitable for the target audience and the particular situation; • independently research information from	In his/her field of work or study he/she is able to: • independently coordinate and manage projects; • act independently and flexibly in different situations, including unpredictable ones; • reflect on his/her own behaviour and draw conclusions on how to act in the future; • critically and responsibly deal with the actions of other people, give feedback and contribute to the development of their potential.

	Knowledge	***Skills***	***Competence***
		different sources and disciplines, gather the essential content, critically assess, select and present this in a manner suitable for the target audience.	
Level 6	He/she has: • in-depth theoretical knowledge in his/her field of work or study (e.g. about facts and circumstances, principles, materials, processes, methods, connections, regulations and norms) to deal independently with extensive tasks and challenges; • knowledge about the theoretical bases of his/her field of work or study from different perspectives; • the knowledge required to lead extensive projects, functional areas or companies.	In his/her field of work or study he/she is able to: • carry out tasks at a very high professional level; • deal with extensive challenges independently and with full responsibility and develop innovative solutions when doing so; • independently elaborate concepts to carry out various tasks while taking into consideration subject-specific, economic and legal framework conditions; • act in an anticipatory way and respond flexibly to new/changing circumstances; • communicate with different actors (employees, [potential] customers, suppliers, authorities, etc.) in a way which is suitable for the target audience and the particular situation; • research information from different media and disciplines, critically assess this and select it to develop innovative approaches to solutions.	In his/her field of work or study he/she is able to: • act entrepreneurially and take on managerial tasks; • lead complex and extensive projects, functional areas and/or companies independently and with full responsibility; • critically and responsibly deal with the actions of individual employees and also entire project and working teams, give feedback and contribute to the development of their potential with targeted support measures.
Level 7	He/she has: • expert knowledge in his/her field of work or study (e.g. about facts and circumstances, principles, materials, processes, methods, connections, regulations and norms) to deal independently with complex tasks and	In his/her field of work or study he/she is able to: • gather knowledge and findings from different disciplines, critically reflect on them and incorporate them in his/her own activities;	In his/her field of work or study he/she is able to: • lead complex projects, functional areas and/or companies independently and take on responsibility for decision-making; • monitor the implementation of the strategy,

	Knowledge	***Skills***	***Competence***
	challenges; • knowledge from different disciplines required to deal with tasks and challenges in his/her field of work or study; • the ability to incorporate newly acquired knowledge in the further development of his/her field of work or study.	• discover new findings from practical work and from the theoretical approach and use them for innovations (e.g. in the area of procedures, processes, materials, products); • develop the strategy of complex projects, functional areas and/or companies; • examine the performances and results of projects, functional areas and/or companies, assess them, draw conclusions from them and make necessary amendments; • communicate views to relevant actors, act as a moderator and state reasons for decisions.	intervene to take control and, if necessary, draw consequences for content and staff.
Level 8	He/she has: • top-level expert knowledge in his/her field of work or study (e.g. about facts and circumstances, principles, materials, processes, methods, connections, regulations and norms) to deal independently with complex tasks and challenges; • comprehensive knowledge from different disciplines required to deal with tasks and challenges in his/her field of work or study; • the ability to incorporate newly acquired knowledge in the further development of his/her field of work or study and to contribute to the creation of new knowledge and new subdisciplines.	In his/her field of work or study he/she is able to: • discover new findings from practical work and from the epistemological approach and use them for innovations (e.g. in the area of procedures, processes, materials, products); • generate new knowledge and new findings while using various research methods; • process new results and findings, make them available, discuss them with relevant actors and advocate them.	In his/her field of work or study he/she is able to: • Make new knowledge and new findings accessible and in this way contribute to the further development of learners/employees; • contribute to further development with newly generated knowledge and with new findings.

Belgium (Flanders)

Main NQF level descriptor elements in Belgium (Flanders)

Level descriptor elements	
• Knowledge • Skills	• Context • Autonomy • Responsibility

Descriptors for levels 1-8 ([43])

Level descriptor elements		
	Knowledge/skills	***Context/autonomy/responsibility***
Level 1	• Recognising materials, concise, unambiguous information and simple, concrete basic concepts and rules of a part of a specific area. • Applying one or more of the following skills: • cognitive skills: – retrieving information from one's memory, remembering and applying it. • motorical skills: – using automatisms and imitating practical actions. • Performing repetitive and recognisable actions in routine tasks.	• Acting in a stable, familiar, simple and well-structured context, in which time pressure is of little importance. • Acting with non-delicate objects. • Functioning under direct supervision. • Showing personal effectiveness.

([43]) Flemish Government (2009). *Flemish act on the qualification structure*. http://www.evcvlaanderen.be/files/DecreetVKS_ENG.pdf [accessed 10.10.2012].

Level descriptor elements		
	Knowledge/skills	***Context/autonomy/responsibility***
Level 2	• Understanding information, concrete concepts and standard procedures within a specific area. • Applying one or more of the following skills: • cognitive skills; – analysing information by distinguishing and relating elements. Motorical skills: – transforming sensory perceptions into motor actions; – performing acquired practical-technical actions. • Applying a selected number of standard procedures when performing tasks; applying prescribed strategies to solve a limited number of concrete, recognisable problems.	• Acting in a limited number of comparable, simple, familiar contexts. • Acting with delicate, passive objects. • Functioning under supervision with limited autonomy. • Taking limited executive responsibility for one's work.
Level 3	• Understanding a number of abstract concepts, laws, formulas and methods within a specific area; distinguishing between major and minor issues in information. • Applying one or more of the following skills: • cognitive skills; – analysing information using deduction and induction – synthesising information. Motorical skills: – making constructions based on a plan – performing actions which require tactical and strategic insight – applying artistic-creative skills. • Choosing, combining and applying standard procedures and methods to perform tasks and solve a variety of well-defined, concrete problems.	• Acting in comparable contexts in which a number of factors change. • Acting with delicate, active objects. • Functioning with certain autonomy within a well-defined set of tasks. • Taking limited organisational responsibility for one's work.

Level descriptor elements		
	Knowledge/skills	***Context/autonomy/responsibility***
Level 4	• Interpreting concrete and abstract data (information and concepts) within a specific area. • Applying reflective cognitive and productive motorical skills. • Evaluating and integrating data and developing strategies to perform diverse tasks and solve diverse, concrete, non-familiar (but subject-specific) problems.	• Acting in a combination of changing contexts. • Functioning autonomously with some initiative. • Taking complete responsibility for one's work. • Evaluating and correcting one's functioning with a view to obtaining collective results.
Level 5	• Expanding the information in a specific area with concrete and abstract data, or completing it with missing data; using conceptual frameworks; being aware of the scope of subject-specific knowledge. • Applying integrated cognitive and motorical skills. • Transferring knowledge and applying procedures flexibly and inventively for the performance of tasks and for the strategic solution of concrete and abstract problems.	• Acting in a range of new, complex contexts. • Functioning autonomously with initiative. • Taking responsibility for the achievement of personal outcomes and the stimulation of collective results.
Level 6	• Critically evaluating and combining knowledge and insights from a specific area. • Applying complex specialised skills, linked to research results. • Gathering and interpreting relevant data and making innovative use of selected methods and resources to solve non-familiar complex problems.	• Acting in complex and specialised contexts. • Functioning with complete autonomy and considerable initiative. • Taking shared responsibility for the definition of collective results.
Level 7	• Integrating and reformulating knowledge and insights from a specific area or at the interface between different areas. • Applying complex new skills, linked to autonomous, standardised research. • Critically evaluating and applying complex, advanced and/or innovative problem-solving techniques and methods.	• Acting in unpredictable, complex and specialised contexts. • Functioning with complete autonomy and a right of decision. • Taking final responsibility for the definition of collective outcomes.

Level descriptor elements		
	Knowledge/skills	***Context/autonomy/responsibility***
Level 8	• Expanding and/or redefining existing knowledge from a substantial part of a specific area or at the interface between different areas. • Interpreting and creating new knowledge through original research or advanced scientific study. • Designing and executing projects which expand and redefine existing procedural knowledge, aimed at the development of new skills, techniques, applications, practices and/or materials.	• Acting in very complex contexts with far-reaching, innovative implications. • Taking responsibility for the development of professional practice or scientific research with a highly critical attitude and steering capacity.

Belgium (French-speaking community)

Main NQF level descriptor elements in Belgium (French-speaking community)

Level descriptor elements	
• Knowledge • Skills	• Context • Autonomy • Responsibility

Descriptors for levels 1-8 ([44])

	Knowledge, skills	Context, autonomy and responsibility
Level 1	Knowledge, skills, behavioural skills not referenced to a specific area of work or study enabling to achieve simple and repetitive tasks in the context of simple reproduction process.	Acting under direct supervision in a structured and defined context within a non-specific environment of work and/or a non-specific field of study.
Level 2	Basic knowledge, skills, behavioural skills of a specific field of work or study enabling to achieve a set of tasks without having to choose the methods/tools/materials in the context of the application of simple and standard processes.	Acting under supervision in situations known and defined related to a specific field of work or study, with a degree of responsibility limited to the execution of tasks.
Level 3	General knowledge, skills, behavioural skills of a specific field of work or study enabling to achieve a set of tasks involving choice of methods/tools/materials in the context of application of complex processes.	Acting with a degree of autonomy and responsibility limited to the choices made and implemented in characteristic situations of a field of work or study in which a limited number of factors vary.
Level 4	General knowledge, skills, behavioural skills of a specific field of work or study enabling to search and select adequate information to mobilise and integrate knowledge/methods/practices in the context of solving concrete problems whose indices	Acting with a limited scope for initiative in characteristic situations of a field of work or study in which a large number of predictable factors may

([44]) Level descriptors are in draft form.

	Knowledge, skills	Context, autonomy and responsibility
	are obvious and whose possible solutions are in finite and limited number.	change, and with full responsibility for his work.
Level 5	Specialised knowledge, skills, behavioural skills of a specific field of work or study enabling to analyse, complete, articulate information based on the knowledge/methods/practices of its specialty to reorganise and build adapted solutions in the context of solving abstract problems, whose indices are not obvious and whose possible solutions are multiple.	Acting with an extended degree of initiative in characteristic situations of a field of work or study in which the changes are unpredictable, with full responsibility for his work.
Level 6	Depth of knowledge, skills, behavioural skills of a specific field of work or study enabling critical understanding and use of knowledge/methods/practices of its specialty as well as different dimensions and constraints of the situation to formulate and/or implement appropriate solutions (or new) in the context of solving complex problems or situations.	Acting independently and fully responsibly in characteristic situations of a field of work or study in which the changes are unpredictable.
Level 7	Highly specialised knowledge, skills, behavioural skills of a specific field of work or study enabling to demonstrate proficiency and critical thinking in relation to knowledge/methods/practices of its specialty and at the interface of other specialties to develop and/or implement innovative solutions in the context of development of knowledge, projects (or processes).	Acting independently and fully responsibly in novel situations of a field of work or study and/or at the interface of several fields.
Level 8	More advanced knowledge, skills, behavioural skills of a specific field of work or study or at the interface of several fields enabling to demonstrate recognised expertise in relation to knowledge/methods/practices of its specialty and at the interface of other specialties to extend and redefine in a singular and significant way knowledge (and procedures) in the context of existing research and/or innovation.	Acting independently and fully responsibly in the most advanced situations, at the forefront of a field of work or study and/or at the interface of several fields.

Bulgaria

Main NQF level descriptor elements in Bulgaria

<table>
<tr><th colspan="5">Level descriptor elements</th></tr>
<tr><td rowspan="2">Knowledge:
• theoretical and/or
• factual</td><td rowspan="2">Skills:
• cognitive (involving the use of logical, intuitive and creative thinking) and

• practical (involving manual dexterity and the use of methods, materials, tools and instruments)</td><td colspan="3">Competences, personal and professional
Competence is described in terms of responsibility and autonomy</td></tr>
<tr><td>autonomy and responsibility</td><td>learning competences</td><td>communicative and social competences</td><td>professional competences</td></tr>
</table>

Descriptors for levels 1-8 (plus level 0) ([45])

Level 0 – Preparatory level					
Knowledge	**Skills**	**Competences**			
		Autonomy and Responsibility	**Learning Competences**	**Communicative and Social Competences**	**Professional Competences**
• Has basic concepts about the surrounding world. • Follows a chronological order in performing familiar tasks. • Familiarity with necessary primary education tools.	• Can understand and carry out simple tasks. • Creatively expresses acquired basic ideas about the surrounding world; • Uses familiar materials to fulfil tasks.	• Participates actively in simple, familiar activities. • Ability to perform tasks under the supervision of an adult. • Knows the consequences/ results of one's own actions.		• Can understand and communicate brief and simple oral information. • Works in a group, showing tolerance towards the other children in the group. • Begins to express own independence as a new social role.	

Level 1					
Knowledge	**Skills**	**Competences**			
		Autonomy and Responsibility	**Learning Competences**	**Communicative and Social Competences**	**Professional Competences**
• Has basic general knowledge of the world required for further training and lifelong learning.	• Has practical skills required to carry out identical and simple tasks. • Ability to apply the acquired knowledge to carry out	• Works under close supervision, following instructions or a pattern.	• Studies and works together with the others to gather and exchange	• Builds up confidence and develops skills for verbal and written	

([45]) Bulgarian Government (2012). *National qualifications framework of the Republic of Bulgaria: adopted by Council of Ministers Decision No 96, 2 February 2012.*

• Knows basic rules for wellbeing and environmentally friendly behaviour. • Has some basic general knowledge.	specific educational tasks. • Makes plausible suppositions based on the information the child has gathered about the world.	• With the help of the teacher chooses suitable means of information to carry out an educational task independently and/or in a group. • Assesses own and others' actions with the help of the teacher.	information.	communication. • Protects own rights without violating those of others.	

Level 2

Knowledge	**Skills**	**Competences**			
		Autonomy and Responsibility	**Learning Competences**	**Communicative and Social Competences**	**Professional Competences**
• Has basic factual knowledge in a given field of study. • Knows how to extract, select and use simple information. • Has basic knowledge of important social spheres (family, school, working environment, small community, etc.)	• Has basic cognitive and practical skills required to carry out simple tasks, solve routine problems and do routine activities. • Applies a limited number of skills to carry out more complex tasks in familiar contexts. • Establishes simple correlations according to a set of criteria in the various fields of work or study. • Carries out simple operations by means of various instruments and easy-to-use machines. • Understands instructions	• Works with a relative degree of autonomy in familiar contexts, taking responsibility for the performance of the assigned task. • Works in unfamiliar contexts following the written or oral instructions of the task supervisor. • Knows the possibilities and risks of using the acquired	• Is aware of the possibility to continue his/her education and training. • Acknowledges the need to acquire some key competences (mother tongue, mathematics, computer literacy, etc.).	• Works in a group, accepts and expresses an opinion and/or criticism. • Orients oneself and acts adequately in a specific context. • Exchanges oral and written information. • Communicates successfully in a diverse social and cultural environment. • Carries out	• Carries out routine tasks under unchanging circumstances.

	similar to what has been previously taught. • Can explain the activities s/he has/not done and the reasons for this.	technologies on one's own.		routine activities under unchanging circumstances.	

Level 3

Knowledge	Skills	Competences			
		Autonomy and Responsibility	Learning Competences	Communicative and Social Competences	Professional Competences
• Possesses extended knowledge in a given sphere of training, the different spheres of training or job. • Knows ways of searching, extraction, processing and use of different types of information. • Has knowledge about universal values, democracy, and civic society. • Has knowledge of the type of objects (raw materials, materials, instruments, machines, apparatuses and facilities) in a specific field, their properties, purpose and interrelation (technological sequence and requirements for performing various activities), sometimes their structure	• Independently carries out previously acquired tasks (behaviour). • Takes a decision for a change following rules and instructions if the work conditions change. • Carries out complex operations by means of various instruments, machines, apparatuses, measurement devices. • Understands the meaning of instructions, tasks and explanations different from the ones previously studied. • Explains the activities s/he has done, proposing new solutions.	• Works independently under changing circumstances, takes responsibility to carry out the task assigned and evaluates own performance according to previously established criteria. • Takes a critical attitude in applying independently the acquired technologies.	• Can take decisions about his/her own education and future career development by self-evaluating his/her own competences /qualification. • Is aware of the possibility to continue his/her own education and training. • Readiness to participate in training, recognising the field in which it is necessary to acquire more knowledge, skills and competences.	• Communicates effectively with colleagues, clients and direct supervisor. • Communicates in one's first and second foreign language.	• Does comprehensive activities under changing circumstances.

(composition) as well. • Expresses oneself using the corresponding terminology.					

Level 4

Knowledge	Skills	Competences			
		Autonomy and Responsibility	Learning Competences	Communicative and Social Competences	Professional Competences
• Has in-depth factual and theoretical knowledge in a broad context within the fields of study or work. • Familiarity with ways of processing and using complex information. • Expresses verbal and written ideas, formulates instructions, tasks, explanations, using the corresponding terminology. • Develops evaluation criteria. • Has in-depth knowledge of democracy, civil society and international legal order.	• Has a wide range of cognitive and practical skills to solve complex problems. • Has creative thinking and employs alternative methods and ways in familiar and/or unfamiliar situations or environment. • Considers and views task and problem results within a field of work or study from different angles according to previously established criteria. • Transfer of knowledge and skills between different fields of study or work in carrying out complex tasks and solving specific problems. • Organises an industrial process according to conditions that have become known during study. • Can carry out complex	• Shows initiative and ability to set oneself goals, to plan, justify own actions and take responsibility for them. • Takes responsibility while monitoring or supervising the routine work of others. • Expresses a critical attitude and takes responsibility while applying acquired technologies. • Overall attitude is one of responsibility and participation in public life. • Works independently under changing	• Can take decisions about one's own education and future career development on the basis of one's own competences /qualifications. • Is aware of further education and training opportunities. • Uses various ways of extending and updating his/her own vocational qualification. • Recognises the need for staff training and offers them suitable opportunities.	• Works constructively in heterogeneous groups/teams, too. • Can communicate in one's first and second foreign language. • Effectively communicates with colleagues in different positions in the corporate hierarchy. negotiates orders. • Independently decides on the ways of successful public presentation of different types of information in a field of study or	• Carries out complex tasks in changing conditions and takes responsibility for the work of others.

	operations by means of instruments, machines, apparatuses, measurement devices. • Controls and helps staff, giving explanations or showing how to do a particular activity. • Evaluates the quality of the finished product and performance of the team members. • Develops an action plan using the available resources.	conditions, taking responsibility to carry out both individual and collective tasks entrusted to the team one is supervising. • Makes a motivated evaluation of the team members and the quality of performance.		work. • Has mastered mechanisms for constructive social participation and change, applying them in various activities and initiatives.	

Level 5

Knowledge	Skills	Competences			
		Autonomy and Responsibility	Learning Competences	Communicative and Social Competences	Professional Competences
• Has in-depth factual and theoretical knowledge in broad contexts within a field of study or work. • Knows how to process, use and analyse complex specific information. • Is familiar with the principles of planning, organisation and control of processes in a particular field of activity. • Develops assessment criteria.	• Plans, organises and controls activities, including an industrial process. • Makes a motivated evaluation of the quality of performance. • Makes proposals for performance optimisation. • Possesses business communication skills. • Carries out complex operations by means of various instruments, machines, apparatuses, measurement devices. • Controls and helps staff,	• Works independently under changing conditions, taking responsibility to carry out both individual tasks and collective tasks entrusted to the team one is supervising. • Bears responsibility for the performance of the team one is supervising.	• Recognises the gaps in one's own knowledge, skills and competences and takes the necessary actions to improve one's own qualification by self-study and participation in seminars, training, etc. • Uses various ways of	• Communicates effectively at different levels. • Manages the performance of working groups/teams. • Presents publicly different types of information. • Makes analyses, oral and written presentations, formulates instructions, tasks, and	• Carries out comprehensive tasks under changing circumstances, takes managerial responsibility for the performance of others and allocation of recourses.

	providing explanations or demonstrating how to do a particular activity. • Evaluates product quality and the performance of the team members. • Develops an action plan, using the available resources. • Makes proposals for improving the equipment, staff and the activities of the organisation.	• Makes a motivated evaluation of team and the quality of performance. • Takes responsibility for the appropriate use of the equipment. • Feels a strong sense of responsibility and participates actively in public life.	expanding and updating one's own vocational qualification. • Recognises the need for staff training and offers them suitable opportunities.	explanations, using the corresponding terminology both in Bulgarian and in a foreign language.	

Level 6 ([46])

Knowledge	Skills	Competences			
		Autonomy and Responsibility	Learning Competences	Communicative and Social Competences	Professional Competences
• Has and uses detailed, theoretical and concrete practical knowledge in the field of study. • Makes a critical analysis of principles and processes.	• Has mastered the methods and means in the field of study. • Applies the acquired knowledge and practical experience in a professional way, adopting innovative, unconventional approaches and making well-justified decisions.	• Takes responsibility for managing high performance teams and resources, including in extreme situations during site operation, and structure management.	• Judges critically one's own preparation and the degree to which the acquired knowledge is consistent with the knowledge required by the profession. • Defines one's	• Analyses ideas, addresses problems and proposes solutions in professional contexts to equals and seniors, as well as to non-specialists. • Formulates	• Gathers, processes and analyses data with the purpose of optimisation and/or final solutions or innovative ideas. • Contributes to the completion of operative tasks in conventional and

([46]) Degree of a professional bachelor.

		• Has creative thinking and practical skills in project development and implementation, considering the influence of a variety of factors. • Takes responsibility during site operation. • Can evaluate one's own and other people's performance. • Manages teamwork and provides professional trainings to staff.	own educational needs to improve one's own qualification and/or gain further professional qualifications.	convincing opinions based on qualitative and quantitative facts, arguments and criteria. • Presents one's own views on particular and global issues clearly, judges and accepts the arguments of interlocutors. • Demonstrates commitment and solidarity towards others. • Can communicate effectively in some of the most commonly used European languages.	unconventional situations. • Settles social, moral and ethical issues, especially in teamwork and trainings.

Level 6 ([47])

Knowledge	Skills	Competences			
		Autonomy and Responsibility	**Learning Competences**	**Communicative and Social Competences**	**Professional Competences**
• Has extensive and in-depth theoretical and factual knowledge in a field of study, including	• Able to use methods and means which allow for the accomplishment of complex tasks.	• Possesses a capability for administrative management of	• Assesses one's own qualifications properly by	• Clear formulation and expression of ideas, problems and	• Gathers, classifies, assesses and interprets data in

([47]) Bachelor's degree.

knowledge relating to the latest achievements. • Interprets the acquired knowledge independently, relating it to facts and critical perception, comprehension and formulation of theories and principles.	• Applies logical thinking, shows creativity and takes novel approaches in carrying out unconventional tasks.	complex professional activities, including teams and resources. • Assumes responsibility for taking decisions in adverse circumstances under the influence of a variety of interacting factors which are hard to foresee. • Shows creativity and initiative in management. • Recognises the need for staff training with the purpose of increasing staff effectiveness.	evaluating the knowledge and skills acquired so far, recognising the need for expanding and updating one's own professional qualifications.	solutions before experts and non-experts. • Expresses an opinion and shows understanding of issues, using methods based on qualitative and quantitative descriptions and evaluation. • Has a broad outlook on life and shows understanding and solidarity towards others. • Can communicate effectively in some of the most commonly used European languages.	a field of study to fulfil specific tasks. • Applies the acquired knowledge and skills in new and unfamiliar contexts. • Capable of making analyses in broader or interdisciplinary contexts. • Adopts new strategic approaches. • Formulates and expresses own opinion about social and ethical issues arising during work.

Level 7

Knowledge	**Skills**	**Competences**			
		Autonomy and Responsibility	**Learning Competences**	**Communicative and Social Competences**	**Professional Competences**
• Has a wide spectrum of theoretical and practical knowledge, part of which is specialised knowledge in the respective field,	• Has a wide range of practical and cognitive skills in different fields of study required to understand abstract	• Can build administrative and organisational structures,	• Systematically and thoroughly evaluates one's own knowledge, recognising the	• Can express one's own opinion in a simple and clear way, formulates	• Gathers, processes and interprets specialised information

which serves to broaden the knowledge acquired during the previous education stage. • Knows and expresses theories, concepts, principles and observation of certain laws. • Has highly specialised practical and theoretical knowledge, including avant-garde knowledge, which serves as a basis for originality in developing and applying new ideas and solutions. • Demonstrates critical understanding of the knowledge in the field of study and interdisciplinary relationships.	problems and develop creative solutions. • Carries out problem diagnostics. • Carries out problem diagnostics and solving, based on contemporary research through integrating knowledge from new or interdisciplinary fields, which are related to implementation of research and introduction of innovations. • Makes an adequate assessment of situations with insufficient or limited data and unpredictability. • Develops new and various skills as a response to emerging knowledge and practices. • Freely employs innovative methods and instruments in solving complicated and unpredictable problems in a specialised field of work. • Finds and supports arguments in solving interdisciplinary problems. • Shows initiative in a field of work and study in complex unpredictable contexts which require finding solutions to problems with a number of interacting factors.	independently manage teams to find solutions to complex problems in unpredictable contexts with a variety of interacting factors and possibilities. • Demonstrates operational mastery in managing change in complex contexts. • Shows creativity and innovation in project development. • Initiates processes and organises activities which require very good coordination. • Formulates policies and demonstrates leadership skills for their implementation.	need for acquiring more knowledge. • Demonstrates a high degree of autonomy, easily orients oneself to complex educational content, adopting own approaches and methods to master it. • Uses a variety of methods and techniques to master complex subject areas. • Has a rich conceptual approach and is capable of conceptual and abstract thinking.	problems and proposes possible solutions before expert and non-expert audiences, using a large number of techniques and approaches. • Develops and presents well-argued opinions about social processes and practices, making justified proposals for their improvement or change. • Can communicate effectively in some of the most commonly used European languages.	required to find solutions to complex problems in a field of study. • Integrates a wide spectrum of knowledge and sources in new and relatively unfamiliar contexts. • Make reasonable evaluations and finds solutions in complex interactional contexts. • Demonstrates adequate behaviour and interaction in professional and/or specialised contexts. • Ability to solve problems by integrating comprehensive sources in unfamiliar contexts with insufficient information. • Can initiate changes and

					manage development processes in difficult contexts. • Becomes involved in important scientific, social and moral problems arising during work or study processes.

Level 8

Knowledge	Skills	Competences			
		Autonomy and Responsibility	Learning Competences	Communicative and Social Competences	Professional Competences
• Has and uses specialised and systematic knowledge to make a critical analysis and synthesise new ideas. • Proficiently employs the methods of scientific research in a field of study. • Ability to broaden and improve current knowledge in a field of study as well as its interaction with close scientific areas. • Demonstrates knowledge with the highest degree of complexity and carries out original research.	• Ability to form and manage networks or teams, allocate time and manage human and financial resources, find solutions to complicated problems by employing new technological methods and instruments. • Quickly gathers, extracts, classifies, synthesises and assesses the required data both from detailed and scarce sources. • Ability to solve and overcome serious problems in a research field and/or innovation, improve standard models and	• Creates and interprets new knowledge on the basis of own research or other scholarly activity. • Uses the new knowledge to demonstrate an ability to expand the scope of existing scientific areas and recognises the need for live publications. • Ability to evaluate the merits of own	• Has a capacity for a systematic acquisition and understanding of a considerable amount of knowledge about the latest scientific achievements or a field of professional practice.	• Shows qualities and transferable skills which require an enhanced sense of personal responsibility and self-initiative in complex and unpredictable circumstances as well as in professional or similar contexts. • Ability to conceptualise, design and implement projects with the	• Has a profound understanding of the techniques used for scientific and complex academic research. • Makes a thorough evaluation of complex issues in a field of study, often in the absence of extensive data, and presents one's own ideas and conclusions clearly and

• Demonstrates knowledge and understanding at the highest possible degree not only of chosen field of study but also in neighbouring scientific areas. • Demonstrates and applies knowledge through the degree of complexity of conducted, recognised and well-founded academic research.	approaches, develop innovative solutions by combining a variety of original strategies and technologies, manage unsuccessful attempts and continue developing, improve standard models and approaches. • Has methods and means to foresee changes and problems, disregard the context and think innovatively, develop and propose reasonable plans, put into effect new ideas, acquire quickly new skills and qualities, foresee technological and creative development, write and present new scholarly and technical documents (scientific articles, summaries, reports, figures, graphs, etc.), communicate through different media in front of diverse audiences. • Has the following skills: resilience, entrepreneurial spirit, tenacity, strictness, adaptability and intellectual flexibility.	research. • Ability to make up, design, implement and adapt a contemporary research process in conformity with scholarly norms.		purpose of generating new knowledge, applying and understanding the latest achievements as well as to adapt the project design to unpredictable circumstances. • Can communicate effectively in some of the most common European languages.	effectively before experts and non-experts. • Capacity to continue conducting fundamental or applied scientific research at increasingly complex levels, contributing to the development of new techniques, ideas or approaches.

Croatia

Main NQF level descriptor elements in Croatia

Level descriptor elements		
Knowledge • factual • theoretical	**Skills** • cognitive • practical • social	**Autonomy and responsibility**

Descriptors for levels 1-8 ([48])

	Knowledge	*Skills*	*Autonomy and responsibility*
Level 1	Comprehending basic general facts and concepts in simple and familiar everyday situations.	**Cognitive skills:** Simple concrete logical thinking required to execute simple, clearly defined tasks in familiar situations. **Practical skills:** Performing simple routine psychomotor movements in familiar situations. **Social skills:** Following general rules of behaviour in familiar social contexts.	Executing simple tasks under direct and constant professional supervision in familiar situations. Taking responsibility for executing simple tasks in familiar situations.

([48]) Croatian Ministry of Science, Education and Sports (2013). *The Croatian qualifications framework act*. http://www.zakon.hr/z/566/Zakon-o-Hrvatskom-kavlifikacijskom-okviru [accessed 10.4.2013].

	Knowledge	*Skills*	*Autonomy and responsibility*
Level 2	Comprehending basic facts and concepts in simple and familiar situations specific to a field of work and/or learning.	**Cognitive skills:** Concrete logical thinking required to apply known facts and procedures in the course of execution of a series of connected simple tasks in familiar situations. **Practical skills:** Performing actions and applying simple methods, instruments, tools and materials in familiar conditions. **Social skills:** Realisation of simple communication and cooperation in interaction with other individuals in familiar social contexts.	Executing simple tasks under direct and occasional professional supervision in familiar situations. Taking responsibility for executing simple tasks and for relationship with other individuals in familiar situations.
Level 3	Comprehending facts, concepts, procedures and principles important for a field of work and/or learning in partially familiar situations.	**Cognitive skills:** Explaining, estimating, selecting and using important facts, concepts and procedures required to execute a series of complex, defined tasks or problems within specific field of work and/or learning in familiar situations. **Practical skills:** Performing complex actions by applying a set of different simple methods, instruments, tools and materials in partially familiar conditions. **Social skills:** Realisation of complex communication in interaction with other individuals and possibility of cooperation in a group in familiar social contexts.	Executing a set of complex tasks and adapting one's own behaviour to a set of given guidelines in familiar situations. Taking responsibility for executing a set of complex tasks in familiar situations.

	Knowledge	*Skills*	*Autonomy and responsibility*
Level 4	Analysing a wider spectrum of facts, concepts, procedures, principles and theories in a field of work and/or learning.	**Cognitive skills:** Simple abstract logical thinking required to analyse available facts, concepts and procedures in the course of execution of a series of complex tasks in a field of work and/or learning in situations that are usually predictable, but are subject to change. **Practical skills:** Performing a set of complex movements and applying complex methods, instruments, tools and materials (in executing a series of complex specific tasks) in situations that are usually predictable, but are subject to change. **Social skills:** Realisation of complex communication in interactions with others and possibility of cooperation in a group in social contexts that are usually predictable, but are subject to change.	Executing a set of complex tasks and adapting one's own behaviour to a set of given guidelines in situations that are usually predictable, but are subject to change. Taking responsibility for evaluating and developing activities in situations that are usually predictable, but are subject to change.
Level 5	Analysing, synthesising and evaluating specialised facts, concepts, procedures, principles and theories in a field of work and/or learning, giving rise to an awareness of the frontier of knowledge.	**Cognitive skills:** Interpreting, estimating, selecting and creatively using different relevant facts, concepts and procedures required to generate solutions and for solving complex tasks or problems within a specific field of work and/or learning in partially unpredictable conditions, as well as an ability to transfer knowledge to other areas and problems. **Practical skills:** Performing complex actions and applying complex methods, instruments, tools and materials in partially unpredictable situations, developing instruments, tools and materials and adjusting simple methods. **Social skills:** Partial management of complex communication in interactions with others and establishing cooperation in a group in partially unpredictable social contexts.	Taking part in the management of activities in partially unpredictable conditions. Taking responsibility for managing evaluation and for developing activities in partially unpredictable situations.

	Knowledge	*Skills*	*Autonomy and responsibility*
Level 6	Evaluating specialised facts, concepts, procedures, principles and theories in a field of work and/or learning, including their critical comprehension.	**Cognitive skills:** Collecting, interpreting, estimating, selecting and creatively using different relevant facts, concepts and procedures required to generate solutions and for solving complex tasks or problems within a specific field of work in unpredictable conditions, as well as an ability to transfer knowledge to other areas and problems. **Practical skills:** Performing complex activities and applying complex methods, instruments, tools and materials in unpredictable conditions as well as developing instruments, tools and materials and adjusting complex methods. **Social skills:** Managing complex communication, interactions with others and of cooperation in different social groups in unpredictable social contexts.	Managing professional projects in unpredictable conditions. Taking ethical and social responsibility for managing and evaluating personal and group professional development in unpredictable situations.
Level 7	Evaluating highly specialised knowledge in a field of work and/or learning with some at the frontier of knowledge, potentially providing the basis for original thinking and scientific research as well as for interfacing different knowledge fields.	**Cognitive skills:** Critical evaluation and creative thinking necessary to solve new and complex problems, required as the basis for developing new knowledge and interfacing knowledge in certain fields in unpredictable situations. **Practical skills:** Performing complex activities and applying complex methods, instruments, tools and materials as well as developing methods, instruments, tools and materials required in research and innovation processes and adjusting complex methods. **Social skills:** Managing and leading a complex communication process, interactions with others and cooperation in different social groups in unpredictable social situations.	Managing and leading development activities in unpredictable surrounding conditions and making decisions in uncertain conditions. Taking personal and group responsibility for strategic decision-making and successful execution and completion of tasks in unpredictable conditions, as well as social and ethical responsibility in executing tasks and for resulting consequences.

	Knowledge	***Skills***	***Autonomy and responsibility***
Level 8	Creating and evaluating new facts, concepts, procedures, principles and theories in a field of research that extends the frontier of knowledge.	**Cognitive skills:** Using advanced, complex, original, highly specialised knowledge, skills, activities and procedures required for developing new knowledge and new methods as well as for integrating different fields. **Practical skills:** Creating, evaluating and performing new proposed specialised movements and new methods, instruments, tools and materials. **Social skills:** Creating and applying new social and generally acceptable forms of communication and cooperation in interaction with individuals and groups of different affiliations and different cultural and ethnical origin.	Demonstrating personal professional and ethical authority, managing scientific research activities and a commitment to development of new ideas and/or processes. Taking ethical and social responsibility for successful execution of research, socially beneficial results and potential social consequences.

Cyprus

Main NQF level descriptor elements in Cyprus

Level descriptor elements		
Knowledge	***Skills***	***Competence***
• The type of knowledge involved: knowledge about theory or knowledge about practice, knowledge of a subject or a field within a profession. • The complexity of this knowledge: the degree of complexity and how predictable or unpredictable the situation is in which this knowledge is mastered. • Understanding: the ability to place one's knowledge in a context-understanding is expected when one explains something to others.	• The type of skill involved: practical, cognitive or communicative. • The complexity of the problem-solving: the problem-solving skill is to be applied to and the complexity of the task. • Communication: the communication that is required; the complexity of the message; to which target groups and with which instruments.	• Space for action: the type of work or study related contexts in which the knowledge and skills are brought into play, and the degree of unpredictability and changeability in these contexts. • Cooperation and responsibility: the ability to take responsibility for one's own work and the work of others, and the complexity of the cooperative situations in which one can engage. • Learning: the ability to take responsibility for one's own learning and that of others.

Descriptors for levels 1-8 ([49])

	Knowledge	*Skills*	*Competence*	*Learning outcomes*
Level 1	• Must have basic knowledge of general matters within the elementary school. • Knows and understands the steps needed to complete simple tasks and activities. • Understands basic tasks and instructions. • Must have basic knowledge about natural, cultural and political matters through textbooks.	• Must possess basic linguistic, numerical, practical and creative skills. • Must have basic repetitive communication skills. • Able to utilise different basic methods of work. • Able to evaluate own work. • Able to present the results of own work.	• Able to take personal decisions and act in simple, clear situations. • Able to work independently with predefined problems. • Must have a desire to learn and be able to enter into partly open learning situations under supervision. • Able to carry out activities with simple predefined timeframes under guidance.	• Basic understanding of textbooks. • Completes repetitive simple tasks and under a quality controlled system. • Communicating basic information in familiar contexts. • Ensures that the assigned tasks have been completed effectively. • Acquires and applies key competences to defined actions. • Takes minimum responsibility for completing simple tasks/exercising limited autonomy.
Level 2	• Must have basic knowledge within general subjects. • Must have basic knowledge about natural, cultural, social and political matters. • Must be aware of and interpret types of information and ideas. • Must have relevant knowledge to accomplish specific actions for self and others.	• Possesses basic linguistic, numerical, practical and creative skills. • Able to present the results of own work. • Able to utilise different basic methods of work. • Ensure tasks are carried out effectively. • Able to evaluate own work.	• Able to work independently with predefined problems. • Acquires and applies basic key competences. • Able to carry out activities under limited supervision. • Must have desire to learn and be able to open learning situations partly under supervision. • Able to take personal decisions and act in simple and clear situations.	• Understand and uses good knowledge for tasks and procedures. • Follows instructions. • Communicates information which are based on unfamiliar contexts. • Is proactive and able to select information on specific tasks. • Applies key competences to various actions. • Takes responsibility and exercises autonomy under a controlled system.

([49]) Draft level descriptors 2012.

	Knowledge	*Skills*	*Competence*	*Learning outcomes*
Level 3	• Must have knowledge of basic methodology, facts and procedures in the occupational area or field of study. • Understands the relevance of theoretical knowledge. • Selects and uses relevant knowledge acquired to accomplish specific actions for self and others. • Must understand own potential to influence society and labour market.	• Able to perform practical work assignments within an occupational area or field of study. • Demonstrate a range of developed skills to carry out complex tasks relating to profession or field of study. • Able to solve professional problems. • Able to search for/assess information relevant to practical work assignments within his/her occupational area or field of study. • Able to use professional terminology in communications with colleagues or other students.	• Able to enter into interdisciplinary cooperation within practice of an occupation or field of study. • Apply knowledge and skills to carry out tasks systematically. • Behave in such way to solve problems by participating proactively in learning environments. • Able to participate actively in learning situations within an occupation or field of study. • Able to establish responsibility and autonomy under supervision. • Acquires key competences as a basis for LLL. • Able to take responsibility for delimited work processes.	• Knows information related to complex procedures in a field of work or study. • Follows instructions and carries out complex tasks systematically, sometimes in unpredictable contexts. • Communicates information in unfamiliar contexts. • Assesses, evaluates and interprets facts related to work or field of study. Using basic problem-solving techniques. • Applies key competences as a basis for LLL. • Takes responsibility for completing complex tasks. • Interacts with the immediate environment in defined actions for self and others.
Level 4	• Has knowledge of principles and broad theories in the field of work or study. • Selects and analyses theoretical knowledge in broad contexts of his/her field or work of study. • Applies facts and procedures relating to his/her field or work of study. • Has understanding of relations between professional problems in an international framework.	• Able to select and apply relevant tools, techniques, materials and methodologies in the field of work or study. • Able to identify practical or theoretical problems and solve them. • Able to assess the quality of others and their own work based on the given standards. • Able to utilise the terminology of his/her occupation or field of study in collaboration with colleagues.	• Able to take responsibility for own and joint work processes and outcomes. • Able to apply knowledge and skills to perform qualitative and quantitative tasks. • Able to search for professional development. • Able to demonstrate an advance level of key competences at this level as a basis for higher education. • Able to take responsibility for field of work or study;	• Understands and analyses broad technical, practical and theoretical knowledge based on field of work and study. • Follows instructions and carries out defined theoretical and technical tasks. • Communicates technical and theoretical knowledge in a field of work or study. • Generates/interacts solutions to problems in a field of work or study. • Applies key competences to defined actions in a field of work or study.

	Knowledge	Skills	Competence	Learning outcomes
				• Autonomous and takes responsibility for defined tasks for self and others. • Completes complex tasks in a broad context under assured mechanisms.
Level 5	• Has understanding of practice and the most important theories and methodologies and confirms that he/she is able to understand the utilisation of this within a field of work. • Develops strategic and creative responses in researching solutions to well-defined problems. • Can apply judgement on knowledge of relevant social and ethical issues. • Has knowledge of practice and application of methodology and theory in field of work or study.	• Evaluates own learning and identifies learning needs to undertake further learning. • Able to evaluate practice-related problems and adjust work procedures. • Communicates solutions to practice-related problems to colleagues. • Able to convey ideas to peers, supervisors using qualitative and quantitative information. • Able to utilise set of skills connected with the practice on processes of field of work or study. • Able to identify the use of data to formulate responses to well-defined concrete and abstract problems.	• Able to identify possibilities for further education in different learning environments. • Manages projects independently that require problem-solving techniques. • Able to undertake defined management and planning functions in relation to the field of work or study. • Able to manage people and review their performance, team builder, team trainer. • Able to enter into development-oriented interdisciplinary work processes.	• Understands advanced text books which lead to further vocational or academic learning. Good researcher in problems solutions. • Demonstrates management skills. • Manages problems and develops solutions in the field of work or study. • Can apply judgement on social and ethical issues. • Evaluates his/her performance and improves competences for further learning. • Effective and efficient management of projects and people.
Level 6	• Able to reflect on theories and practices of field of work or study by understanding the knowledge that builds on general education. • Can apply judgement on relevant social and ethical issues that arise on field of work or study. • Knowledgeable on theory and	• Able to assess theoretical and practical problems and find solutions in field of work or study. • Constantly evaluates own learning and identifies learning needs. • Able to communicate professional issues and solutions to colleagues and	• Able to independently participate in professional collaboration. • Able to handle complex tasks and situations in field of work or study. • Can be creative and take initiative in developing project management processes-team builder/team trainer.	• Has understanding of theoretical and practical knowledge in field of work or study. • Able to demonstrate innovative responses to field of work or study. • Able to communicate ideas and solutions to problems to various audiences

	Knowledge	Skills	Competence	Learning outcomes
	practice in his/her field of work or study.	subordinates (field of work) or partners (field of study) involving qualitative and quantitative information. • Able to apply methodologies using specific tools of one or more fields of study and to apply skills related to its field of work or study.	• Developed learning skills necessary to undertake further studies with high degree of autonomy. • Able to identify own learning needs and to organise own learning in various learning environments in field of work or study.	(specialists/non specialist) using various techniques to sustain arguments. • Able to make professional judgments on ethical and social issues within the area of specialisation. Mastering problem-solving. • Assess own learning and get specialisation in one or more competences for further learning. • Responsible for the management of creative and innovative projects in field of work or study.
Level 7	• Able to enhance knowledge associated with Bachelor level. • Has knowledge within one or more fields of study based on international research. • Uses multidisciplinary theoretical and practical knowledge in the field of study. • Able to understand the scientific basis of his/her field and reflect on the knowledge identifying scientific issues.	• Able to assess and select among methodologies, theories, tools and skills in the field of study and develop new models of analysis and scientific based problem-solving techniques. • Good performer in critical evaluations and problem solutions in unfamiliar environments. • Able to communicate research based knowledge and discuss professional and scientific issues to specialised and non-specialised audience. • Develop new skills, techniques and leadership skills and be innovative in complex work study contexts.	• Able independently to initiate and implement professional and interdisciplinary cooperation by taking professional responsibility. • Able to demonstrate ability to respond and manage in fast changing business environments. • Able independently to seek own professional development and specialisation. • Able to continue studies in a manner that may be largely self-directed or autonomous. • Able to manage work and development situations that are complex and require solutions out of the ordinary and use research based diagnosis.	• Has theoretical and practical knowledge which forms the basis of original research. • Manages people and projects effectively in a fast- changing business environment. • Able to communicate clearly knowledge and conclusions which are results of original research or experience or self-study to specialised and non-specialised audiences. • Solves problems in an unfamiliar environment with incomplete limited data and producing original research. • Assesses professional development, takes initiative to proceed with further self-directed study and further

	Knowledge	Skills	Competence	Learning outcomes
		• Master scientific methodologies, skills and tools of the field of study.		specialisation. • Accountable for original research within a business environment and adapting management on people operating in a specific environment.
Level 8	• Made a significant contribution to the development of new knowledge and understanding in a specific field of research based on scientific research. • Has knowledge at the highest international level in own field of research. • Able to redefine existing knowledge on field of research or practice.	• Able to analyse, evaluate and develop new ideas by using new techniques, new tools and new skills in field of research. • Master the scientific theories, methods and tools behind his/her research and development. • Able to participate in international discussions in the field of study/research and to disseminate research results.	• Able independently to initiate and enter into national and international cooperation on research and development with scientific integrity. • Able to independently initiate research and development projects and develop new knowledge and skills through this research in his/her field of study. • Able to organise research and development tasks in complex and unpredictable environments/ contexts.	• High theoretical and practical expertise in a specialised field of knowledge which can contribute to ethical and social issues not only on a national but also on an international level. • Shows leadership and mastering research in work or study in an innovative way. • Communicates expertise to wide audiences and forums using national and international publications. • Demonstrates expertise in critical evaluations and analysis on issues with limited data in unfamiliar environments. • committed to generate new ideas and innovations relating to technology, culture and society. • responsible for the leadership of a number of specialised projects.

The Czech Republic

Integrated description of competence characteristics (the notion of competence encompasses knowledge and skills and the capacity to combine them); used for defining levels 1-8 in the Czech Republic qualifications framework for vocational qualifications.
The level descriptors are closely linked to the complexity of working activities.

Descriptors for levels 1-8 ([50])

	Description of competences
Level 1	• Identify work tools, equipment, raw materials, etc. • Carry out tasks according to simple, unchanging instructions. • Identify problems which occur while following these instructions.
Level 2	• Be familiar with materials describing the work to be done. • Choose appropriate tools, materials, etc. for use in each procedure or method, from among the various options. • Evaluate the quality of own products or services. • Identify problems which occur while following instructions. • Carry out instructions in standard situations with a minimum of changes.
Level 3	• Be familiar with documentation, norms and standards in common use in the field. • Select appropriate procedures, methods, tools, raw materials, etc. from various options, according to conditions and requirements. • Evaluate the quality of own products or services, and those of others. • Carry out quality control, determine the causes of deficiencies and decide how to eliminate them. • Identify problems which occur while following the selected procedures, determine their causes and decide how to solve them. • Carry out selected procedures depending on conditions and requirements including taking into account social, economic, and ecological considerations. • Present own work, products or services. • Direct a small group carrying out simple or supporting activities.
Level 4	• Be familiar with documentation, norms, standards and regulations in common use in the field. • Select appropriate procedures, methods, tools, raw materials, etc. from various options, according to conditions and requirements. • Evaluate the quality of own products or services, and those of others. • Carry out quality control, determine the causes of deficiencies and their consequences and decide how to eliminate them. • Identify problems which occur while following the selected procedures, determine their causes and implement the required changes to the procedure. • Identify social, economic and environmental aspects of any problems which arise. • Determine the causes of unusual behaviour from individuals and objects in the workplace. • Assess the relevance of technical information. • Evaluate the methods of others from the point of view of using them in his or her own work. • Carry out selected procedures, with modifications depending on conditions and

([50]) Memorandum qualification levels in the national qualifications system: description of the levels and how they relate to the EQF, MŠMT, executive committee No 1, 5 January 2010.

	Description of competences
	requirements including taking into account social, economic, and ecological considerations. • Use technical information from a variety of sources in problem-solving. • Make suggestions for improving results. • Design simpler analogues of existing procedures and products. • Further development of proposals for new products and procedures. • Present own work, products or services, discuss problems and find solutions and communicate effectively. • Direct a small group carrying out selected procedures depending on conditions and requirements.
Level 5	• Be familiar with documentation, norms, standards and regulations in use in the field to the extent that he or she can explain them to others in standard situations. • Select appropriate procedures, methods, tools, raw materials, etc. from various options, according to conditions and requirements. • Evaluate the quality of own products or services, and those of others. • Carry out quality control, determine the causes of deficiencies and their consequences and decide how to eliminate them. • Identify problems which occur while following the selected procedures, determine their causes and implement the required changes to the procedure. • Identify social, economic and environmental aspects of any problems which arise. • Distinguish between usual and unusual behaviour from individuals and objects in the workplace, determine causes and context of unusual behaviour, and draw conclusions and formulate proposals. • Analyse moderately complex systems, phenomena and processes. • Evaluate the relevance of technical information to resolving standard problems. • Evaluate the methods of others from the point of view of using them in own work. • Carry out selected procedures, with modifications depending on conditions and requirements including taking into account social, economic, and ecological considerations. • Independently carry out common technical tasks by standards methods. • Solve problems requiring abstraction and employ simple research methods. • Use technical information from a variety of sources in problem-solving. • Integrate several components into complex solutions. • Formulate proposals for improvements including proposals for new processes. • Design moderately complex procedures and products. • Present own work, products or services, discuss problems and find solutions, communicate effectively and present convincing arguments. • Direct a group carrying out moderately complex technical tasks depending on unforeseen conditions and requirements.
Level 6	• Be familiar with documentation, norms, standards and regulations in use in the field to the extent that he or she can explain them to others in standard and non-standard situations. • Select appropriate procedures, methods, tools, raw materials, etc. from various options, according to conditions and requirements. • Evaluate the quality of own products or services, and those of others. • Carry out quality control, determine the causes of deficiencies and their consequences and decide how to eliminate them. • Identify problems which occur while following the selected procedures, determine their causes and implement the required changes to the procedure. • Identify social, economic and environmental aspects of any problems which arise. • Analyse the causes and context of unusual behaviour from individuals and objects in the workplace, draw conclusions and formulate proposals. • Analyse moderately complex systems, phenomena and processes. • Assess the relevance of technical information. • Evaluate the methods of others from the point of view of using them in own work. • Carry out selected procedures, with modifications depending on conditions and

	Description of competences
	requirements including taking into account social, economic, and ecological considerations. • Carry out fairly complex tasks for which there are no available procedures and methods. • Solve problems requiring abstraction. • Use technical information from a variety of sources in problem-solving. • Integrate several components into complex solutions. • Propose system improvements. • Design fairly complex procedures and products. • Solve problems requiring broad theoretical knowledge, use research methods and simple scientific principles. • Present own work, products or services and justify them in the face of criticism, discuss problems and find solutions, communicate effectively and present convincing arguments. • Direct a group carrying out complex technical activities in unforeseen conditions.
Level 7	• Be familiar with documentation, norms, standards and regulations in use in the field to the extent that he or she can explain them to others in standard and non-standard situations and evaluate whether there is a need for changes in these norms and documents. • Plan procedures, methods and the use of tools and materials, etc. according to desired results. • Evaluate the quality of his or her products or services, and those of others. • Carry out quality control, determine the causes of deficiencies and their consequences and decide how to eliminate them. • Identify problems which occur while following the selected procedures, determine their causes and implement the required changes to the procedure. • Identify social, economic and environmental aspects of any problems which arise. • Analyse the causes and context of unusual behaviour from individuals and objects in the workplace, draw conclusions and formulate proposals. • Analyse complex systems, phenomena and processes. • Evaluate the relevance of technical information and findings from other scientific fields. • Evaluate the results of the works of others from the point of view of applying them in own work. • Carry out selected procedures, with modifications depending on conditions and requirements including taking into account social, economic, and ecological considerations. • Design procedures and methods for the solution of complex problems and coordinate their implementation. • Solve problems requiring abstraction and generalisation. • Use technical information from a variety of sources and findings from various scientific fields in problem-solving; • Integrate several components into complex solutions. • Propose fundamental systemic changes. • Plan and implement new, complex procedures and products. • Solve problems requiring broad and highly specialised theoretical knowledge, use research methods and simple scientific principles. • Present own work, products or services, design new procedures, justify them in the face of criticism, lead discussions of complicated problems and find solutions, communicate effectively and present convincing arguments. • Organise and plan complex processes carried out by multiple groups in unforeseen conditions, including strategic decision making.

	Description of competences
Level 8	• NQF qualification level 7, and: • solve problems requiring innovations of importance to the whole field; • contribute to the dissemination of the results of original research; • develop theories and methods for the most demanding creative activities, including scientific research and development; • present proposed procedures and research results and defend them in the face of criticism, and lead discussions on research and scientific problems; • direct wide-ranging research and development activities.

Denmark

Main NQF level descriptor elements in Denmark

Knowledge	*Skills*	*Competence*
• Type of knowledge (about theory or about practice, of a subject or a field or within a profession). • Complexity of knowledge (the degree of complexity and predictability). • Understanding (the ability to place one's knowledge in a context).	• Types of skills (practical, cognitive, creative or communicative). • Complexity of problem-solving. • Communication.	• Space for action (the type of work and/or study-related contexts, the degree of unpredictability and changeability of these contexts). • Cooperation and responsibility. • Learning.

Descriptors for levels 1-8 ([51])

	Knowledge	*Skills*	*Competence*
Level 1	• Must have basic knowledge within general subjects. • Must have basic knowledge about natural, cultural, social and political matters.	• Must possess basic linguistic, numerical, practical and creative skills. • Must be able to utilise different basic methods of work. • Must be able to evaluate own work. • Must be able to present the results of own work.	• Must be able to take personal decisions and act in simple, clear situations. • Must be able to work independently with pre-defined problems. • Must have a desire to learn and be able to enter into partly open learning situations under supervision.

([51]) For more information see level descriptors in the Danish framework: http://en.iu.dk/transparency/qualifications-frameworks/levels [accessed 3.11.2012].

	Knowledge	***Skills***	***Competence***
Level 2	• Must have basic knowledge in general subjects or specific areas within an occupational area or field of study. • Must have understanding of the basic conditions and mechanisms of the labour market.	• Must be able to take personal decisions and act in simple, clear situations. • Must be able to work independently with pre-defined problems. • Must have a desire to learn and be able to enter into partly open learning situations under supervision.	• Must be able to take personal decisions and act in simple, clear situations. • Must be able to undertake a certain amount of responsibility for the development of forms of work and to enter into uncomplicated group processes. • Must be able to enter into partly open learning situations and seek guidance and supervision.
Level 3	• Must have knowledge of basic methodology and norms within an occupational area or field of study. • Must have understanding of own possibilities for influence on the labour market and in society.	• Must be able to perform practical work assignments within an occupational area or field of study. • Must be able to solve professional problems. • Must be able to search for and assess information relevant to a practical work assignment within an occupational area or field of study. • Must be able to use professional terminology in communications with colleagues, fellow students and users.	• Must be able to take responsibility for defined work processes. • Must be able to enter into interdisciplinary cooperation within the practice of an occupation or field of study. • Must be able to participate actively in learning situations within an occupation or field of study.
Level 4	• Must have knowledge of concepts, principles and processes within the practice of an occupation or field of study or in general subjects. • Must have understanding of the relations between professional problems and social/international conditions.	• Must be able to select and apply relevant tools, methodologies, techniques and materials within an occupational area or a field of study. • Must be able to identify a practical and/or theoretical problem. • Must be able to assess the quality of own and others' work in relation to a given standard. • Must be able to utilise the terminology of an occupation or field of study in communication with collaboration partners and users.	• Must be able to take responsibility for work processes in normally predictable work or study situations. • Must be able to plan and take responsibility for own and joint work processes and results. • Must be able to search for further education and training and professional development in structured learning environments.

	Knowledge	***Skills***	***Competence***
Level 5	• Must have knowledge of practice, and application of methodology and theory in an occupational area or field of study. • Must have understanding of practice and/or the most important theories and methodologies used and be able to understand the utilisation of these within an occupation.	• Must be able to utilise and combine a comprehensive set of skills connected with the practice and work processes of an occupation or field of study. • Must be able to assess practice-related problems and adjust work procedures and processes. • Must be able to communicate practice- related problems and possible solutions to collaboration partners and users.	• Must be able to enter into development oriented and/or interdisciplinary work processes. • Must be able to undertake defined management and planning functions in relation to the practice of an occupation or field of study. • Must be able to identify and develop own possibilities for continued further education and training in different learning environments.
Level 6	• Must have knowledge of theory, methodology and practice within a profession or one or more fields of study. • Must be able to understand and reflect on theories, methodology and practice.	• Must be able to apply the methodologies and tools of one or more fields of study and to apply skills related to work within the field/fields of study or a profession. • Must be able to assess theoretical and practical problems and to substantiate and select relevant solutions. • Must be able to communicate professional issues and solutions to peers and non-specialists as well as to collaboration partners and users.	• Must be able to handle complex and development oriented situations in study or work contexts. • Must be able to participate independently in professional and interdisciplinary collaboration with a professional approach. • Must be able to identify own learning needs and to organise own learning in different learning environments.
Level 7	• Must have knowledge within one or more fields of study that, in selected fields, is based on the highest international research within a field of study. • Must able to understand and, on a scientific basis, reflect on the knowledge of the field/fields of study and be able to identify scientific issues.	• Must master the scientific methodologies and tools of the field/fields of study as well as master general skills related to work within the field/fields of study. • Must be able to assess and select from among the scientific theories, methodologies, tools and general skills of the field/fields of study and to set up new models of analysis and problem-solving on a scientific basis. • Must be able to communicate research-based knowledge and discuss professional and scientific issues with both academic peers and non-specialists.	• Must be able to manage work and development situations that are complex, unpredictable and require new solutions. • Must able to independently initiate and implement professional and interdisciplinary cooperation and take on professional responsibility. • Must be able to take independent responsibility for own professional development and specialisation.

	Knowledge	***Skills***	***Competence***
Level 8	• Must have knowledge at the highest international level within the field of research. • Must have made a significant contribution to the development of new knowledge and understanding in the field of research and on the basis of scientific studies.	• Must master the scientific theories, methods and tools as well as other skills connected with research and development within the area. • Must be able to analyse, evaluate and develop new ideas, including designing and developing new techniques and skills in the field of study. • Must be able to participate in international discussions in the field of study and to disseminate research results and progress to a wider public.	• Must be able to organise and conduct research and development tasks in complex and unpredictable contexts. • Must be able independently to initiate and enter into national and international cooperation on research and development with scientific integrity. • Must be able independently to initiate research and development projects and through this generate new knowledge and new skills that develop the field of research.

Estonia

Main NQF level descriptor elements in Estonia

Level descriptor elements		
Knowledge	***Skills***	***Responsibility and autonomy***
Theoretical and factual knowledge is differentiated	• Cognitive: use of logical, intuitive and creative thinking • Practical: manual dexterity and use of methods, materials, tools and instruments are differentiated	Scope of responsibility and autonomy activity

Descriptors for levels 1-8 ([52])

	Knowledge	***Skills***	***Scope of responsibility and autonomy activity***
Level 1	Basic general knowledge.	Basic skills required to carry out simple tasks.	Work or study under direct supervision in a structured context.
Level 2	Basic factual knowledge of a field of work or study.	Basic cognitive and practical skills required to use relevant information to carry out tasks and to solve routine problems using simple rules and tools.	Work or study under supervision with some autonomy.
Level 3	Knowledge of facts, principles, processes and general concepts, in a field of work or study.	A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information.	Take responsibility for completion of tasks in work or study. Adapt own behaviour to circumstances in solving problems.

([52]) Estonian Minister for Education and Research (2008). *Amended professions act*. http://www.hm.ee/index.php?popup=download&id=9030 [accessed 7.7.2012] or http://www.kutsekoda.ee/en/kutsesysteem/oigusaktidkutseseadus [accessed 7.5.2013].

	Knowledge	***Skills***	***Scope of responsibility and autonomy activity***
Level 4	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.
Level 5	Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge.	A comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems.	Exercise management and supervision in contexts of work or study activities where there is unpredictable change. Review and develop performance of self and others.
Level 6	Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles.	Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study.	Manages complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts. Take responsibility for managing the professional development of individuals and groups.
Level 7	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 issues in a field and at the interface between different fields.	Specialised problem-solving skills required in research and/or innovation to develop new knowledge and procedures and to integrate knowledge from different fields.	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.
Level 8	Knowledge at the most advanced frontier of a field of work or study and at the interface between themes.	The most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice.	Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research.

Finland

Five dimensions of level descriptors defining NQF levels in Finland. The level descriptors are linked to qualifications and syllabuses.

• Knowledge	Levels 1-8
• Work method and application (skills)	
• Responsibility, management and entrepreneurship	
• Evaluation	
• Key skills for lifelong learning	

Descriptors for level 1-8 ([53])

	The learning outcome descriptions of the Finnish national qualifications framework (NQF)
Level 1	• Possesses the general knowledge and basic skills required for study and for carrying out simple tasks in a structured context under direct supervision. • Takes responsibility for his/her learning under supervision. • Is capable of communicating verbally and responds to simple written communication in his/her mother tongue.
Level 2	• Possesses the basic factual knowledge in his/her field and the basic cognitive and practical skills required to make use of this knowledge to carry out tasks and solve routine problems. • Follows simple rules and uses normal equipment and tools in a supervised operating environment demanding some autonomy; • Takes responsibility and shows initiative. • Takes responsibility for his/her learning. • Knows how to communicate verbally and produce conventional text in his/her mother tongue. Also possesses basic skills in another language. • Knows how to work in a familiar learning community. • Possesses the capability for sustainable action.
Level 3	• Possesses the knowledge base, principles, processes and general concepts in his/her field of work or study and certain cognitive and practical skills required to carry out tasks and solve problems. • Chooses and applies basic methods, tools, materials and information. • Adapts his/her behaviour to the circumstances and the operating environment when solving problems. • Takes responsibility for the completion of his/her tasks and works safely within a working or learning community.

([53]) Draft level descriptors to be adopted by the Finnish Parliament.

	The learning outcome descriptions of the Finnish national qualifications framework (NQF)
	• Possesses the capabilities to perform his/her tasks in a proactive and responsible manner. • Understands the significance of the world of work and business activities to individuals and society. • Assesses his/her own competence and actions, skills and choices pertaining to work or studies. • Possesses the capability for continuous learning. • Knows how to communicate diversely and interactively in various situations and to produce varied texts in his/her mother tongue. • Knows how to work in a familiar learning and working community. • Possesses the capability to communicate at an international level and interact in both national languages and at least one foreign language. • Possesses the capability for sustainable action.
Level 4	• Possesses the knowledge base in broad contexts in his/her field and certain cognitive and practical skills and expression skills and is capable of making use of such knowledge and skills to solve specific problems in his/her field and to carry out tasks in the field. • Works independently in operating environments that are usually predictable, but are subject to change. • Takes responsibility for completion of his/her tasks and works safely and responsibly within a working community. • Is capable of economical, productive and systematic action and of organising work. • Is capable of supervising routine tasks performed by others. • Possesses the capabilities to work in an entrepreneurial manner in someone else's service or as an independent entrepreneur. • Assesses his/her competence and improves actions relating to work or studies. • Develops himself/herself and his/her work. • Possesses the capability for continuous learning. • Knows how to communicate diversely and interactively in various situations and to produce varied and also field-specific texts in his/her mother tongue. • Is able to deal with different people in learning and working communities and other groups and networks, complying with ethical principles. • Can communicate at an international level and interact in both national languages and at least one foreign language. • Complies with sustainable working and operating practices.
Level 5	• Possesses comprehensive and/or specialised knowledge in his/her field and cognitive and practical skills and expression skills and is capable of making use of such knowledge and skills when solving abstract problems creatively and performing tasks in the field. • Understands the interfaces between vocational functions and within the field and between different fields. • Is capable of managing and supervising operating environments that change unpredictably. • Is capable of supervising tasks performed by others. • Possesses good capability to work as an independent entrepreneur in the field. • Assesses and develops his/her own as well as others' performance and work. • Possesses the capability for continuous learning. • Knows how to communicate verbally and in writing in his/her mother tongue both to audiences in the field and outside it. • Is able to deal with different people in learning and working communities and other groups and networks, complying with ethical principles. • Is capable of communicating at an international level and interacting in his/her field in both national languages and at least one foreign language. • Complies with sustainable working and operating practices.

	The learning outcome descriptions of the Finnish national qualifications framework (NQF)
Level 6	• Possesses comprehensive and advanced knowledge of his/her field, involving a critical understanding and appraisal of theories, key concepts, methods and principles. • Understands the extent and boundaries of professional functions and/or disciplines. • Possesses advanced cognitive and practical skills, demonstrating mastery of the issues, the ability to apply knowledge and develop creative solutions and applications required in a specialised professional, scientific or artistic field to solve complex or unpredictable problems. • Is capable of managing complex professional activities or projects or is capable of working independently in expert duties in the field. • Is capable of making decisions in unpredictable operating environments. • Possesses at least basic prerequisites for working as an independent entrepreneur in the field. • Is capable of taking responsibility for development of other individuals and groups, as well as for assessment and development of his/her own competence. • Possesses the capability for continuous learning. • Knows how to communicate to a good standard verbally and in writing in his/her mother tongue both to audiences in the field and outside it. • Is able to deal with different people in learning and working communities and other groups and networks, taking account of communal and ethical considerations. • Is capable of communicating at an international level and interacting in both national languages and at least one foreign language. • Complies with sustainable working and operating practices.
Level 7	• Understands comprehensive and highly specialised concepts, methods and knowledge corresponding to the specialised competence in his/her field, which are used as the basis for original thinking and/or research. • Understands knowledge issues in the field and at the interfaces between different fields and evaluates them and new knowledge critically. • Is capable of solving demanding problems in research and innovation, which develops new knowledge and procedures and applies and integrates knowledge from various fields, also using creative applications. • Is capable of working independently in demanding expert duties in the field or as an entrepreneur. • Is capable of managing and developing complex, unpredictable and new strategic approaches. • Is capable of managing things and/or people. • Is capable of reviewing the performance of individuals and groups. • Is capable of accumulating knowledge and practices in his/her field and/or taking responsibility for development of others. • Possesses the capability for continuous learning. • Knows how to communicate to a good standard verbally and in writing in his/her mother tongue both to audiences in the field and outside it. • Is able to deal with different people in learning and working communities and other groups and networks, taking account of communal and ethical considerations. • Is capable of communicating at an advanced international level and interacting in both national languages and at least one foreign language. • Complies with sustainable working and operating practices.

	The learning outcome descriptions of the Finnish national qualifications framework (NQF)
Level 8	• Understands extensive knowledge areas and contexts. • Possesses the most advanced and/or specialised and most profound knowledge, skills and/or theories, which are placed at the most advanced and/or specialised level of the field and at the interface between different fields. • Is capable of applying knowledge in a creative way. • Is capable of creating new knowledge in compliance with good scientific practice. • Is capable of independent and reliable scientific or artistic and professional research. • Is capable of developing professional functions and/or his/her scientific and/or artistic field. • Is capable of developing and applying new ideas, theories, approaches or processes in the most advanced contexts. • Is capable of working independently in the most demanding expert duties in the field or as an entrepreneur. • Is capable of managing things and/or people. • Is capable of synthesis and critical evaluation required to solve complex problems in research and/or innovation and to extend and redefine knowledge or professional practices. • Is capable of accumulating knowledge in his/her field and/or taking responsibility for development of others. • Possesses the capability for continuous learning. • Knows how to communicate verbally and in writing to a good standard with both the scientific community and the general public on issues pertaining to his/her own research area and the entire discipline and/or professional field. • Is able to deal with different people in learning and working communities and other groups and networks, taking account of communal and ethical considerations. • Is capable of communicating at an advanced international level and interacting in both national languages and at least one foreign language. • Complies with sustainable working and operating practices.

France ([54])

	Level definition	Learning outcomes
Level V	Personnel holding jobs normally requiring a level of training equivalent to that of the vocational studies certificate (BEP) or the certificate of vocational ability (CAP), and, by assimilation, the level one certificate of vocational training for adults (CFPA).	This level corresponds to full qualification for carrying out a specific activity with the ability to use the corresponding instruments and techniques. This activity mainly concerns execution work, which can be autonomous within the limits of the techniques involved.
Level IV	Personnel holding jobs at a supervisory highly skilled worker level and able to provide proof of a level of training equivalent to that of the vocational certificate (BP), technical certificate (BT), vocational baccalaureate or technological baccalaureate.	A level IV qualification involves a higher level of theoretical knowledge than the previous level. This activity concerns mainly technical work that can be executed autonomously and/or involve supervisory and coordination responsibilities.
Level III	Personnel holding jobs normally requiring a level of training equivalent to that of a diploma from a university institute of technology (DUT) or a technology certificate (BTS) or a certificate corresponding to the end of the first higher education cycle.	A level III qualification corresponds to higher levels of knowledge and abilities, but without involving mastery of the fundamental scientific principles for the fields concerned. The knowledge and abilities required enable the person concerned to assume, autonomously or independently, responsibilities concerning design and/or supervision and/or management.
Level II	Personnel holding jobs normally requiring a level of training comparable to that of a bachelor's or master's degree.	At this level, exercise of a salaried or independent vocational activity involves mastery of the fundamental scientific principles for the profession, generally leading to autonomy in exercising that activity.
Level I	Personnel holding jobs normally requiring a level of training above that of a master's degree.	As well as confirmed knowledge of the fundamental scientific principles for a vocational activity, a level I qualification requires mastery of design or research processes.

([54]) French National Statistics Commission (1969). *Nomenclature des niveaux de formation: approuvée par décision du groupe permanent de la formation professionnelle et de la promotion sociale, le 21 mars 1969.* http://www.rncp.cncp.gouv.fr/grand-public/explorerBaseDocumentaire?dossier=64 [accessed 21.5.2013].

French National Commission of Professional Certification (2010). *Referencing of the national framework of French certification in the light of the European framework of certification for lifelong learning.* http://ec.europa.eu/eqf/uploads/file/Report-FR-NQF-EQF-VF.pdf [accessed 26.11.2012].

Germany

An overarching competence descriptor for levels 1-8 and four main characteristics define levels in German qualifications framework.

Level indicator			
Structure of requirements			
Professional competence		**Personal competence**	
Knowledge	***Skills***	***Social competence***	***Autonomy***
Depth and breadth	Instrumental and systemic skills, judgment	Team/leadership skills, involvement and communication	Autonomous responsibility/responsibility, reflectiveness and learning competence

Descriptors for levels 1-8 ([55])

	Professional competence		Personal competence	
Level 1	***Knowledge***	***Skills***	***Social competence***	***Autonomy***
Be in possession of competences for the fulfilment of simple requirements within a clear and stably structured field of study or work. Fulfilment of tasks takes place under supervision.				
	Be in possession of elementary general knowledge. Have an initial insight into a field of study or work.	Be in possession of cognitive and practical skills required to carry out simple tasks in accordance with stipulated rules and to evaluate the results of such tasks. Establish elementary correlations.	Learn or work together with others, obtain and exchange information verbally and in writing.	Learn or work under supervision. Appraise own actions and the actions of others and accept learning guidance.

([55]) Arbeitskreis DQR (2011). *The German qualifications framework for lifelong learning adopted by the 'German qualifications framework working group' (AK DQR), 22 March 2011*. http://www.deutscherqualifikationsrahmen.de/de?t=/documentManager/sfdoc.file.supply&fileID=1353327995967 [accessed 20.5.2013].

Professional competence			Personal competence	
Level 2	**Knowledge**	**Skills**	**Social competence**	**Autonomy**
Be in possession of competences for the professional fulfilment of basic requirements within a clear and stably structured field of study or work. Fulfilment of tasks takes place largely under supervision				
	Be in possession of basic general knowledge and basic professional knowledge with a field of study or work.	Be in possession of basic cognitive and practical skills required to carry out tasks within a field of study or work, evaluate the results of such tasks in accordance with stipulated criteria and establish correlations.	Work within a group. Accept and express general feedback and criticism. Act and react in accordance with the given situation with regard to verbal and written communication.	Learn or work in a responsible manner and largely under supervision within familiar and stable contexts. Appraise own actions and the actions of others. Use stipulated learning guides and request learning guidance.
Professional competence			**Personal competence**	
Level 3	**Knowledge**	**Skills**	**Social competence**	**Autonomy**
Be in possession of competences for the autonomous fulfillment of technical requirements within a field of study or field of occupational activity which remains clear while being openly structured in some areas.				
	Be in possession of extended general knowledge or extended professional knowledge within a field of study or field of occupational activity.	Be in possession of a spectrum of cognitive and practical skills for the planning and processing of technical tasks within a field of study or field of occupational activity. Evaluate results in accordance with criteria which are largely stipulated, provide simple transfers of methods and results.	Work within a group and occasionally offer support. Help shape the learning or working environment, present processes and results to the appropriate recipients of such information.	Learn or work autonomously and responsibly including within contexts which are less familiar. Appraise own actions and the actions of others. Request learning guidance and select various learning aids.
Professional competence			**Personal competence**	
Level 4	**Knowledge**	**Skills**	**Social competence**	**Autonomy**
Be in possession of competences for the autonomous planning and processing of technical tasks assigned within a comprehensive field of study or field of occupational activity subject to change.				
	Be in possession of deeper general knowledge or theoretical professional knowledge within a field of study or field of occupational activity.	Be in possession of a broad spectrum of cognitive and practical skills which facilitate autonomous preparation of tasks and problem-solving and the evaluation of work results and processes according consideration to alternative courses of action and reciprocal effects with neighboring areas. Provide transfers of methods and solutions	Help shape the work within a group and the learning or working environment of such a group and offer continuous support. Justify processes and results. Provide comprehensive communication on facts and circumstances	Set own learning and work objectives, reflect on and assess such objectives and take responsibility for them.

Professional competence			Personal competence	
Level 5	**Knowledge**	**Skills**	**Social competence**	**Autonomy**
Be in possession of competences for the autonomous planning and processing of comprehensive technical tasks assigned within a complex and specialised field of study or field of occupational activity subject to change.				
	Be in possession of integrated professional knowledge within a field of study or integrated occupational knowledge within a field of activity. This also includes deeper, theoretical professional knowledge. Be familiar with the scope and limitations of the field of study or field of occupational activity. field of study or field of occupational activity.	Be in possession of an extremely broad spectrum of specialised, cognitive and practical skills. Plan work processes across work areas and evaluate such processes according comprehensive consideration to alternative courses of action and reciprocal effects with neighbouring areas. Provide comprehensive transfers of methods and solutions.	Plan and structure work processes in a cooperative manner, including within heterogeneous groups, instruct others and provide well-founded learning guidance. Present complex facts and circumstances extending across professional areas in a targeted manner to the appropriate recipients of such information. Act in an anticipatory manner in considering the interests and requirements of recipients.	Reflect on and assess own learning objectives and learning objectives set externally, undertake self-directed pursuit of and assume responsibility for such objectives, draw consequences for work processes within the team.
Professional competence			**Personal competence**	
Level 6	**Knowledge**	**Skills**	**Social competence**	**Autonomy**
Be in possession of competences for the planning, the processing and the evaluating of comprehensive technical tasks and problems set and be in possession of competences for autonomous management of processes within subareas of a scientific subject or within a field of occupational activity. The structure of requirements is characterised by complexity and frequent changes.				
	Be in possession of broad and integrated knowledge including knowledge of basic scientific principles and the practical application of a scientific subject as well as a critical understanding of the most important theories and methods (corresponding to level 1 – Bachelor level – of the qualifications framework for German higher education qualifications)	Be in possession of an extremely broad spectrum of methods for the processing of complex problems within a scientific subject (corresponding to level 1 – Bachelor level – of the qualifications framework for German higher education qualifications), further fields of study **or** field of occupational activity. Draw up new solutions and evaluate such solutions including according consideration to various criteria even in circumstances where requirements are subject to frequent change.	Assume responsibility in working within expert teams **or** show responsibility in leading ([56]) groups or organisations. Instruct the technical development of others and act in an anticipatory manner in dealing with problems within the team. Present experts with arguments for and solutions to complex professionally related problems and work in conjunction with such experts on further development.	Define, reflect on and assess objectives for learning and work processes and structure learning and work processes autonomously and sustainably.

([56]) This encompasses companies, government authorities or non-profit making organisations.

	or be in possession of broad and integrated occupational knowledge including current technical developments. Be in possession of knowledge for the further development of a scientific subject **or** of a field of occupational activity. Be in possession of relevant knowledge at interfaces to other areas.			
	Professional competence		**Personal competence**	
Level 7	**Knowledge**	**Skills**	**Social competence**	**Autonomy**
Be in possession of competences for the processing of new and complex professional tasks and problems set and be in possession of competences for autonomous management of processes within a scientific subject or within a strategically oriented field of occupational activity. The structure of requirements is characterised by frequent and unpredictable changes.				
	Be in possession of comprehensive, detailed, specialist and state-of-the art knowledge in a scientific subject (corresponding to level 2 – Master level – of the qualifications framework for German higher education qualifications) **or** be in possession of comprehensive occupational knowledge in a strategically oriented field of occupational activity. Be in possession of extended knowledge in adjoining areas.	Be in possession of specialised technical or design concept skills relating to the solution of strategic problems in a scientific subject (corresponding to level 2 – Master level – of the qualifications framework for German higher education qualifications) **or** in a field of occupational activity. Consider alternatives even in circumstances where information is incomplete. Develop and use new ideas or procedures and assess such ideas and procedures according consideration to various evaluation criteria	Assume responsibility for leading groups or organisations within the scope of complex tasks set and present the results of the work of such groups or organisations. Promote the technical development of others in a targeted manner. Lead divisionally specific and cross-divisional debates.	Define objectives for new applications or research-oriented tasks reflecting on possible societal, economic and cultural implications, deploy appropriate means and tap autonomously into own knowledge for the purpose.

Professional competence			Personal competence	
Level 8	**Knowledge**	**Skills**	**Social competence**	**Autonomy**
Be in possession of competences for obtaining research findings in a scientific subject or for the development of innovative solutions and procedures within a field of occupational activity. The structure of requirements is characterised by novel and unclear problem situations.				
	Be in possession of comprehensive, specialised, systematic state-of-the art knowledge in a research discipline and contribute towards the expansion of knowledge within the specialist discipline (corresponding to level 3 – Doctorate level – of the qualifications framework for German higher education qualifications) **or** be in possession of comprehensive occupational knowledge in a strategically and innovation oriented field of occupational activity. Be in possession of appropriate knowledge at the interfaces to adjoining areas.	Be in possession of comprehensively developed skills relating to the identification and solution of novel problems set in the areas of research, development or innovation within a specialised scientific subject (corresponding to level 3 – Doctorate level – of the qualifications framework for German higher education qualifications) **or** in a field of occupational activity. Also design, implement, manage, reflect on and evaluate innovative processes including in cross-activity areas. Evaluate new ideas and procedures.	Lead groups or organisations from a position of responsibility in complex or interdisciplinary tasks while activating the areas of potential within such groups or organisations. Promote the professional development of others in a targeted and sustained manner. Lead cross-specialist debates and introduce innovative contributions to specialist professional discussions including in international contexts.	Define objectives for new complex applications or research-oriented tasks reflecting on possible societal, economic and cultural implications, select appropriate means and develop new ideas and processes

Greece

Main NQF level descriptor elements in Greece

Level descriptor elements		
Knowledge	***Skills***	***Competence***
• Factual and/or • Theoretical	• Cognitive • Practical	• Autonomy and • Responsibility

Descriptors for levels 1-8 ([57])

	A learner achieving a qualification at a particular level…
Level 1	• has acquired basic general knowledge related to the working environment that may serve as input into lifelong learning paths; • can apply basic knowledge and perform a specific range of simple tasks; has basic and recurring social skills; • can perform simple and repetitive tasks by applying basic knowledge and skills under direct supervision in a structured context.
Level 2	• has acquired basic general knowledge related to a field of work or study that allow them to understand the procedures for implementing basic tasks and instructions; • can apply basic knowledge and perform a variety of complex tasks in a field of work or study; has communication skills; • can perform tasks in a specific field of work or study under limited supervision and/or with some autonomy in a structured context.
Level 3	• has acquired basic general knowledge that allows them to understand the relationship of theoretical knowledge and information within a field of work or study; understands the components and procedures appropriate to complex tasks and instructions; • can demonstrate broad cognitive and practical skill in successful execution of complex tasks both in intimate and non-intimate contexts; has communication skills and problem-solving capabilities through selecting and applying basic methodologies, tools, materials and information; • can perform tasks autonomously in a particular field of work or study; has the ability to adjust their behavior depending on the needs of problem-solving; takes initiatives in specified fields of work or study and acts under supervision in implementing emergency procedures of quality control.
Level 4	• has acquired a wide range of theoretical knowledge and intelligence analysis allowing them to understand the field of work or study and apply data and processes in a general context; • can use fluently the knowledge and ability to apply a range of techniques and specialised skills in a field of work or study; has communication skills at the level of theoretical and technical information and can find solutions to specific problems in a field of work or study; • may perform independently qualitative and quantitative tasks in a specific field of work or study that requires professional competence; has the ability to oversee the quality and quantity of work of other people with responsibility and autonomy; demonstrates an increased level of key competences that can serve as the basis for studying higher education.

([57]) Draft level descriptors, April 2013.

	A learner achieving a qualification at a particular level…
Level 5	• demonstrates comprehensive, specialised, factual and theoretical knowledge within a field of work or study and is aware of the limits of knowledge; • holds a wide range of cognitive and practical skills required to find creative solutions to abstract problems; • can manage and supervise, in the context of a specific task or learning process, in which unforeseen changes can occur; can revise and develop both their personal performance and that of others.
Level 6	• has advanced knowledge of a field of work or study, involving critical understanding of theories and principles; • possesses advanced skills and has the ability to demonstrate the virtuosity and innovation required to solve complex and unpredictable problems in a specialised field of work or study; • can manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts; can assume responsibility for managing the professional development of individuals and groups.
Level 7	• has highly specialised knowledge, some of which is cutting-edge, in a field of work or study and which is the basis for original thinking; has a critical awareness of knowledge issues in a field and at the interface of different fields; • holds specialised problem-solving skills required in research and/or innovation to develop new knowledge and procedures and to integrate knowledge from different fields; • can manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches; can take responsibility for contributing to professional knowledge and practices and/or for the performance evaluation of strategy groups.
Level 8	• has knowledge at the most advanced levels of a field of work or study and at the interface with other fields; • has acquired very advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation for enlarging and redefining existing knowledge or existing professional practice; • demonstrates substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research.

Hungary

Main NQF level descriptor elements in Hungary

Level descriptor elements			
Knowledge	***Skills and abilities***	***Attitudes***	***Autonomy and responsibility***

Descriptors for levels 1-8 ([58])

	Knowledge	***Skills and abilities***	***Attitudes***	***Autonomy and responsibility***
Level 1	Knows the most important concepts and basic facts of a particular topic. Has a basic knowledge of the mother tongue, logical thinking and literacy. Knows the distinctive materials and tools necessary for practice. Understands and complies with rules and procedures of task execution.	Has acquired a basic level of the key competences (especially: communication in the mother tongue, mathematical-logical thinking). Able to apply the knowledge necessary to solve a certain task/problem, provided that this requires the application of undemanding routines and algorithms.	Perceptive to tasks, motivated to implement them successfully. Demonstrates inquisitiveness and interest in learning and basic work situations. Ready to work together, to share his/her knowledge with others.	Capable of autonomous task execution in simple, routine job situations. Needs guidance and continuous supervision in the case of novel or complex tasks. Able to evaluate his/her own work with external guidance.
Level 2	Knows the basic facts, concepts, simple correlations of a given topic (literacy area, speciality). Has a general command of the	Able to identify uncomplicated correlations of cause and effect. Able to carry out identification, distinction and comparison in	Open to activities broadening his knowledge in learning contexts. Is aware of fundamental moral and collective values, basic civil	In simple task-situations works with autonomy and responsibility. In case of complex tasks

([58]) The government decree on the Hungarian qualifications framework, July 2012 [non-official translation].

	Knowledge	Skills and abilities	Attitudes	Autonomy and responsibility
	mother tongue/language, mathematical-logical and science-literacy. Has the basic-intermediate level theoretical and practical knowledge necessary for the exercise of a particular profession.	relation to different topics, upon predetermined specific criteria. Able to carry out multicomponent tasks/or series of tasks in individual cases. Able to use basic materials and tools with guidance. Able to compose a written and verbal statement in a given field, react to a statement, use basic terminology. Possesses basic competences necessary for cooperation.	rights and responsibilities.	guidelines are sufficient, close supervision is not necessary. A sense of responsibility is developing, and self-control emerges in the evaluation of the performed work.
Level 3	Knows basic facts, concepts and processes related to a given field of work or study, recognises and understands highly composite correlations. In addition to being acquainted with tools, procedures and rules of problem solving, applies basic methods of autonomous knowledge acquisition. Possesses a broader inventory of knowledge elements/units in the field of study/work of his/her interest. Knows and applies rules, processes of task execution.	Able to establish linkage between knowledge and knowledge schemata, and develop a new schema in a well-known context. Besides of being capable of more than just resolving simple routine tasks, is able to solve creatively new and unusual problems. Able to select and apply the appropriate tools, materials. Able to perceive correlations and think in a systemic context.	Able to judge and apply in a critical manner information from diverse sources. Open to making joint efforts, work in a group, and accepts interdependence as a state of affairs. Considers valid, for himself/herself, too the widely accepted social norms both in professional and private communication. Committed to his profession/field of interest.	Self-control and systematic self-reflection concerning individual learning and work activities becomes common.

	Knowledge	***Skills and abilities***	***Attitudes***	***Autonomy and responsibility***
Level 4	Knows basic facts and concepts related to a given field of work or study, understands key processes and correlations. Knows the language, the terminology of a given field, eventually in a foreign language as well. Knows and understands the conceptual correlations and structure of his field of interest. Understands the correlations of complicated, multifactor phenomena. Is familiar with the methods and has the literacy necessary for employing the facts, concepts, correlations and proceedings of a given field.	Able to apply knowledge related to a field of work or study in an unconventional context. Able to think systematically, and use certain forms of abstraction. Able to gather new information, and process it independently. Able to plan and implement a problem-solving strategy on his own and make the necessary corrections. Able to identify problem situations in a field of work or study and articulate adequate proposals for solving them.	Open to undertaking new tasks. Able to assess possibilities; consider risks, alternatives and consequences; is capable of making compromises. Follows ethical and legal norms in decision-making situations, understands the correlations between values, behaviour and lifestyle. Committed to the professional, quality work. Demands continuous self-education and applies its proceedings.	Autonomy and self-control are characteristic in work, study and problem solving as well. Takes responsibility for his/her own actions or for the work of a small group or community.
Level 5	Has a fundamental general and specialised, theoretical and practical knowledge, related to a particular field of study/work. Theoretical and practical knowledge is systematic. His/her sound knowledge regarding the application of methods and tools ensures lasting exercise of the given profession at a high level. Knows the specific terminology of the given field (in the mother tongue and in at least one foreign language).	Able to solve the tasks related to a given profession: to design and carry them out, to choose the appropriate methods and tools, to apply them in an individual and complex manner. His/her capacities to communicate in mother tongue and in a foreign language enable him/her to carry out a professional cooperation with speakers of other languages. Able to improve his/her knowledge, and apply different methods of	Open to new achievements and innovations in a given field of work/study. Endeavours to be acquainted with to understand and to use them. Aims for continuous self-education. Committed to high quality professional work. Self-critical concerning his/her own work.	Works autonomously under continuous self-monitoring. Takes responsibility for his or her own work as well as for the work, achievements or failures of the team under his/her supervision. In decision-making, takes into consideration the ethical and legal rules of his field of work.

	Knowledge	*Skills and abilities*	*Attitudes*	*Autonomy and responsibility*
		knowledge acquisition, self-improvement and current information and communication technologies for that purpose. Able to make accountable decisions related to employment and entrepreneurship.	Accepts and genuinely stands for the social role and the values of his/her profession.	
Level 6	Knows the fundamental comprehensive facts, orientations and limits of his field of work or study. Knows the key correlations, theories and terminology of a given field of study or work. Knows fundamental methods for knowledge acquisition and problem-solving of his/her speciality.	Capable of carrying out an elementary analysis of the concepts which constitute the foundations of the knowledge of a given field of work or study, to outline correlations, and to make proper evaluations. Has the necessary skills for studying autonomously. Able to identify routine professional problems, explore the theoretical and practical background, needed for their solution and able to address them through the application of standard procedures. Able to use and understand the literature of his/her profession, its library and IT sources. Able to cooperate with others. Capable of managing different resources. Able to apply professional knowledge in compliance with the diverse expectations of a given workplace.	Recognises, undertakes and genuinely stands for his/her job's social function and its relationship to the world. Open to disseminate the general way of thinking and basics features of the practical operation of his/her profession. Strives for continuous self-education.	Capable of thinking over independently the comprehensive, fundamental questions of his profession and of elaborating them by using given sources. Responsibly adheres to the fundamental principles of the profession. Cooperative and shows responsible behaviour with the qualified experts of his field. Consciously accepts the ethical standards of his profession.

	Knowledge	***Skills and abilities***	***Attitudes***	***Autonomy and responsibility***
Level 7	Knows the general and specific features, main orientations and precise limits of a wide-ranging domain related to a given field of work or study, as well as its links to contiguous fields. Has in-depth knowledge of the correlations, theories and the related terminology of a given field of work or study. Knows the particular research methods (especially those related to knowledge acquisition and problem- solving) used in his field, abstraction techniques and the methods to cope with practical aspects of theoretical questions.	Capable of performing exhaustive analysis of diverse conceptual domains, which constitute the knowledge of a given field of work or study, to devise comprehensive and specific correlations and to carry out related evaluation activities. Able to identify specific professional issues, explore and outline the theoretical and practical background, needed for their solution. Able to approach professional problems in an interdisciplinary, comprehensive manner. Able to join in research and development projects. Able to make advanced use of info-communication techniques and process at a high level the information from, Hungarian and foreign language sources of his field. Able to apply a wide range of methods and techniques in various contexts of different degree of complexity and predictability. Able to produce in a scientific format analysis and summaries of a subfield of his area of study.	Knows and assumes responsibly the specific and comprehensive relationships professional identity that constitute the characteristics of his/her profession and its individual and social functions. This is the basis for unfolding vocational commitment. Able to understand and genuinely transmit the particulars and the synthesis of his/her profession's topics. His/her professional interest gets deeper, and is consolidated.	Possesses considerable autonomy in elaborating comprehensive and specific professional issues, in defending and justifying professional views. Assumes responsibility in taking initiative for cooperation. Partner on equal footing in cases of professional cooperation. Thinks over and stands for the ethical positions of his field.

	Knowledge	***Skills and abilities***	***Attitudes***	***Autonomy and responsibility***
		Able to apply professional skills in accordance with the various requirements of a given workplace.		
Level 8	Knows at a researcher's level the general and specific features, main orientations and precise limits, consensual and contentious correlations of his/her field. Has a creative understanding of the theoretical elements, correlations, conceptual systems and terminology of a given field. Has the methodological and research skills necessary to perform research autonomously in a given field.	Capable of analysing a given field in a creative manner, able to draft specific and comprehensive correlations through the application of new approaches, and make appropriate evaluations. Able to use and further develop the special knowledge acquisition and problem-solving methods of his/her field. Able creatively to develop fresh, previously unknown practical aspects of a theoretical issue. Able to plan and carry out new projects, conduct research in a given field of science, and conceive new techniques and approaches. Able to identify unanticipated professional problems, and explore the theoretical and practical background needed for solving them at a research level. Able to build up and disseminate new correlations vital for his/her profession as well as comprehensive correlative links having significance for individual and community existence	In his field of interest stands for the relations that, resulting from inherent specificities of the given field, contribute to human self-creation and shall further develop them. Has an interest and learning capacity, which permits him to identify and solve research problems in the field which are covert or unpredictable at the moment. Has a solid sense of vocation, stable commitment to looking for new paths, accepts the need to work persistently.	Has creative autonomy in establishing new knowledge areas or practical solutions. Able to participate as a leader and is giving evidence of high skills for cooperation in the process of designing theoretical and practical issues. Able to take part on an equal footing in a professional discussion of a given field. Assumes responsibly the raising of new ethical issues in connection with the theoretical and practical issues of his field.

Iceland

Main NQF level descriptor elements in Iceland

Level descriptor elements		
Knowledge	***Skill***	***Competence***
It is a collection of facts, principles, theories and methods. It is both theoretical and practical. Knowledge is acquired by looking, reading, listening, discussing, or through other forms of communication. Knowledge is analysed by discussing, categorising and comparing. Knowledge is communicated through various forms of expression, for example, orally, in writing, or through work.	Is both cognitive and practical. Skill involves the ability to apply methods and practices. Skill is acquired through training, methods, and practices. Skill involves analysis by choosing between methods, and the organisation of procedures. Skill is communicated by applying working methods, tools, and the methods of the various forms of expression.	Involves broadmindedness and the ability to use knowledge and skill. Competence is based on responsibility, broadmindedness, creativity, moral values, tolerance, and the students' appreciation of their own abilities. Additionally, their self-confidence and autonomous working methods. Competence involves the students' analysis of their own knowledge and skill by comparing, finding connections, simplifying, drawing conclusions, reflecting, and reasoning. Analytical competence involves critical thinking and professional criticism. Communicating competence involves various forms of expression where cognitive, artistic, and practical knowledge and skill is interrelated with the moral and social attitudes of the individual.

Descriptors for levels 1-7 ([59])

	Knowledge	*Skills*	*Competences*
Level 1	Students have acquired: • varied vocabulary to be able to express their opinions and support them; • knowledge of social values, morality, human rights and equality; • knowledge concerning being an active citizen in a democratic society; • knowledge concerning the Icelandic environment in a global context (e.g. culture, society, nature, sustainability); • knowledge useful as preparation for further studies; • vocabulary to be able to express themselves in a simple manner in foreign languages and insight into the respective cultures; • knowledge and understanding of the influence of role models and stereotypes on their own image and lifestyle.	Students have acquired skills to: • express themselves clearly, responsibly and creatively; • take part in a conversation, support their views and respect the views of others; • be self-sufficient at work and in everyday life; • apply creative thinking in all their work; • work autonomously, responsibly and creatively under supervision; • use different techniques in acquiring and communicating knowledge in a responsible and critical manner; • use varied study methods; • treat their environment with sustainability in mind.	Students: • have acquired competence to express their thoughts and feelings in a rational context; • have acquired competence to express themselves in a simple manner in foreign languages; • have a clear self-image and are aware of how they can use their strengths in a creative way; • can have positive and constructive relationships and collaboration with others; • respect the values of life, human rights and equality; • show respect for the environment in a global context; • have responsible attitude towards their own welfare, both physical and mental; • have acquired a positive attitude towards education; • have acquired competence to be an active and a responsible citizen in a democratic local community and in society as a whole; • have acquired competence to link their knowledge and skill with everyday life, technology and science.

([59]) Report on referencing of the Icelandic NQF to the EQF, September 2012 [draft].

	Knowledge	***Skills***	***Competences***
Level 2	Students have acquired: • varied vocabulary to be able to express their opinions and support them in their everyday life and in connection with specialised knowledge and/or profession; • knowledge concerning being a responsible participant in the economy; • knowledge concerning the environment related to specialised knowledge and/or profession; • knowledge useful as preparation for further studies; • vocabulary to be able to express themselves in foreign languages in connection with specialised knowledge, if necessary.	Students have acquired skill to: • express themselves clearly, responsibly and creatively about their specialised knowledge and/or profession; • organise a simple procedure of a profession and/or specialised knowledge and employ appropriate techniques in this context; • show initiative and autonomy with the basic working methods in a specialised knowledge and/or profession; • take part in a conversation about their specialised knowledge and/or profession.	Students: • have acquired competence to express their opinions and explain practices associated with specified working environments in a clear, responsible and autonomous manner; • have acquired competence to express themselves in a simple manner in foreign languages; • show respect for the principles of the working environment; • respect work and working conditions; • have a clear self-image and are aware of new opportunities in the environment; • have acquired competence to be an active and a responsible citizen in a democratic society and within the community of specialisation and/or profession; • have acquired competence to link their knowledge and skill with the working environment and everyday life.
Level 3	Students have acquired: • varied vocabulary to be able to express their opinions and support them in their everyday life and in connection with specialised knowledge and/or profession; • specialised knowledge useful for employment and/or as preparation for further studies; • knowledge concerning being an active and a responsible participant in a specialised society and/or profession; • knowledge concerning the environment in a global context and related to specialised knowledge and/or profession;	Students have acquired skills to: • express themselves clearly, critically and creatively about their specialised knowledge and/or profession; • organise a procedure and employ appropriate techniques and methods of a profession and/or specialised knowledge in a responsible manner; • show initiative and autonomy with working methods at seeking solutions within a specialised knowledge and/or profession; • take a responsible part in a conversation about their specialised knowledge and/or profession.	Students: • have acquired competence to express their opinions and explain practices associated with specified working conditions in a clear, responsible and critical manner; • have acquired competence in foreign languages necessary for employment or further studies; • have moral responsibility in creative work; • show respect for the working conditions and employment of their general knowledge; • are able to use their knowledge to discover new opportunities in the environment; • have acquired competence for further studies; • have acquired competence to be an active citizen in a democratic society of a speciality

	Knowledge	***Skills***	***Competences***
	• the vocabulary and knowledge in a foreign language for further studies or in connection with a specialised knowledge, if necessary.		and/or a profession; • have acquired competence to evaluate their own work effort in a global context; • see their education in a global context; • have acquired competence to link their knowledge with technology and science.
Level 4	Students have acquired: • specialised knowledge useful for professional advancement and/or as preparation for further studies; • specialised vocabulary in a foreign language useful for professional advancement and/or as preparation for further studies.	Students have acquired skills to: • guide and communicate their knowledge in a simple and creative manner; • organise a procedure, employ appropriate techniques and develop the methods of a profession and/or specialised knowledge in a responsible manner; • show initiative and autonomy in working methods at analysing circumstances and reacting in an appropriate, realistic and creative manner.	Students: • have acquired competence to express their specialised knowledge in Icelandic and a foreign language, if necessary in work or for further studies; • are able to take part in a conversation based on specialised knowledge and skills in a critical and clear manner; • have moral responsibility for using and developing their specialised knowledge with regard to working conditions; • have acquired competence to be an active and responsible citizen in a society of a speciality and/or a profession; • have acquired competence to evaluate their own work effort and that of others in connection with the working conditions and/or specialised knowledge in a critical and constructive manner; • have acquired competence to connect their knowledge with the global environment.

	Knowledge	***Skills***	***Competences***
Level 5	Students: • have acquired knowledge of the relevant field or profession. This entails that students: • have gained insight into selected theories and concepts; • are able to distinguish between scientific explanations and other explanations; • understand and know the position of the scientific field in a wider context; --- • have acquired general understanding and insight into main theories and concepts; • are aware of the latest knowledge in the relevant field; • know the basic elements of information technology.	Students: • can apply the methods and procedures of the field or profession. This entails that students: • can conceptualise, organise and implement projects; • can apply the basic skills and technology that are relevant in the field; • can use statistical and graphical data; • can communicate issues related to the field or profession in an organised and comprehensible manner; • have developed an innovative way of thinking • can describe simple scientific topics and research findings; --- • can apply the methods and procedures of the field or profession; This entails that students: • can use the relevant hardware, technology and software; • can apply critical methods in analysing their topic; • can support their decisions on professional grounds; • can assess the methodology applied in an autonomous manner; • can analyse the need for information and have the ability to find it, assess its reliability and apply it in the appropriate manner; • can use recognised databases and information resources in the relevant scientific field; • have acquired an open-minded and innovative way of thinking.	Students: • can apply their knowledge and skills in a practical way in their profession and further study. This entails that students: • have developed the learning skills necessary to embark on further studies; • can work with large degree of initiative and autonomy; • can cooperate with others in projects; --- • can apply their knowledge and skills in a practical way in their profession and/or further study. This entails that students: • have developed the competences and autonomy needed for further studies within the field; • can work in an autonomous and organised manner, set goals for their work, devise a work schedule and follow it through; • can participate in cooperation and lead task groups; • are capable of interpreting and presenting scientific issues and research findings.

	Knowledge	***Skills***	***Competences***
Level 6	Possess knowledge within a special area of the relevant professional field. This entails that students: • possess knowledge and understanding of scientific subjects and challenges; • can provide arguments for their own solutions; • can place latest knowledge into context in the relevant speciality area; • are familiar with research methods in their scientific field; • possess knowledge of science ethics; ---- • possess knowledge of a specialised area of a scientific field or profession; This entails that students: • possess knowledge of scientific subjects and challenges; • have acquired knowledge through research; • can provide arguments for their own findings; • can place the latest knowledge in context within the relevant specialised field; • know the research methods within the scientific field; • are aware of science ethics;	Can apply methods and procedures of a specialised area of a scientific field or profession. This entails that students: • have adopted the appropriate methods and procedures; • are capable of analysing statistical information; • can understand and tackle complex subjects in a professional context; • can apply their knowledge and understanding in a professional approach in their work; • can use the relevant hardware, technology and software; • can acquire, analyse and evaluate scientific data; • demonstrate innovative methods of developing and applying ideas; • can apply their knowledge, understanding and proficiency for resolution in new and unfamiliar situations or in an interdisciplinary context; • are capable of integrating knowledge, tackling complex subjects and formulating opinions based on available information; • can recognise novelties which are based on scientific theories and/or experiments; • can apply the methods of the relevant scientific field or/and profession to present, develop and resolve projects; • understand research and research findings; ----- • can apply methods and procedures of a specialised area of a scientific field or profession.	Can apply their knowledge and skills in a practical way in their profession and/or further study. This entails that students: • have developed the necessary learning skills and autonomy for continuing studies; • can initiate projects in the scientific field, administer them and take responsibility for the work of individuals and groups; • can communicate scientific information, challenges and solutions to specialists as well as to the general public; • are capable of presenting and describing scientific issues and research findings in a foreign language; • can make decisions in an autonomous, professional manner and support them; • can evaluate the appropriateness of the different methods of analysis and complex scientific issues in each case; • can communicate statistical information; ------ • can apply their knowledge and skills in their profession and/or further study. This entails that students: • have developed the necessary learning skills and autonomy for continuing studies; • can initiate projects, administer them and take responsibility for the work of individuals and groups; • can communicate complex scientific subjects and/or scientifically supported findings, alone or in cooperation with other, to specialists as well as to the general public; • are capable of presenting and describing scientific issues and research findings in a

	Knowledge	***Skills***	***Competences***
		This entails that students: • have adopted relevant methods and procedures; • are capable of analysing and communicating statistical information; • can understand and tackle complex subjects in a professional context; • can apply their knowledge and understanding in their scientific and professional work; • can use the relevant hardware, technology and software; • can acquire, analyse and evaluate scientific data; • can apply their knowledge, understanding and proficiency for resolution in new and unfamiliar situations or in an interdisciplinary context; • can develop projects and place them in context by applying methods based on scientific theories and/or experiments; • are capable of integrating knowledge, tackle complex subjects and present an opinion based on the available information; • can effectively apply research methods and implement small-scale research projects; • understand research and research findings.	foreign language; • can make decisions in an autonomous, professional manner and support them; • can independently evaluate the appropriateness of the different methods of analysis and complex scientific issues in each case; • can communicate statistical information.

	Knowledge	***Skills***	***Competences***
Level 7	Degree holders possess specialised knowledge within a scientific field. This entails that students: • possess extensive and comprehensive understanding of main theories, principles, concepts and the latest findings available; • have initiated the generation of new knowledge and its interpretation with research or other acknowledged scholarly activities that measure up to peer reviews and critique; • have contributed important innovation in the form of new knowledge, innovative utilisation or interpretation of existing knowledge; • demonstrate their awareness of science ethics and that they have formed a considered opinion regarding their own research and that of others based on their own ethical consciousness.	Students can apply specialised methods and procedures of a specific area of a scientific field. This entails that students: • can conceptualise and implement extensive research that expands and/or redefines the existing methodology of the scientific field; • can explore or develop projects that tackle new challenges and subjects within the scientific field; • have full command over basic skills, technology, methods, material and sources connected to the relevant scientific field; • can apply critical analysis, evaluation and integration to new and complex projects; • can apply general and specialised research tools and research technology in a practical manner; • can use software to support and enhance the work in the relevant scientific field; • can specify specialised software to improve methods and procedures; • can evaluate statistical and graphical information in a critical manner; • have carried out innovative research or developed methods that add to or widen the existing scope of knowledge in the relevant scientific field; • demonstrate creativity in developing and applying new knowledge, understanding and methods; • have adopted a critical stand towards knowledge; • have presented a scientific dissertation that is suitable for publication in a peer-reviewed publication and national and international levels. •	Degree holders can apply their knowledge and skills in their profession and/or further study. This entails that students: • can assume full responsibility for their own projects and for the work of others; • can demonstrate autonomy and initiative in their professional and scientific work; • can effectively communicate to their peers, other scholars and the general public about their field of expertise; • can participate in critical debate, initiate and lead theoretical discourse.

Ireland

The learning outcomes descriptors are broken down into eight knowledge, skills and competence substrands in a 10-level framework in Ireland.

Level descriptor elements		
Knowledge	***Know-how and skills***	***Competence***
• breadth • kind	• range • selectivity	• context • role • learning to learn • insight

Descriptors for levels 1-10 ([60])

	Knowledge breadth	***Knowledge kind***	***Know-how & skill range***	***Know-how & skill selectivity***	***Competence context***	***Competence role***	***Competence learning to learn***	***Competence insight***
Level 1	Elementary knowledge	Demonstrable by recognition or recall.	Demonstrate basic practical skills, and carry out directed activity using basic tools.	Perform processes that are repetitive and predictable.	Perform processes that are repetitive and predictable.	Act in a limited range of roles.	Learn to sequence learning tasks; learn to access and use a range of learning resources.	Begin to demonstrate awareness of independent role for self.

([60]) Irish National Qualifications Authority (2003). *Outline national framework of qualifications: determinations*. http://www.nqai.ie/docs/publications/12.pdf [accessed 26.11.2012].

	Knowledge breadth	*Knowledge kind*	*Know-how & skill range*	*Know-how & skill selectivity*	*Competence context*	*Competence role*	*Competence learning to learn*	*Competence insight*
Level 2	Knowledge that is narrow in range.	Concrete in reference and basic in comprehension.	Demonstrate limited range of basic practical skills, including the use of relevant tools.	Perform a sequence of routine tasks given clear direction.	Act in a limited range of predictable and structured contexts.	Act in a range of roles under direction.	Learn to learn in a disciplined manner in a well-structured and supervised environment.	Demonstrate awareness of independent role for self.
Level 3	Knowledge moderately broad in range.	Mainly concrete in reference and with some comprehension of relationship between knowledge elements.	Demonstrate a limited range of practical and cognitive skills and tools.	Select from a limited range of varied procedures and apply known solutions to a limited range of predictable problems.	Act within a limited range of contexts.	Act under direction with limited autonomy; function within familiar, homogenous groups.	Learn to learn within a managed environment.	Assume limited responsibility for consistency of self-understanding and behaviour.
Level 4	Broad range of knowledge.	Mainly concrete in reference and with some elements of abstraction or theory.	Demonstrate a moderate range of practical and cognitive skills and tools.	Select from a range of procedures and apply known solutions to a variety of predictable problems.	Act in familiar and unfamiliar contexts.	Act with considerable amount of responsibility and autonomy.	Learn to take responsibility for own learning within a supervised environment.	Assume partial responsibility for consistency of self-understanding and behaviour.

	Knowledge breadth	*Knowledge kind*	*Know-how & skill range*	*Know-how & skill selectivity*	*Competence context*	*Competence role*	*Competence learning to learn*	*Competence insight*
Level 5	Broad range of knowledge.	Some theoretical concepts and abstract thinking, with significant depth in some areas.	Demonstrate a broad range of specialised skills and tools.	Evaluate and use information to plan and develop investigative strategies and to determine solutions to varied unfamiliar problems.	Act in a range of varied and specific contexts, taking responsibility for the nature and quality of outputs; identify and apply skill and knowledge to a wide variety of contexts.	Exercise some initiative and independence in carrying out defined activities; join and function within multiple, complex and heterogeneous groups.	Learn to take responsibility for own learning within a managed environment.	Assume full responsibility for consistency of self-understanding and behaviour.
Level 6	Specialised knowledge of a broad area.	Some theoretical concepts and abstract thinking, with significant underpinning theory.	Demonstrate comprehensive range of specialised skills and tools.	Formulate responses to well- defined abstract problems.	Act in a range of varied and specific contexts involving creative and non-routine activities; transfer and apply theoretical concepts and/or technical or creative skills to a range of contexts.	Exercise substantial personal autonomy and often take responsibility for the work of others and/or for allocation of resources; form, and function within multiple complex and heterogeneous groups.	Learn to evaluate own learning and identify needs within a structured learning environment; assist others in identifying learning needs.	Express an internalised, personal world view, reflecting engagement with others.

	Knowledge breadth	*Knowledge kind*	*Know-how & skill range*	*Know-how & skill selectivity*	*Competence context*	*Competence role*	*Competence learning to learn*	*Competence insight*
Level 7	Specialised knowledge across a variety of areas.	Recognition of limitations of current knowledge and familiarity with sources of new knowledge; integration of concepts across a variety of areas.	Demonstrate specialised technical, creative or conceptual skills and tools across an area of study.	Exercise appropriate judgement in planning, design, technical and/or supervisory functions related to products, services, operations or processes.	Utilise diagnostic and creative skills in a range of functions in a wide variety of contexts.	Accept accountability for determining and achieving personal and/or group outcomes; take significant or supervisory responsibility for the work of others in defined areas of work.	Take initiative to identify and address learning needs and interact effectively in a learning group.	Express an internalised, personal world view, manifesting solidarity with others.
Level 8	An understanding of the theory, concepts and methods pertaining to a field (or fields) of learning.	Detailed knowledge and understanding in one or more specialised areas, some of it at the current boundaries of the field(s).	Demonstrate mastery of a complex and specialised area of skills and tools; use and modify advanced skills and tools to conduct closely guided research, professional or advanced technical activity.	Exercise appropriate judgement in a number of complex planning, design, technical and/or management functions related to products, services, operations or processes, including resourcing.	Use advanced skills to conduct research, or advanced technical or professional activity, accepting accountability for all related decision making; transfer and apply diagnostic and creative skills in a range of contexts.	Act effectively under guidance in a peer relationship with qualified practitioners; lead multiple, complex and heterogeneous groups.	Learn to act in variable and unfamiliar learning contexts; learn to manage learning tasks independently, professionally and ethically.	Express a comprehensive, internalised, personal world view, manifesting solidarity with others.

	Knowledge breadth	*Knowledge kind*	*Know-how & skill range*	*Know-how & skill selectivity*	*Competence context*	*Competence role*	*Competence learning to learn*	*Competence insight*
Level 9	A systematic understanding of knowledge, at, or informed by, the forefront of a field of learning.	A critical awareness of current problems and/or new insights, generally informed by the forefront of a field of learning.	Demonstrate a range of standard and specialised research or equivalent tools and techniques of enquiry.	Select from complex and advanced skills across a field of learning; develop new skills to a high level, including novel and emerging techniques.	Act in a wide and often unpredictable variety of professional levels and ill-defined contexts.	Take significant responsibility for the work of individuals and groups; lead and initiate activity.	Learn to self-evaluate and take responsibility for continuing academic/professional development.	Scrutinise and reflect on social norms and relationships and act to change them.
Level 10	A systematic acquisition and understanding of a substantial body of knowledge which is at the forefront of a field of learning.	The creation and interpretation of new knowledge, through original research, or other advanced scholarship, of a quality to satisfy review by peers.	Demonstrate a significant range of the principal skills, techniques, tools, practices and/or materials which are associated with a field of learning; develop new skills, techniques, tools, practices and/or materials.	Respond to abstract problems that expand and redefine existing procedural knowledge.	Exercise personal responsibility and largely autonomous initiative in complex and unpredictable situations, in professional or equivalent contexts.	Communicate results of research and innovation to peers; engage in critical dialogue; lead and originate complex social processes.	Learn to critique the broader implications of applying knowledge to particular contexts.	Scrutinise and reflect on social norms and relationships and lead action to change them.

Latvia

Main NQF level descriptor elements in Latvia

Level descriptor elements		
Knowledge	***Skills***	***Competence***
• Knowledge • Comprehension	Ability to apply: • knowledge, • communication, • general skills	• Analysis • Synthesis • Assessment

Descriptors for levels 1-8 ([61])

	Level descriptor elements		
	Knowledge	***Know-how and skills***	***Competence***
Level 1	• Able to demonstrate elementary knowledge, which manifests itself in recognition and recollection.	• Able to use elementary practical and cognitive skills, able to execute them under direct supervision using simple tools. • Able to perform simple tasks, which are repetitive as to their content and predictable.	• Able to perform tasks in a structured environment, to function in a limited context. • Is able to perform elementary tasks, following a model, able to master basic self-care skills.
Level 2	• Able to demonstrate basic knowledge in concrete subject syllabi.	• Able to use basic cognitive and practical skills, necessary to solve everyday problems by using relevant information, perform tasks and using simple rules and means. • Able to understand the consequences of one's own actions with regard to self and others;	• Able to perform tasks individually or in a group under supervision or semi-independently. • Able to participate in setting some learning objectives and planning the course of actions.

([61]) Latvian Academic Information Centre; Ministry of Education and Science. (2012). *Referencing of the Latvian education system to the European qualifications framework for lifelong learning and the qualifications framework for the European higher education area: self-assessment report: second version*. http://ec.europa.eu/eqf/documentation_en.htm [accessed 26.11.2012]. CoM Regulations (2.12.2008) No 990 'Regulations on the classification of Latvian education', Appendix 1, Table 2 (with amendments 5.10.2010).

	Level descriptor elements		
	Knowledge	***Know-how and skills***	***Competence***
Level 3	• Able to demonstrate the knowledge of facts, principles, processes and general concepts and to use them in the field of studies and professional activities. • Able to understand various information about materials, technologies in the relevant field of studies or a concrete profession.	• Able to use various cognitive and practical skills, which are necessary to perform tasks and to solve simple problems, by selecting and using basic methods, means, materials, information and technologies.	• Able to be aware of and assume responsibility for performing work or study tasks in a permanent and stable environment under the supervision of a specialist in the sector. • When solving the tasks, is able to adjust one's actions to conditions and to be responsible for the result of work.
Level 4	• Able to demonstrate comprehensive knowledge of facts, theories and causalities, which are needed for personal growth and development, civic participation, social integration and continuous education. • Able to comprehend in detail and demonstrate knowledge of diverse facts, principles, processes and concepts in a specific field of studies or professional activities in standard and non-standard situations. • Has good knowledge of technologies and methods for performing study or work tasks in the profession.	• Able to plan and organise work, using various methods, technologies (including information and communication technologies), equipment, tools and materials for performing tasks. • Able to find, assess and creatively use information for study or professional work tasks and problem-solving. • Able to communicate in at least two languages both in writing and orally in a known and unknown context. • Able to work independently in the profession, to learn and to improve professional qualifications. • Able to cooperate.	• Is motivated for further career development, continuous education, life-long learning in a knowledge-oriented democratic, multilingual and multicultural society in Europe and in the world. • Able to plan and perform study or work tasks in the profession individually, in a team or by managing the teamwork. • Able to assume responsibility for the quality and quantity of the outcomes of study or professional activities.

	Level descriptor elements		
	Knowledge	***Know-how and skills***	***Competence***
Level 5	• Able to demonstrate comprehensive and specialised knowledge and understanding of facts, theories, causalities and technologies of the professional field.	• Able, using an analytical approach, to perform practical tasks in the concrete profession, demonstrate skills, allowing to find creative solutions to professional problems, to discuss and provide arguments regarding practical issues and solutions in the profession with colleagues, clients and management, able to, with an appropriate degree of independence, to engage in further learning, improving one's competences. • Able to assess and improve one's own actions and those of other people, to work in cooperation with others, to plan and to organise work to perform concrete tasks in one's profession or to supervise such work activities, in which unpredictable changes are possible.	• Able to define, describe and analyse practical problems in one's profession, select the necessary information and use it for solving clearly defined problems, to participate in the development of the concrete professional field, demonstrate understanding of the place of the profession in a broader social context.
Level 6	• Able to demonstrate the basic and specialised knowledge typical of the concrete branch of science or profession and a critical understanding of this knowledge, moreover, a part of this knowledge complies with the highest level of achievement in this branch of science or profession. • Able to demonstrate understanding of the most important concepts and causalities of the concrete branch of science or professional field.	• Able, using the mastered theoretical foundations and skills, to perform professional, artistic, innovative or research activity, to define and describe analytically information, problems and solutions in one's own branch of science or profession, to explain them and to provide arguments when discussing these with both specialist and non-specialists. Is able to structure independently own learning, to guide one's own and one's subordinates further learning and improvement of professional qualification, to demonstrate scientific approach to problem- solving, to assume responsibility and take initiative when performing individual work, when working in a team or managing the work of other people, to take decisions and find creative solutions under changing or unclear conditions.	• Able to obtain, select and analyse information independently and to use it, to take decisions and solve problems in the branch of science or profession, demonstrate understanding of professional ethics, assess the impact of one's professional activities on environment and society and participate in the development of the concrete professional field.

	Level descriptor elements		
	Knowledge	***Know-how and skills***	***Competence***
Level 7	• Able to demonstrate advanced or extensive knowledge and understanding, a part of which conforms with the most recent findings in the branch of science or professional field and which provide the basis for creative thinking or research, inter alia, working in the interface of various fields.	• Able to use independently theory, methods and problem-solving skills to perform research or artistic activities, or highly qualified professional functions. Able to provide arguments when explaining or discussing complex or systemic aspects of the branch of science or professional field both to specialists and non-specialists. • Able to guide independently the improvement of one's own competences and specialisation, to assume responsibility for the results of staff and group work and analyse them, to perform business activities, innovations in the concrete branch of science or profession, to perform work, research or further learning under complex or unpredictable conditions, if necessary, change them, using new approaches.	• Able to define independently and critically analyse complex professional problems, substantiate decisions and, if necessary, carry out additional analysis. • Able to integrate knowledge of various fields, contribute to the creation of new knowledge, research or the development of new professional working methods, demonstrate understanding and ethical responsibility for the possible impact of the scientific results or professional activity on environment and society.
Level 8	• Able to demonstrate good knowledge and understanding of most topical scientific theories and insights, has mastered research methodology and contemporary research methods in the branch of science or professional field and in the interface of various fields.	• Able to assess and select independently appropriate methods for scientific research, has contributed to the expansion of the limits of knowledge or given new understanding of the existing knowledge, by carrying out an original research of major scope, part of which is on the level of internationally cited publications. • Able to communicate both orally and in writing about one's own field of scientific activity (one's own branch) with wider research community and the general public. • Able to improve one's scientific qualification independently, by implementing scientific projects, attaining achievements meeting the international criteria of the branch of science, to manage research or development tasks in companies, institutions and organisations, requiring extensive research knowledge and skills.	• Able, by performing independent critical analysis, synthesis and assessment, to solve significant research or innovation tasks, to set independently research idea, to plan, structure and manage large-scale scientific projects, including projects in international context.

Lithuania

The detailed level descriptors in Lithuania are defined according to two parameters, characteristics of activities and types of competences.

Parameters		
	Characteristics of activities	Types of competences
Criteria	– Complexity of activities – Autonomy of activities – Variability of activities	– Functional competences – Cognitive competences – General competences

Descriptors for levels 1-8 ([62])

	Description of the qualification level
Level 1	• The qualification is intended for activities consisting of one or several simple specialised actions or operations. The activities require the ability to apply basic knowledge characteristics of the activities performed. • The environment of the activities is clear, the activities are performed in line with detailed instructions, some cases require intense supervision, guidance and assistance. • The situations, actions and operations constituting the activities are regular and constantly repetitive.
Level 2	• The qualification covers the activities consisting of actions and operations intended to solve simple problems. The activities performed require the application of the main factual knowledge characteristics of the activities. • The activities performed require supervision, guidance and assistance. • The activities and operations constituting the activities are regular.
Level 3	• The qualification is intended for actions and operations in narrow areas of activities. The activities may include several or more specialised tasks that require the application of well-known and tested solutions. Performance of the activities involves the ability to apply their knowledge characteristics pertaining to the facts, principles and processes of the activity area. • The activities are carried out autonomously, under the guidance of an employee of a higher qualification and subject to external performance quality control. • The activity environment may require the ability to adapt to simple context changes.

([62]) Lithuanian Government (2010). *Description of the Lithuanian qualifications framework: Resolution No 535 of 4 May 2010*. http://www.kpmpc.lt/LTKS_EKS/LTQF_official_translation.pdf [accessed 10.10.2011].

	Description of the qualification level
Level 4	• The qualification is intended for activities consisting of actions and operations in relatively broad areas. The activities are performed by carrying out several or more specialised activity tasks, solutions to which are not always tested or known. Performance of the activities involves the ability to apply factual and theoretical knowledge characteristic of a broad context related to the activity areas. • The activities are performed autonomously, assuming responsibility for the quality of the procedures and outcomes of performance. With the acquisition of experience, the qualification allows the transfer of practical skills to the staff of lower qualifications as well as supervision of their activities. • The activity environment requires the ability to adapt to the developments predetermined by the context change, which is normally foreseeable.
Level 5	• The qualification is intended for activities distinguished by integrated coordination of activity tasks in different activity areas. The activities include the evaluation of the competences of lower-qualification employees and training thereof. The activities require coordination of comprehensive knowledge of the activity area with general knowledge in dealing with various specialised activity tasks in several different activity areas. • The employee performs the activities independently and is supervised only as regards the evaluation of results. The activity tasks are set by an employee of a higher qualification, who frequently grants the employee performing the activities discretion as to the choice of methods and measures to complete the tasks. The employee supervises the activities of lower-qualification staff, plans and assigns activity tasks, oversees the performance of the activities, provides consulting and verifies the performance quality. • The technological and organisational requirements of the activities and their environment are constantly changing, the changes are often unforeseeable and may be related to new areas of activity.
Level 6	• The qualification is intended for complex activities distinguished by a variety of tasks and their content. Different means and methods are employed when dealing with problems in various areas of professional activities. Therefore, the performance of activities requires the application of broad theoretical knowledge based on the results of new fundamental and applied research or necessary for the introduction of various innovations. • Activities are performed independently, selecting the methods for task completion and organising the work of the respective staff for the completion of the set tasks. Thus, the qualifications in this level include the ability to plan activities with respect to the set tasks, to analyse and record the activity results and to submit reports to activity coordinators, to modify activities based on the activity result analysis and specialist recommendations, and to carry out different project activities. • The activity environment requires the ability to adapt to constant and normally unpredictable changes predetermined by the progress of knowledge and technologies in a specific professional sphere. The qualification allows the enhancement and extension of professional knowledge and, following self-assessment of the activities, enables independent learning (development of cognitive competences) as required by the changing professional activities.

	Description of the qualification level
Level 7	• The qualification is intended for complex activities consisting of various interconnected tasks that may cover several related professional activities. Therefore, the performance of activities requires expert evaluation and application of the latest knowledge of the professional activities and similar or related areas, discovery of new facts in conducting applied research into the professional activities, and creative application of theoretical knowledge and research results. • The activities are performed by independent setting of the tasks in the respective activity area and taking independent decisions aimed at enhancement and improvement. A peculiar characteristic is supervision of other employees activities. Thus, the qualifications of this level cover the abilities to carry out applied research independently, provide consulting in the activity area, coordinate projects aimed at the improvement of the qualifications of others as well as introduction of innovations, and to analyse and present the activity results. • Due to the advancement of knowledge, technology and labour organisation in various activity areas, the activities of this level and their environment undergo intense changes, the developments are difficult to predict, and the activities consist of constantly changing combinations of tasks. Thus, the activity changes require the ability to adopt innovative solutions based on research results as well as the evaluation of alternative solutions and possible social and ethical consequences.
Level 8	• The qualification is intended for activities of exceptional complexity, distinguished by the development of new knowledge, ideas, technologies, and work practices, methods and processes. Consequently, the activity demands the discovery of new knowledge in the activity areas on the basis of fundamental and applied research findings, integrating knowledge in different activity areas. The activities are characterised by strategic objectives that may cover several different activity areas or research subjects. • The activities are strategically planned by assuming responsibility for the results and quality of other employees' activities and independent strategically Important decision-making. The training and consulting of the specialists in the respective activity area is another characteristic. It is necessary to have the ability to adopt strategic decisions of public significance, to independently plan and conduct fundamental and/or applied research, to transfer the latest knowledge (to share know-how) to specialists in the respective area and to coordinate scientific and applied research projects. • Intense and unpredictable changes in the activities and their environment require readiness for constant developments, openness to innovation, a positive attitude towards the development of the organisation and society, the ability to address issues originally in the light of their context, and the ability to initiate and make changes in various areas of activity and public life.

Luxembourg

Main NQF level descriptor elements in Luxembourg

Level descriptor elements		
Knowledge/connaissances	***Aptitudes***	***Attitudes***
'Connaissances' refers to a group of facts, principles, theories and practices connected with a particular area of study or work.	'Aptitudes' should be understood as referring to the ability to apply knowledge to the completion of tasks and the resolution of problems.	'Attitudes' should be understood as referring to personal and social dispositions in work or study situations and for professional or personal development.

Descriptors for levels 1-8 ([63])

Level descriptor elements			
	Knowledge/Connaissances	***Aptitudes***	***Attitudes***
Level 1	Acquisition of basic knowledge, and the knowledge necessary for working life and the exercise of a citizen's rights and duties in a democratic society.	Ability to carry out simple tasks, under supervision, in a structured context.	Carry out defined tasks under direct guidance and demonstrate personal commitment in structured contexts. Learn under direct guidance.
Level 2	Acquisition of specific elementary knowledge in a field of work or study.	Ability to carry out simple tasks, under supervision, in a simple, stable context, keeping to simple rules and routines and using some vocational skills.	Take limited responsibility for improving performance of work in simple, stable contexts and within a team or peer group. Learn under guidance, demonstrating some autonomy.

([63]) Luxembourg Ministry of Education and Vocational Training; Ministry of Higher Education and Research (2012). *Report on referencing the Luxembourg qualifications framework to the European qualifications framework for lifelong learning and to the qualifications framework in the European higher education area*, p. 21.

Level descriptor elements			
	Knowledge/Connaissances	***Aptitudes***	***Attitudes***
Level 3	Acquisition of usual knowledge in a given field of work or study.	Ability to accomplish specific tasks autonomously in a given field, keeping to rules and routines and using certain vocational skills.	Take responsibility for accomplishing tasks and demonstrate some independence in own work in contexts that are generally stable, although certain factors may change. Learn with some autonomy.
Level 4	Application of general usual knowledge and thorough specialist knowledge within a given field of work or study.	Ability to carry out complex tasks likely to arise in a given field of work or study, using vocational skills and identifying appropriate strategic approaches.	Take responsibility for completion of structured activity in a work or study context that is generally predictable, but with many factors of change, some of which are interrelated. Propose ways of improving the results of this activity. Supervise the routine work of others. Learn new notions and participate in evaluation and improvement of work or study activities.
Level 5	Acquisition of diverse procedural and declarative knowledge, often specific to a given field of work or study. Analysis, interpretation and evaluation of information, concepts and ideas. Understanding of different perspectives and approaches, and the underlying reasoning.	Mastery of skills allowing the transfer of procedural and declarative knowledge to resolve new problems. Ability to develop appropriate creative technical responses in seeking solutions to well-defined concrete and abstract problems.	Take responsibility for management of work or study projects requiring problem-solving involving many factors, some of which interact and generate unpredictable changes. Develop projects by proposing appropriate solutions. Exercise autonomy of judgment within broad parameters. Evaluate and develop own competences through work- or study-related learning. Manage and train subordinates. Ensure performance development for subordinates and team.

Level descriptor elements			
	Knowledge/Connaissances	***Aptitudes***	***Attitudes***
Level 6	Acquisition of advanced procedural, declarative and methodological knowledge, either within a given field of work, or within one or more fields of study. Critical analysis, interpretation and evaluation of this knowledge and understanding of the context of the field of study or work.	Mastery of advanced skills, demonstrating a sense of innovation in resolving complex unpredictable problems in a specialised field of work or study. Ability to manage complex study or work projects. Ability to communicate information, ideas, problems and solutions within the field of work or study to both specialist and non-specialist audiences.	Gather and interpret relevant data to inform judgments that include reflection on relevant social, scientific or ethical issues. Develop learning strategies with a view to continuing to undertake further study and acquiring competences for mastering complex processes and situations. Take responsibility for developing performance of subordinates and team. Exercise autonomy and general judgments.
Level 7	Acquisition and mastery of the systematics of specialised, up-to-date procedural, declarative and methodological knowledge in a field of work or study. Critical analysis, interpretation and evaluation of information, concepts and theories with a view to their application and modification.	Mastery of specialised skills for developing new ideas and procedures, taking possible alternatives into account. Ability to manage complex unpredictable situations calling for new solutions, and ability both to communicate the results clearly, to both non-specialist and specialist audiences, and discuss them with the latter.	Form judgments, integrate knowledge, handle complexity, and express opinions on the basis of limited information, including consideration of social, scientific and ethical issues. Ability to think autonomously in relation to strategies with a view to a professional or scientific development. Initiate and lead professional or scientific collaboration autonomously involving responsibility for the work and roles of other people. Exercise broad-ranging judgment and autonomy within a significant field of work or study.

Level descriptor elements			
	Knowledge/Connaissances	***Aptitudes***	***Attitudes***
Level 8	Acquisition of specialised, up-to-date knowledge at the most advanced frontier of one or more scientific fields, or strategic, innovative knowledge within a vocational field. Critical analysis, interpretation and assessment of this knowledge to develop new knowledge or extend the boundaries of a given field of knowledge or work. Mastery of a wide range of skills so as to be able to identify and resolve problems involving multiple complex interacting factors in the field of research, development or innovation in a professional or scientific field. Ability to manage situations arising in new contexts resulting in significant organisation and professional change.	Ability to assess new ideas and new processes. Form judgments, devise, create and evaluate innovative processes that extend the frontier of the field of knowledge or work, taking social, scientific and ethical issues into consideration. Initiate research or development projects autonomously, thereby producing new knowledge, aptitudes and attitudes. Initiate specific discussion autonomously to develop the knowledge, aptitudes and attitudes of others in the scientific or professional field. Exercise broad-ranging autonomy and judgment as a practitioner responsible for developing knowledge or the field of work or for substantial organisation and professional changes. Doctor's degree. Diploma of specific training in general medicine.	

Malta

Main types of level descriptor and detailed learning outcomes are specified for levels in the Maltese NQF.

Each level descriptor is defined in terms of knowledge, skills, competence and summarises learning outcomes for a specific level in terms of:

- knowledge and understanding;
- applying knowledge and understanding;
- communication skills;
- judgemental skills;
- learning skills;
- autonomy and responsibility.

Descriptors for levels 1-8 ([64])

MQF learning outcomes				
	Knowledge	***Skills***	***Competence***	***Learning outcomes***
Level 1	• Acquires basic general knowledge related to the immediate environment and expressed through a variety of simple tools and contexts as an entry point to lifelong	• Has the ability to apply basic knowledge and carry out a limited range of simple tasks. • Has basic repetitive communication skills to complete well-defined routine tasks and identifies whether	• Applies basic knowledge and skills to do simple repetitive and familiar tasks. • Participates in and takes basic responsibility for the action of simple tasks. • Carries out activities under guidance and within simple defined timeframes.	1. Knowledge and understanding: has basic knowledge and understanding of textbooks and simple tasks while relating to the immediate environment. 2. Applying knowledge and understanding: follows instructions and completes repetitive simple tasks in familiar contexts and under a quality controlled system. 3. Communication skills:

([64]) Maltese Government (2012). *Malta qualifications framework for lifelong learning regulations.* Subsidiary legislation 327.431. http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=11927&l=1 [accessed 13.11.2012].

MQF learning outcomes				
	Knowledge	***Skills***	***Competence***	***Learning outcomes***
	learning. • Knows and understands the steps needed to complete simple tasks and activities in familiar environments. • Is aware and understands basic tasks and instructions. • Understands basic textbooks.	actions have been accomplished. • Follows instructions and is aware of consequences of basic actions for self and others.	• Acquires and applies basic key competences at this level.	communicates basic information in familiar repetitive contexts; 4. Judgmental skills: assesses and ensures that assigned tasks have been completed effectively. 5. Learning skills: acquires and applies key competences to defined actions. 6. Autonomy and responsibility: takes some responsibility for completing simple tasks and exercises limited autonomy.
Level 2	• Possesses good knowledge of a field of work or study. • Is aware of and interprets types of information and ideas • Understands facts and procedures in the application of basic tasks and instructions. • Selects and uses relevant knowledge to accomplish specific actions for self and others.	• Has the ability to demonstrate a range of skills by carrying out a range of complex tasks within a specified field of work or study. • Communicates basic information. • Ensures tasks are carried out effectively.	• Applies factual knowledge and practical skills to do some structured tasks. • Ensures one acts proactively. • Carries out activities under limited supervision and with limited responsibility in a quality-controlled context. • Acquires and applies basic key competences at this level.	1. Knowledge and understanding: understands and uses good knowledge for tasks, procedures or a field of work or study. 2. Applying knowledge and understanding: follows instructions and completes a range of well-defined tasks. 3. Communication skills: communicates basic information in unfamiliar contexts. 4. Judgment skills: selects and uses information for specified tasks and is proactive. 5. Learning skills: acquires and applies key competences to a range of actions. 6. Autonomy and responsibility: takes responsibility and exercises autonomy in well-defined tasks under a quality controlled system.

MQF learning outcomes				
	Knowledge	***Skills***	***Competence***	***Learning outcomes***
Level 3	• Understands the relevancy of theoretical knowledge and information related to one field of work or study. • Assesses, evaluates and interprets facts establishing basic principles and concepts in a particular field of work or study. • Understands facts and procedures in the application of more complex tasks and instructions. • Selects and uses relevant knowledge acquired on one's own initiative to accomplish specific actions for self and others.	• Demonstrates a range of developed skills to carry out more than one complex task effectively and in unfamiliar and unpredictable contexts. • Communicates more complex information. • Solves basic problems by applying basic methods, tools, materials and information given in a restricted learning environment.	• Applies knowledge and skills to do some tasks systematically. • Adapts own behaviour to circumstances in solving problems by participating proactively in structured learning environments. • Uses own initiative with established responsibility and autonomy, but supervised in quality-controlled learning environments normally within a craftsmanship context. • Acquires key competences at this level as a basis for lifelong learning.	1. Knowledge and understanding: understands theoretical knowledge and information related to complex procedures in a field of work or study. 2. Applying knowledge and understanding: follows instructions and carries out complex tasks systematically and in unfamiliar and unpredictable contexts. 3. Communication skills: communicates complex information in unfamiliar and unpredictable contexts. 4. Judgment skills: assesses, evaluates and interprets facts related to a field of work or study and applies basic problem- solving techniques. 5. Learning skills: acquires and applies key competences as a basis for lifelong learning. 6. Autonomy and responsibility: takes agreed responsibility for completing complex tasks, and interacts with the immediate environment and in defined actions at one's own initiative.

MQF learning outcomes				
	Knowledge	***Skills***	***Competence***	***Learning outcomes***
Level 4	• Understands broad theoretical knowledge and analyses of information related to a field of work or study. • Understands facts and establishes basic principles in broad contexts within a field of work or study. • Applies facts and procedures in broad contexts within a defined field of work or study. • Selects and analyses theoretical knowledge in broad contexts within a specific field of work or study.	• Demonstrates acquired knowledge and the ability to apply a range of technical or academic skills to carry out multiple complex tasks. • Communicates theoretical and technical information in a work or learning environment. • Generates solutions to specific problems within a field of work or study.	• Applies knowledge and skills to perform qualitative and quantitative tasks that require technical capacity normally associated with a technician's competence. • Supervises the quality and quantity of work of self and others under quality-assured structures, with responsibility and autonomy. • Demonstrates an advanced level of key competences at this level as a basis for higher education.	1. Knowledge and understanding: understands and analyses broad theoretical, practical and technical knowledge related to a field of work or study. 2. Applying knowledge and understanding: follows instructions and carries out defined theoretical, complex and technical tasks. 3. Communication skills: communicates theoretical and technical information in a work or learning context. 4. Judgmental skills: interacts with and generates solutions to problems within the immediate environment of a given field of work or study. 5. Learning skills: applies key competences to defined actions and to a technical or academic field of work or learning context. 6. Autonomy and responsibility: exercises autonomy and takes responsibility for defined qualitative and quantitative tasks of self and others by completing complex tasks in a broad context under quality assured mechanisms.
Level 5	• Understands knowledge in a field of study that builds on general further education and is typically at a level supported by high-level textbooks leading to continued studies to complete a	• Demonstrates transfer of theoretical and practical knowledge, in creating solutions to problems. • Conveys ideas in a well-structured and coherent way to peers, supervisors and clients using qualitative and quantitative information;	• Manages projects independently that require problem solving techniques where there are many factors, some of which interact and lead to unpredictable outcomes. • Shows creativity in managing projects, manages people and reviews performance of	1. Knowledge and understanding: understands advanced textbooks which may lead to further academic or vocational learning and researches solutions to abstract problems. 2. Applying knowledge and understanding: demonstrates operational capacity and management skills using creativity. 3. Communication skills: interacts with others to convey abstract and concrete solutions to problems in a field of work

MQF learning outcomes				
	Knowledge	***Skills***	***Competence***	***Learning outcomes***
	Level 6 qualification. • Develops strategic and creative responses in researching solutions to well-defined concrete and abstract problems. • Makes judgments based on knowledge of relevant social and ethical issues.	• Has the ability to identify and use data to formulate responses to well-defined concrete and abstract problems. • Evaluates own learning and identifies learning needs necessary to undertake further learning.	self and others; trains others and develops team performance • Expresses a comprehensive internalised personal world view reflecting engagement and solidarity with others. • Has the learning skills to undertake further studies with some autonomy.	or study. 4. Judgmental skills: formulates practical and theoretical responses to abstract and concrete problems and makes judgements on social and ethical issues. 5. Learning skills: evaluates own learning and can improve key competences for further learning, and promotes team training. 6. Autonomy and responsibility: is responsible for the effective and efficient management of projects and people within agreed timeframes.
Level 6	• Understands knowledge that builds on general further education and typically includes some aspects that will be informed by knowledge at the forefront of a field of study. • Uses detailed theoretical and practical knowledge which is at the forefront of a field of study and involves critical understanding of theories and principles. • Understands	• Applies knowledge and understanding in a manner that indicates a professional approach to work or study. • Communicates ideas, problems, and solutions to both specialist and non-specialist audiences using a range of techniques involving qualitative and quantitative information. • Has the ability to gather and interpret relevant data (usually within the field of study) to inform judgments that include reflection on relevant social, scientific or	• Demonstrates administrative design, resource and team management and is responsible for work or study contexts that are unpredictable and require that complex problems are solved. • Shows creativity and initiative in developing projects in management processes, manage and train people to develop team performance. • Has developed those learning skills necessary to continue to undertake further studies with a high degree of autonomy.	1. Knowledge and understanding: understands professional theoretical and practical knowledge in a specialised field of work or study. 2. Applying knowledge and understanding: demonstrates innovative theoretical and practical responses to work or study contexts. 3. Communication skills: communicates ideas, problems, and solutions to both specialist and non-specialist audiences using a range of techniques involving qualitative and quantitative information to sustain arguments. 4. Judgment skills: makes professional judgments on social and ethical issues within the area of specialisation, masters' problem solving skills, and evaluates the management of projects and people. 5. Learning skills: assesses own learning and can specialise in one

MQF learning outcomes				
	Knowledge	***Skills***	***Competence***	***Learning outcomes***
	methods and tools in a complex and specialised field of work or study and innovation in terms of methods used. • Makes judgments based on relevant social and ethical issues that arise in a field of work or study.	ethical issues. • Devises and sustains arguments to solve problems. • Consistently evaluates own learning and identifies learning needs.		or more key competences for further learning. 6. Autonomy and responsibility: is responsible for the management of creative and innovative projects and the team's performance.
Level 7	• Has comprehensive knowledge and understanding that is founded on and extends and/or enhances that knowledge typically associated with Bachelor level. • Uses specialised or multidisciplinary theoretical and practical knowledge some of which is at the forefront of a field of study. This knowledge forms the basis of originality in developing and, or applying ideas.	• Demonstrates specialised or multidisciplinary knowledge that includes reflecting on social and ethical responsibilities linked to the application of one's knowledge and judgements. • Can communicate to specialist and non-specialist audiences clearly and unambiguously work or study related conclusions and knowledge which may be the outcome of research, self-study or experience. • Performs critical evaluations and analysis	• Creates a research-based diagnosis of problems by integrating knowledge from new or interdisciplinary fields and makes judgments with incomplete or limited information. • Manages people and projects and demonstrates the ability to respond to dynamic changes in the business environment. • Demonstrates autonomy in the direction of learning and a high level of understanding of learning processes. • Has the learning skills to allow continuation to study in a manner that may be largely self- directed or autonomous.	1. Knowledge and understanding: has comprehensive specialised or multidisciplinary theoretical and practical knowledge which forms the basis of original research, which may contribute to social and ethical issues. 2. Applying knowledge and understanding: demonstrates capability in using knowledge and skills, to adapt to the dynamic changes in the business environment and to manage people and projects efficiently. 3. Communication skills: communicates with specialist and non-specialist audiences clearly and unambiguously conclusions and knowledge which may be the outcome of original research, self-study or experience. 4. Judgment skills: performs critical evaluations and analysis with incomplete or limited information to solve problems in new or unfamiliar contexts, and to produce original research.

MQF learning outcomes				
	Knowledge	***Skills***	***Competence***	***Learning outcomes***
		with incomplete or limited information to solve problems in new or unfamiliar environments, and to produce original research. • Develops new skills in response to emerging knowledge and techniques and demonstrates leadership skills and innovation in complex and unpredictable work and study contexts.		5. Learning skills: makes assessments of personal continuous professional development, takes initiative to undertake self-directed study and may proceed to further specialisation. 6. Autonomy and responsibility: is accountable and responsible for the original research within a personal social responsibility and/or business context, for one's operations and for adapting the management of people and projects reflecting the dynamic nature of the environment in which one operates.
Level 8	• Has a systematic understanding of a highly specialised field of study which builds on a specialised or multidisciplinary knowledge and understanding. • Extends or redefines existing knowledge and, or professional practice.	• Demonstrates mastery in skills such as the selection and analysis of research, writing, design, development and sustainability of the argument manifested in innovative scholarly research. • Responds to technological, social and cultural issues and addresses the needs of a knowledge-based society. • Communicates expertise to a wide audience	• Demonstrates authority in a specialised field of work or study and makes judgments involving a multitude of interacting factors. • Promotes social, scientific and ethical advancement through actions. • Has sustained commitment to the development of new ideas.	1. Knowledge and understanding: has theoretical and practical expertise in a specialised field of knowledge which may contribute to social and ethical issues in a national and international dimension. 2. Applying knowledge and understanding: demonstrates leadership and innovation in mastering research in work and study contexts. 3. Communication skills: communicates expertise to a wide audience including peers and the general public using different methods including national and international publications, and participates in specialist forums; 4. Judgment skills: demonstrates expertise in critical evaluations and analysis with incomplete or limited information to

MQF learning outcomes				
	Knowledge	***Skills***	***Competence***	***Learning outcomes***
		including peers and the general public using different methods including national and international publications, and participates in specialist forums. • Demonstrates expertise in critical evaluations and analysis with incomplete or limited information to solve problems in new or unfamiliar environments, and to produce original research.		solve problems in new or unfamiliar environments, and to produce original research. 5. Learning skills: has a sustained commitment to generating new ideas and innovative projects related to technological, cultural and social development. 6. Autonomy and responsibility: is responsible for the leadership of a number of specialised projects and an authority in a specialised field of work or study.

The Netherlands

Main NQF level descriptor elements for levels 1-8 (plus an entry level) in the Netherlands

Context	The descriptions of the contexts, together with the described knowledge, determine the level of difficulty of the skills
Knowledge	Knowledge is the totality of facts, principles, theories and ways of practice, related to an occupation or a knowledge domain.
Skills	Cognitive capabilities (logic, intuitive and creative thinking) and practical capabilities (psychomotor skills in the use of methods, materials, aids and instruments) applied within a given context:
Applying knowledge	• reproduce, analyse, integrate, evaluate, combine and apply knowledge in an occupation or a knowledge domain;
Problem-solving skills	• comprehend, recognise or identify and solve problems;
Learning and development skills	• personal development, autonomously or under supervision;
Information skills	• obtain, collect, process, combine, analyse and assess information;
Communication skills	• communicate based on context-relevant conventions.
Responsibility and independence	The proven capability to collaborate with others and being responsible for own work or study results or of others.

Descriptors for levels 1-8, including entry level ([65])

Entry Level

Context	A well-known and stable daily living environment
Knowledge	• Possess basic knowledge of simple facts and ideas related to the living environment.
Applying knowledge	• Reproduce and apply the knowledge. • Carry out simple and familiar (professional) tasks automatically.
Problem-solving skills	• Recognise and solve simple problems in daily life.
Learning and development skills	• Work on personal development under supervision.
Information skills	• Obtain and process information on simple facts and ideas related to the living environment.
Communication skills	• Communicate with peers using conventions which are relevant to the context.
Responsibility and independence	• Work with peers. • Have, under supervision, limited responsibility for the results of simple routine tasks or study.

Level 1

Context	A familiar daily living or working environment
Knowledge	• Possess basic knowledge of simple facts and ideas related to an occupation or a knowledge domain.
Applying knowledge	• Reproduce and apply this knowledge. • Carry out simple and familiar (professional) tasks automatically.
Problem-solving skills	• Recognise and solve simple problems in professional practice or in the knowledge domain.
Learning and development skills	• Work under supervision on personal development.
Information skills	• Obtain and process information, simple facts and ideas related to the occupation or knowledge domain.
Communication skills	• Communicate with peers, supervisors and clients, appropriately to the context, using conventions which are relevant to professional practice.
Responsibility and independence	• Work with peers, supervisors and clients. • Under supervision, take responsibility for the results of simple tasks or study.

([65]) Dutch Ministry of Education (2012). *The referencing document of the Dutch national qualifications framework to the European qualifications framework*. http://ec.europa.eu/eqf/documentation_en.htm [accessed 26.11.2012].

Level 2

Context	A familiar daily living or working environment
Knowledge	• Possess basic knowledge of facts and ideas, processes, materials, means and concepts of, and related to, an occupation or a knowledge domain.
Applying knowledge	• Reproduce and apply this knowledge. • Carry out simple (professional) tasks with the help of selected standard procedures.
Problem-solving skills	• Recognise and systematically solve simple problems in professional practice or in the knowledge domain.
Learning and development skills	• Ask support for personal development after reflecting on and evaluating personal (learning) results.
Information skills	• Obtain and process basic information, i.e. facts, ideas, processes, materials, means and concepts of, and related to, the occupation or knowledge domain.
Communication skills	• Communicate with peers, supervisors and clients, appropriately to the context, using conventions which are relevant to professional practice.
Responsibility and independence	• Work with peers, supervisors and clients. • Take responsibility for the results of simple tasks or study.

Level 3

Context	A familiar but changeable living or working environment
Knowledge	• Possess knowledge of materials, means, facts, core concepts, simple theories, ideas, methods and processes of and related to an occupation or a knowledge domain.
Applying knowledge	• Reproduce and apply this knowledge. • Recognise the limitations of existing knowledge in professional practice or in the knowledge domain and take action to address this. • Carry out (professional) tasks requiring tactical and strategic insight by making own choices from, and in combination with, standard procedures and methods.
Problem-solving skills	• Identify and systematically solve complicated problems in professional practice or in the knowledge domain by selecting and using appropriate data.
Learning and development skills	• Ask support for further personal development after reflecting on and evaluating personal (learning) results.
Information skills	• Obtain, process and combine information on materials, means, facts, core concepts, simple theories, ideas, methods and processes of and related to the occupation or knowledge domain.
Communication skills	• Communicate with peers, supervisors and clients, appropriately to the context, using conventions which are relevant to professional practice.
Responsibility and independence	• Work with peers, supervisors and clients. • Take responsibility for the results of defined tasks or study. • Take shared responsibility for the results of the routine work of others.

Level 4

Context	A familiar but changeable living or working environment, and in an international environment
Knowledge	• Possess broad and specialised knowledge of materials, means, facts, abstract concepts, theories, ideas, methods and processes of and related to an occupation or a knowledge domain.
Applying knowledge	• Reproduce, analyse and apply this knowledge. • Evaluate and integrate data and develop strategies to carry out various (professional) tasks. • Recognise the limitations of existing knowledge in professional practice or in the knowledge domain and take action to address this. • Analyse and carry out relatively complex (professional) tasks.
Problem-solving skills	• Identify, analyse and systematically solve relatively complicated problems in professional practice or in the knowledge domain in a creative way by selecting and using appropriate data.
Learning and development skills	• Undertake personal development by reflecting on and evaluating personal (learning) results.
Information skills	• Obtain, process and combine broad and specialised information on materials, means, facts, abstract concepts, theories, ideas, methods and processes of and related to the occupation or knowledge domain.
Communication skills	• Communicate with peers, supervisors and clients, appropriately to the context, using conventions which are relevant to professional practice.
Responsibility and independence	• Work with peers, supervisors and clients. • Take responsibility for the results of own activities, work or study. • Share responsibility for the results of activities and work of others.

Level 5

Context	An unknown but changeable living or working environment, and in an international environment
Knowledge	• Possess broad, specialised and in-depth knowledge of an occupation or a knowledge domain. • Possess detailed knowledge of some professions or knowledge domains and an understanding of a selected range of basic theories, principles and concepts. • Possess limited knowledge and understanding of some important current topics/issues and specialties related to the occupation or knowledge domain.
Applying knowledge	• Reproduce, analyse and apply the knowledge in a range of contexts to solve problems related to the occupation or knowledge domain. • Use procedures in a flexible and inventive way. • Recognise the limitations of existing knowledge in professional practice or the knowledge domain and take action to address this. • Analyse and carry out complex (professional) tasks.
Problem-solving skills	• Identify, analyse and solve complex problems in professional practice or in the knowledge domain in a creative way by selecting and using relevant data.
Learning and development skills	• Undertake personal development by reflecting on and evaluating personal (learning) results.
Information skills	• Obtain, process, combine and analyse broad, in-depth and detailed information on a limited range of basic theories, principles and concepts of, and related to, the occupation or knowledge domain. • As well as limited information on some important current subjects and specialities related to the occupation or knowledge domain, and present this information.
Communication skills	• Communicate in a targeted way with peers, supervisors and clients, appropriately to the context, using conventions which are relevant to professional practice.
Responsibility and independence	• Work with peers, supervisors and clients. • Take responsibility for the results of own activities, work or study. • Take shared responsibility for the results of activities and work of others and the management of processes.

Level 6

Context	An unknown and changeable living or working environment, and in an international environment
Knowledge	• Possess an advanced, specialised knowledge of and critical insight into, theories and principles of an occupation, knowledge domain or broad field of science. • Possess broad, integrated knowledge and understanding of the scope and the most important fields and boundaries of the occupation, knowledge domain or broad field of science. • Possess knowledge and understanding of some important present-day issues, topics and specialties related to the occupation, knowledge domain or broad field of science.
Applying knowledge	• Reproduce, analyse and apply the knowledge, in different contexts in a way that demonstrates a professional and scientific approach to the occupation or knowledge domain. • Apply complex specialised skills based on the results of research. • Complete applied or fundamental research, under supervision, based on methodological knowledge. • Develop and deepen arguments. • Critically evaluate and combine knowledge and insights of a specific domain. • Recognise the limitations of existing knowledge in professional practice or in the knowledge domain and take action to address this. • Analyse and carry out complex professional or scientific tasks.
Problem-solving skills	• Identify and analyse complex problems in professional practice or in the knowledge domain and solve these problems in a tactical, strategic and creative way by selecting and using relevant data.
Learning and development skills	• Undertake personal development by reflecting on and evaluating personal (learning) results.
Information skills	• Critically collect and analyse in a responsible way broad, in-depth and detailed professional or scientific information on a limited range of basic theories, principles and concepts of, and related to, the occupation or knowledge domain, as well as limited information on some important current issues, topics and specialties related to the occupation or knowledge domain and present this information.
Communication skills	• Communicate in a targeted way with peers, specialists and non-specialists, supervisors and clients, appropriately to the context, using conventions which are relevant to professional practice.
Responsibility and independence	• Work with peers, specialists and non-specialists, supervisors and clients. • Take responsibility for the results of own work or study and for the results of the work or study of others. • Take shared responsibility for the management of processes and the professional development of people and groups. • Collect and interpret relevant data with the objective of forming an opinion based on considerations of relevant social, professional, scientific and ethical aspects.

Level 7

Context	An unknown but changeable living or working environment with a high degree of uncertainty, including an international environment
Knowledge	• Possess very specialised and advanced knowledge of an occupation, knowledge domain or field of science and at the interface between the different professions, knowledge domains and fields of sciences. • Possess a critical understanding of a range of theories, principles and concepts, including the most important relating to the occupation, knowledge domain or field of science. • Possess extensive, detailed knowledge and critical understanding of some important current issues, topics and specialties related to the occupation, knowledge domain or field of science.
Applying knowledge	• Reproduce, analyse, integrate and apply the knowledge in a range of contexts. Use it to handle complex matters. • Use this knowledge as the basis of original ideas and research. • Use acquired knowledge at a high level of abstraction. • Think conceptually. Develop and deepen arguments. • Complete, independently, fundamental research based on methodological knowledge. • Provide an original contribution to the development and application of ideas, often in the area of research. • Recognise the limitations of existing knowledge in professional practice or in the knowledge domain and at the interface between the different professions or knowledge domains and take action to address this. • Analyse and carry out complex professional or scientific tasks.
Problem-solving skills	• Identify and analyse complex problems in professional practice or in the knowledge domain or field of science and solve the problems in a tactical, strategic and creative way. • Contribute to a (scientific) solution of complex problems in professional practice or in the knowledge domain or field of science by identifying and using data.
Learning and development skills	• Undertake personal development which is mostly autonomous.
Information skills	• Critically collect and analyse in a responsible way broad, in-depth and detailed scientific information on a range of theories, principles and concepts of, and related to, the occupation, knowledge domain, or field of science, as well as limited information on some important current subjects and specialties related to an occupation, knowledge domain, or field of science, present this information.
Communication skills	• Communicate in a targeted way with peers, specialists and non-specialists, supervisors and clients, appropriately to the context, using conventions which are relevant to the professional field.
Responsibility and independence	• Work with peers, specialists and non-specialists, supervisors and clients. • Take responsibility for the results of own work or study and for the results of the work or study of others. • Take responsibility for the management of complex processes and the professional development of people and groups. • Formulate judgements based on incomplete and limited information, taking into account social, scientific and ethical responsibilities related to the application of own knowledge and judgements.

Level 8

Context	An unknown but changeable living or working environment with a high degree of uncertainty, and in an international environment
Knowledge	• Possess the most advanced knowledge of an occupation, knowledge domain or field of science and at the interface between the different occupations, knowledge domains or fields of science. • Possess knowledge acquired by personal research or work, leading to an important contribution to development in a vocational and scientific field. • Possess a critical insight into a vocational or scientific field, including a critical understanding of the most important and current theories, principles and concepts.
Applying knowledge	• Reproduce, analyse, integrate and apply this knowledge in an authoritative way and use this knowledge to handle complex matters in a range of contexts. • Use this knowledge as the basis of original ideas and research. • Use acquired knowledge at a high level of abstraction. • Complete complex fundamental research based on methodological knowledge. • Contribute through original research to move the boundaries of knowledge by an extensive amount of work, of which a part deserves national or international approved publication. • Think conceptually, develop and deepen arguments. • Recognise the limitations of existing knowledge in professional practice or in the knowledge domain or field of science at the interface between the different professions or knowledge domains and take action to address this. • Analyse and carry out complex professional or scientific tasks.
Problem-solving skills	• Identify and analyse complex problems in professional practice or in the knowledge domain or field of science and solve the problems in a tactical, strategic and creative way. • Contribute to a (scientific) solution of complex problems in professional practice or in the knowledge domain or the field of science by identifying and using data.
Learning and development skills	• Undertake personal development and engineering technological, social or cultural progression in society which is mostly autonomous.
Information skills	• Critically collect and analyse in a responsible and broad way in-depth and detailed scientific information about a range of theories, principles and concepts, of and related to, the occupation, knowledge domain, or field of science, as well as selected information on some important current subjects and specialties related to the occupation, knowledge domain, or field of science, and present this information.
Communication skills	• Communicate in a targeted way with peers, specialists and non-specialists, supervisors and clients, the wider scientific community and society as a whole, appropriately to the context, using conventions which are relevant to the professional field.
Responsibility and independence	• Work with peers, specialists and non-specialists, supervisors and clients, the wider scientific community and society as a whole. • Take responsibility for the results of own work or study and for the results of the work of others; • Take responsibility for the management of complex processes and the professional development of people and groups. • Draft, develop, carry out and apply with academic integrity a complex fundamental research process.

Norway

Main NQF level descriptor elements defining levels 2-8 in Norway

Level descriptor elements		
Knowledge	**Skills**	**General competence**
Types and complexity Is it theoretical or practical knowledge, within a subject or a profession? How complex and comprehensive?	**Types** Is it cognitive, practical, creative or communicative?	**Challenges regarding change** In which areas of education and work? How predictable and changeable situations
Understanding Ability to contextualise knowledge	**Problem-solving** How complex are the tasks to be addressed at a particular level?	**Cooperation and responsibility** Extent to which candidate takes responsibility for own and others' work.
	Communication With whom, at what level of complexity, by which means?	**Learning** Extent to which candidate takes responsibility for own learning and competence development?

Descriptors for level 2-8 ([66])

Level 1: Open: no qualifications enrolled at this level. The level is not part of the NQF

Level descriptors		
Knowledge	***Skills***	***General competence***
No learning outcome descriptors	*No learning outcome descriptors*	*No learning outcome descriptors*

Level 2: Competence from primary/lower secondary school

Level descriptors		
Knowledge	***Skills***	***General competence***
The candidate… • has a basic knowledge of important facts and concepts in and across subjects; • has knowledge of fundamental political, social, cultural and environmental conditions; • has a basic knowledge about the use of sources, about how information can be obtained, documented, assessed and applied; • has a basic understanding of learning how to learn; • is familiar with different educational choices and occupations.	*The candidate…* • can express him/herself verbally and in writing, reading, is numerate and can use digital tools in the school work context; • can present topics in Norwegian/Sami and at least one foreign language; • can use experience, creativity and exploratory work methods to acquire new knowledge; • can use practical-aesthetical work methods in several subject areas; • can reflect on his/her own participation in different media.	*The candidate…* • can make use of his/her knowledge and experience to participate in a democratic and inclusive society; • can cooperate with others in both the work/school and social context; • can discuss and assess others and his/her own school work under supervision; • can make independent choices, state the reasons for them and act on the basis of them.

([66]) Norwegian Ministry of Education and Research (2012). *Norwegian qualifications framework: levels and learning outcome descriptors*. http://www.regjeringen.no/upload/KD/Vedlegg/Internasjonalt/engelskoversettelse.pdf [accessed 17.12.2012].

Level 3: Basic competence (partially completed upper secondary education)

Level descriptors		
Knowledge	***Skills***	***General competence***
The candidate… • has knowledge of important facts and concepts in his/her own subject/subject area; • has knowledge of work methods, procedures and tools in one or more limited subjects/subject areas; • is aware of relevant regulations and quality requirements; • has an understanding of his/her own educational and work opportunities.	*The candidate…* • can communicate and express him/herself in his/her own subject/subject area; • can use relevant technology to solve subject-specific tasks; • can receive and follow instructions and carry out specific tasks within the subject area; • can be creative when carrying out tasks; • can search for and use information from different sources to further his/her development in relation to future work and/or education.	*The candidate…* • can cooperate with others in the performance of work and utilise relevant skills and knowledge; • can initiate and carry out limited tasks; • can seek and accept guidance in relation to concrete tasks and own vocational development.

Level 4 A: Completed upper secondary vocational education – Subject-related skills and vocational competence

Level descriptors		
Knowledge	***Skills***	***General competence***
The candidate… • has knowledge of relevant concepts, models and principles in the subject area; • has knowledge of, and has an overview of, materials, equipment and work methods, and can give reasons for his/her choices; • has the experience-based knowledge required to practise in the vocational field • has insight into the importance and historical development of the trade/occupation in a societal perspective; • has knowledge of relevant regulations, standards, agreements and quality requirements; • has knowledge of different learning strategies and can utilise them in his/her own learning; • has an understanding of his/her own educational and work opportunities.	*The candidate…* • can systematise, present and report on planned and completed work; • can carry out calculations and assess consequences; • can solve vocational challenges in a critical and creative manner, alone or in cooperation with others; • can use relevant concepts, principles, materials and equipment in his/her work • can communicate in at least one foreign language; • can assess and choose work methods for solving subject- specific tasks; • can be creative when planning and performing work; • can carry out work in accordance with the applicable regulations, standards, agreements and quality requirements; • can analyse and assess different types of sources of relevance to his/her own work.	*The candidate…* • can use his/her own vocational competence in new and complex contexts; • can work independently and take responsibility for ensuring that work is carried out with the required craftsmanship and in accordance with legislation, regulations and established ethical standards in the trade/field in question; • can cooperate and communicate with colleagues, customers and/or users when carrying out his/her work; • can guide others in their work; • can document and assess others' work and own work in connection with planning, organising, work performance and results; • can reflect on his/her own vocational competence as the basis for future choices; • can initiate tasks and activities that promote his/her own learning and development.

Level 4 B: Completed upper secondary school higher education entrance requirements

Level descriptors		
Knowledge	***Skills***	***General competence***
The candidate… • has knowledge of important facts, concepts, theories, principles and methods in different subjects; • has the experience-based knowledge required to practise different subjects; • has insight into how academic issues relate to society as a whole.	*The candidate…* • can express him/herself verbally and in writing in different academic contexts; • can read, is numerate and can use digital tools and media to solve academic challenges in a critical and creative manner, alone or in cooperation with others; • can use academic terminology in communication and cooperation; • can communicate in at least two foreign languages; • can apply relevant methods, principles and strategies to solve subject-specific tasks; • can explore, analyse, formulate and discuss different issues; • can analyse and assess different types of sources.	*The candidate…* • can use his/her own academic competence in new and complex contexts; • can plan and organise work, independently and in cooperation with others; • can use his/her academic knowledge and skills to develop knowledge together with others; • can guide others to a certain extent in academic situations; • can assess the quality of, and take responsibility for, the results of his/her own and joint work; • can reflect on his/her own academic competence as the basis for future choices.

Level 5: Tertiary vocational training 1

Level descriptors		
Knowledge	***Skills***	***General competence***
The candidate… • has knowledge of concepts, processes and tools that are used in a specialised field of work; • has insight into relevant regulations, standards, agreements and quality requirements; • has knowledge of the industry and is familiar with the field of work; • can update his/her vocational knowledge; • understands the importance of his/her own trade/discipline in a societal and value-creation perspective.	*The candidate…* • can apply vocational knowledge to practical and theoretical problems; • masters relevant vocational tools, materials, techniques and styles; • can find information and material that is relevant to a vocational problem; • can study a situation and identify subject-related issues and what measures need to be implemented.	*The candidate…* • understands the ethical principles that apply in the trade/field of work; • has developed an ethical attitude in relation to the practising of his/her discipline; • can carry out work based on the needs of selected target groups; • can build relations with his/her peers, also across discipline boundaries, and with external target groups; • can develop work methods, products and/or services of relevance to practising the discipline.

Level 5: Tertiary vocational training 2

Level descriptors		
Knowledge	***Skills***	***General competence***
The candidate… • has knowledge of concepts, theories, models processes and tools that are used in a specialised field of work; • can assess his/her own work in relation to applicable norms and requirements; • is familiar with the history, traditions, distinctive nature and place in society of the trade/discipline; • has insight into his/her own opportunities for development.	*The candidate…* • can explain his/her vocational choices; • can reflect over his/her own vocational practice and adjust it under supervision; • can find and refer to information and vocational material and assess its relevance to a vocational issue.	*The candidate…* • can plan and carry out vocational tasks and projects alone or as part of a group and in accordance with ethical requirements and principles; • can exchange points of view with others with a background in the trade/discipline and participate in discussions about the development of good practice; • can contribute to organisational development.

Level 6: (part of Bachelor): Higher education of shorter duration: a candidate who has completed his or her qualification should have the following learning outcomes defined in terms of knowledge, skills and general competence

Level descriptors		
Knowledge	***Skills***	***General competence***
The candidate… • has knowledge of important topics, theories, problems, processes, tools and methods in the subject area; • is familiar with research and development work in the field; • can update his/her knowledge in the subject area; • is familiar with the subject area's history, traditions, distinctive nature and place in society.	*The candidate…* • can apply academic knowledge to practical and theoretical problems and explain his/her choices; • can reflect on his/her own academic practice and adjust it under supervision; • can find, assess and refer to information and academic material and relate it to an issue; • masters relevant academic tools, techniques and styles.	*The candidate…* • has insight into relevant ethical issues relating to the field/profession; • can plan and carry out tasks and projects alone or as part of a group and in accordance with ethical requirements and principles; • can present important academic material such as theories, problems and solutions, both in writing and orally, as well as using other relevant forms of communication; • can exchange opinions with others with a background in the field and participate in discussions concerning the development of good practice; • is familiar with new ideas and innovation processes.

Level 6: Bachelor (1. cycle): a candidate who has completed his or her qualification should have the following learning outcomes defined in terms of knowledge, skills and general competence

Level descriptors		
Knowledge	***Skills***	***General competence***
The candidate… • has broad knowledge of important topics, theories, issues, processes, tools and methods within the academic field; • is familiar with research and development work in the field; • can update his/her knowledge in the field; • has knowledge of the history, traditions, distinctive character and place in society of the academic field.	*The candidate…* • can apply academic knowledge and relevant results of research and development work to practical and theoretical problems and make well-founded choices; • can reflect upon his/her own academic practice and adjust it under supervision; • can find, evaluate and refer to information and scholarly subject matter and present it in a manner that sheds light on the problem; • masters relevant scholarly tools, techniques and forms of communication.	*The candidate…* • has insight into relevant academic and professional ethical issues; • can plan and carry out varied assignments and projects over time, alone or as part of a group, and in accordance with ethical requirements and principles; • can communicate important academic subject matters such as theories, problems and solutions, both in writing and orally, as well as through other relevant forms of communication; • can exchange opinions and experiences with others with a background in the field, thereby contributing to the development of good practice; • is familiar with new thinking and innovation processes.

Level 7: Master (2. cycle): a candidate who has completed his or her qualification should have the following learning outcomes defined in terms of knowledge, skills and general competence

Level descriptors		
Knowledge	***Skills***	***General competence***
The candidate… • has advanced knowledge within the academic field and specialised insight in a limited area; • has thorough knowledge of the academic field; • scholarly or artistic theories and methods in the field; • can apply knowledge to new areas within the academic field; • can analyse academic problems on the basis of the history, traditions, distinctive character and place in society of the academic field.	*The candidate…* • can analyse and deal critically with various sources of information and use them to structure and formulate scholarly arguments; • can analyse existing theories, methods and interpretations in the field and work independently on practical and theoretical problems; • can use relevant methods for research and scholarly and/or artistic development work in an independent manner; • can carry out an independent, limited research or development project under supervision and in accordance with applicable norms for research ethics.	*The candidate…* • can analyse relevant academic, professional and research ethical problems; • can apply his/her knowledge and skills in new areas to carry out advanced assignments and projects; • can communicate extensive independent work and masters language and terminology of the academic field; • can communicate about academic issues, analyses and conclusions in the field, both with specialists and the general public; • can contribute to new thinking and innovation processes.

Level 8: Ph.d. (3. cycle): a candidate who has completed his or her qualification should have the following learning outcomes defined in terms of knowledge, skills and general competence

Level descriptors		
Knowledge	***Skills***	***General competence***
The candidate… • is in the forefront of knowledge within his/her academic field and masters the field's philosophy of science and/or artistic issues and methods; • can evaluate the expediency and application of different methods and processes in research and scholarly and/or artistic development projects; • can contribute to the development of new knowledge, new theories, methods, interpretations and forms of documentation in the field.	*The candidate…* • can formulate problems, plan and carry out research and scholarly and/or artistic development work; • can carry out research and scholarly and/or artistic research work of a high international standard; • can handle complex academic issues and challenge established knowledge and practice in the field.	*The candidate…* • can identify new relevant ethical issues and carry out his/her research with scholarly integrity; • can manage complex interdisciplinary assignments and projects; • can communicate research and development work through recognised Norwegian and international channels; • can participate in debates in the field in international forums; • can assess the need for, initiate and practice innovation.

Poland

Main NQF level descriptor elements in Poland

Level descriptor elements		
Knowledge	***Skills***	***Social competence***
• Scope • Depth of understanding	• Problem-solving and practical use of knowledge (complexity, typicality, controlling, conditions) • Skills – learning (control, form) • Skills – communicating (complexity and scope of expression in native and foreign languages)	• Identity (participation, responsibility, models of conduct) • Cooperation (team work, leadership, conditions) • Responsibility (individual and team actions, consequences, evaluation)

Descriptors for levels 1-8 ([67])

Level descriptor elements			
	Knowledge	***Skills***	***Social competence***
Level 1	Elementary facts and concepts as well as the dependencies between selected natural and social phenomena and the products of human thought.	• Carry out very simple tasks according to detailed instructions under typical conditions. • Solve very simple, routine problems under typical conditions. • Learn under direct guidance in a structured form. • Understand simple statements and formulate very simple statements.	• Respect the obligations arising from membership in various communities. • Act and cooperate with others under direct supervision in structured conditions. • Evaluate one's own actions and take responsibility for the direct results of those actions.

([67]) Educational Research Institute (2013). *Referencing the Polish qualifications framework to the European qualifications framework*, p. 48 [unpublished].

Level descriptor elements			
	Knowledge	***Skills***	***Social competence***
Level 2	A broadened set of basic facts, simple concepts as well as the dependencies between selected natural and social phenomena and the products of human thought.	• Complete simple tasks following general instructions most often under typical conditions. • Solve simple, routine problems most often under typical conditions. • Learn under guidance in a structured form. • Understand moderately complex statements, formulate simple statements. • Formulate and understand the simplest statements in a foreign language.	• Assume the obligations arising from membership in various communities. • Act and cooperate with others under direction in structured conditions. • Evaluate the actions in which one participates and take responsibility for the results of those actions.
Level 3	• Basic facts and concepts as well as the dependencies between selected natural and social phenomena and the products of human thought. • Plus a broader scope of selected facts, concepts and dependencies in specific areas. • The elementary conditions of conducted activities.	• Complete moderately complex tasks following general instructions under partially variable conditions. • Solve simple, routine problems under partially variable conditions. • Learn partially autonomously under guidance in a structured form. • Understand moderately complex statements, formulate moderately complex statements. • Understand and formulate very simple statements in a foreign language.	• Be a member of various types of communities, function in various social roles and assume the basic obligations ensuing from this. • Act and cooperate with others partially autonomously in structured conditions. • Evaluate one's own actions and those of the team; take responsibility for the results of those actions.
Level 4	• A broadened set of basic facts, moderately complex concepts and theories as well as the dependencies between selected natural and social phenomena and the products of human thought. • Plus a broader scope of selected facts, moderately complex concepts, theories in specific areas and the dependencies between them. • The basic conditions of conducted activities.	• Complete moderately complicated tasks, partially without instruction, often under variable conditions. • Solve moderately complex and somewhat non-routine problems often under variable conditions • Learn autonomously in a structured form. • Understand complex statements, formulate moderately complex statements on a broad range of issues. • Understand and formulate simple statements in a foreign language. •	• Assume responsibility for participating in various communities and functioning in various social roles. • Act and cooperate with others autonomously under structured conditions. • Evaluate one's own actions and those of persons one is directing. • Take responsibility for the results of one's own actions as well as those of the persons one directs.

Level descriptor elements			
	Knowledge	***Skills***	***Social competence***
Level 5	• A broad scope of facts, theories, methods and the dependencies between them. • The diverse conditions of conducted activities.	• Complete tasks without instruction under variable, predictable conditions. • Solve moderately complex and non-routine problems under variable, predictable conditions. • Learn autonomously. • Understand moderately complex statements, formulate moderately complex statements using specialised terminology. • Understand and formulate very simple statements in a foreign language using specialised terminology.	• Assume basic professional and social responsibilities, evaluate and interpret them. • Independently act and cooperate with others under structured conditions, direct a small team under structured conditions. • Evaluate one's own actions and those of others and the teams one directs; assume responsibility for the results of those actions.
Level 6	• An advanced level of facts, theories, methods and the complex dependencies between them. • The diverse, complex conditions of conducted activities.	• Innovatively complete tasks and resolve problems which are complex and non-routine under variable and partially unpredictable conditions. • Autonomously plan one's lifelong learning. • Communicate with one's surroundings, substantiate one's position.	• Cultivate and disseminate models of good practice in the workplace and beyond. • Make decisions independently; critically evaluate one's own actions, those of the team one directs and the organisations in which one participates; assume responsibility for the results of those actions.
Level 7	• An in-depth level of selected facts, theories, methods and complex dependencies between them, also in relationship to other fields. • The diverse, complex conditions and axiological context of conducted activities.	• Complete tasks as well as formulate and solve problems with the use of new knowledge, also from other fields. • Independently plan one's own lifelong learning and direct others in this area. • Communicate with various groups of respondents, appropriately substantiate one's position.	• Establish and develop models of good practice in the environments of work and life. • Initiate actions, critically assess oneself as well as the teams and organisations in which one participates. • Lead a group and take responsibility for it.

Level descriptor elements			
	Knowledge	***Skills***	***Social competence***
Level 8	• The world's scientific and creative achievements and the resulting implications of this for practice.	• Analyse and creatively synthesise scientific and creative achievements to identify and solve research problems as well as those related to innovative and creative activities. • Contribute new elements to these achievements. • Independently plan one's own development as well as inspire the development of others. • Participate in the exchange of experiences and ideas, also in the international community.	• Conduct independent research which contributes to existing scientific and creative achievements. • Assume professional and public challenges that take into consideration their ethical dimension. • Responsibility for their results and develop models of good practice in such situations.

Portugal

Three main NQF level descriptor elements in Portugal

Level descriptor elements		
Knowledge	***Skills***	***Attitudes***
• Facts, principles, theories and practices	• Cognitive skills (logical, intuitive and creative thinking) • Practical skills (manual dexterity and the use of methods, materials, tools and instruments)	• Autonomy • Responsibility

More detailed level descriptor interpretation ([68])

Knowledge	*Know-how and skills*	Attitudes	Context
Depth Depth of knowledge is considered to increase progressively from the lowest to the highest level as is the complexity and variety of knowledge. **Understanding** At the lower level, it is understood as interpretation of information and application in the context, at the highest critical awareness of knowledge-related issues in the field and at the interface with other fields.	**Depth and Breath** Progressive broadening and specialisation of the range of cognitive and practical skills, from the range of restricted breadth and basis depth at qualification level 1, to an advanced range of skills at the forefront of a field of work or study at the highest level of qualification. **Purpose** At the lowest level the individuals should be capable of performing tasks and solving simple problems by interpreting basic information (task of execution), and at higher level of qualification expected to be capable of research and innovation to solve critical problems and perform complex tasks to redefine existing knowledge and professional practices (research and development tasks, innovation).	**Responsibility** This subdomain includes responsibility for one's own work and responsibility for others. A gradation was adopted from work under instruction with shared responsibility (level 1) to work taking responsibility and with a sustained commitment to the development of new ideas and new processes at the forefront of a field of work or study (level 8). As for the level of responsibility for others, there is considered to be progression from no responsibility (level 1) to responsibility for others, demonstrating authority, innovation and scientific and professional integrity. **Autonomy** This subdomain is structured from no autonomy/low level of autonomy (levels1/2) to maximum autonomy, understood as a sliding scale.	**Context of application** Ranging from everyday activities at a lower level to a specialised field of work or study and the interface between different areas at higher level**;** **Predictability and Complexity** Developing from a stable structure context at level 1 to an unpredictable and highly complex context at qualifications level 8.

([68]) Portuguese National Agency for Qualifications (2011). *Understanding NQF: users guide support* [summarised in Appendix 3 of the referencing report].

Descriptors for levels 1-8 ([69])

	Knowledge	*Know-how and skills*	*Attitudes*
Level 1	Basic general knowledge.	Basic skills required to carry out simple tasks.	Work or study under direct supervision in a structured context.
Level 2	Basic factual knowledge of a field of work or study.	Basic cognitive and practical skills required to use relevant information to carry out tasks and to solve routine problems using simple rules and tools.	Work or study under supervision, with some autonomy.
Level 3	Knowledge of facts, principles, processes and general concepts in a field of work or study.	A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information	Take responsibility for completion of tasks in work or study. Adapt own behaviour to circumstances in solving problems.
Level 4	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
Level 5	Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge.	A comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems.	Exercise management and supervision in contexts of work or study activities where there is unpredictable change. Review and develop performance of self and others.
Level 6	Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles.	Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study.	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.

([69]) Portuguese National Agency for Qualifications (2011). *Report on the referencing of the national qualifications framework to the European qualifications framework*, June 2011. http://ec.europa.eu/eqf/documentation_en.htm [accessed 26.11.2012].

	Knowledge	*Know-how and skills*	*Attitudes*
Level 7	Highly specialised knowledge, some of which is at the forefront of knowledge in a particular field of work or study, as the basis for original thinking and/or research. Critical awareness of knowledge issues in a field and at the interface between different fields.	Specialised problem-solving skills required in research and/or innovation to develop new knowledge and procedures and to integrate knowledge from different fields.	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.
Level 8	Knowledge at the most advanced frontier of a field of work or study and at the interface between fields.	The most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice.	Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research.

Romania

Main NQF level descriptor elements defining levels 1-8 in Romania

Level descriptor elements		
Knowledge	***Abilities***	***Transversal competences***
• Knowledge, understanding and usage of the specific language • Explanation and interpretation	• Application, transfer and problem-solving • Critical and constructive reflection • Creativity and innovation	• Autonomy and responsibility • Social interaction • Personal and professional development

Descriptors for levels 1-8 ([70])

	Level descriptor elements		
	Knowledge	***Abilities***	***Transversal competences***
	• Knowledge, understanding and usage of the specific language. • Explanation and interpretation.	• Application, transfer and problem solving. • Critical and constructive reflection. • Creativity and innovation.	• Autonomy and responsibility. • Social interaction. • Personal and professional development.
Level 1	• Knowledge of the main notions within different knowledge domains. • The adequate usage of basic knowledge within different domains to explain some simple situations and preponderant concrete.	• Use of general basic knowledge to achieve simple tasks.	• Participating in work activities/under direct surveillance study within well-defined contexts. • Participating and cooperating to carry out the work/study activities. • Being aware of the importance of learning and operating with efficient learning techniques.

([70]) Draft Government resolution on the national framework of qualifications, 12.9.2011.

Level descriptor elements			
	Knowledge	***Abilities***	***Transversal competences***
Level 2	• Knowledge of reduced complexity notions within a work or study domain. • Identification and explanation of low complexity work duties within a certain work/study domain.	• Use of relevant information to execute tasks and solve routine problems within an activity domain, by applying simple rules and instruments.	• Performing labour/study activities with low degree of autonomy, within guidance and supervision conditions. • Participation and cooperation to perform the work activities. • Being aware of the need to participate in training programmes for personal and professional development.
Level 3	• Knowledge of general situations, principles, processes and concepts, within various work or study contexts. • Process identification and explanation, within a work or study context, by using adequate concepts.	• Executing medium complexity work tasks, within a certain domain of work or study. • Choosing adequate solutions, within a typical solutions set, applying and combining basic methods, instruments, materials and adequate information.	• Assuming responsibility to achieve the assigned tasks. • Roles assumption within the working team and behavior adjustment to the assigned tasks. • Being aware of the necessity of personal development and professional advancement.
Level 4	• Knowledge and understanding situations, principles, processes and concepts within a work and study domain. • The identification and explanation of the specific processes within a work or study domain, using adequate concepts.	• Executing medium complexity tasks, within a certain domain of work of study. • Selecting adequate solutions to resolve work or study problems, by applying preset criteria. • Generating solutions for specific problems, within a work or study domain.	• Self-organising of work or study, with limited responsibility assumption, within usually predictable contexts, but where changes may occur. • Routine activity supervision of other persons, along with assuming responsibility for evaluation and improvement of work or study. • Personal and professional development plan assuming and training requirements identification.

Level descriptor elements			
	Knowledge	***Abilities***	***Transversal competences***
Level 5	• Detailed knowledge and understanding of the specific concepts, principles and processes within a specialised work or study domain. • The identification and explanation of the specific processes within a work or study domain, using adequate concepts.	• Executing some complex tasks, within a specialised domain of work of study. • Selecting solutions to solve work or study problems, within a domain, by applying and combining various methods, instruments, materials and information. • Developing creative solutions for work or study problems, including for abstract problems within a specialised domain.	• Self-organising of work or study, with responsibility assumption. • Coordination and supervision of work or study tasks achievement within a specialised domain, also of the performances of junior colleagues, inclusively within unpredictable change conditions. • Performance self-evaluation and the identification of personal and professional development requirements.
Level 6	• Knowledge and understanding of the basic concepts, theories and methods within the field and the specialisation area; their adequate use in professional communication. • Using of basic knowledge to explain and interpret various types of concepts, situations, processes, projects, etc. that are related to the field.	• Use of basic principles and methods for solving well-defined problems/situations that are typical to the field, with qualified assistance. • Adequate use of standard assessment criteria and methods to appraise the quality, merits and limitations of processes, programmes, projects, concepts, methods and theories. • Development of professional projects by using well-known principles and methods within the field.	• Responsible performance of professional tasks in an autonomous manner, within qualified assistance. • Familiarisation with the teamwork-specific roles and activities and with task allocation for subordinated levels. • Awareness of the need for continuing training; efficient use of learning techniques and resources for personal and professional development.
Level 7	• In-depth knowledge of a specialisation area and, within it, of the programme-specific theoretical, methodological and practical developments, appropriate use of specific language in communication with different professional environments. • Use of the specialised knowledge to explain and interpret some new situations, in wider contexts associated to the respective field.	• Integrated use of the conceptual and methodological apparatus in incompletely defined situations to solve new theoretical and practical problems. • Pertinent and appropriate use of assessment criteria and methods to formulate judgments and fundament constructive decisions. • Development of professional and/or research projects using a wide range of qualitative and quantitative methods in an innovative manner.	• Undertaking complex professional tasks under autonomy and professional independence conditions. • Assuming management roles/functions for activities within professional groups or institutions. • Self-control of the learning process, diagnosis of training needs, reflective analysis on own professional activity.

Level descriptor elements			
	Knowledge	***Abilities***	***Transversal competences***
Level 8	• Systematic, advanced knowledge of the concepts, research methods, controversies and specific hypotheses new to the field; communication with specialist from related fields. • Use of advanced principles and methods to explain and interpret, from multiple perspectives, new and complex theoretical and practical situations/problems, that are specific to the respective field.	• Selection and use of advanced principles, theories and methods of knowledge, transfer of methods from one field to another, interdisciplinary approaches to solving new and complex theoretical and practical problems. • Critical-constructive assessment of projects and scientific research results, appraisal of the stage of theoretical and methodological knowledge; identification of knowledge and applicative priorities within the field. • Design and undertake original research, based on advanced methods leading to the development of scientific and technological knowledge and/or of the research methodologies.	• Innovative initiation and development of complex theoretical and practical projects. • Assuming responsibility and capacity to organise and lead the activities of professional groups, scientific research groups or institutions. • Development of creativity-centered projects as the basis for self-accomplishment.

Slovakia

Main NQF level descriptor elements in Slovakia

Level descriptor elements		
Knowledge	***Skills***	***Competences***

Descriptors for levels 1-8 ([71])

	Knowledge	***Skills***	***Competences***
Level 1	• Must have basic general factual and theoretical knowledge at the level of remembering and understanding required for work in familiar conditions.	• Must be able to apply basic knowledge in an activity taking place in familiar situations under unchanged conditions. • Must be able to carry out simple activities under supervision of a superior, with limited responsibility in a controlled process.	• Must be able to communicate in the mother tongue, fluently and aptly, both in writing and orally, and transfer the information within the working group. • Must be able to take part in simple responsible activities, be aware of one's own share of responsibility.
Level 2	• Must have basic factual and theoretical knowledge at the level of remembering and understanding required for work in familiar conditions, including small modifications, with guidance of a superior. • Must be able to apply knowledge of simple facts and ideas.	• Must be able to identify the activities and sequence of particular steps in a work activity. • Must be able to carry out, in a high quality, simple routine, operations under familiar conditions. • Must be able to use simple methods, tools, materials in familiar conditions.	• Must be able to think logically in simple concrete tasks required of him or her in simple situations. • Must be able to identify a problem in routine situations, formulate basic information on the problem and its solution for others, and be aware of his/her own position within a team.

([71]) Ministry of Education, Science, Research and Sports. March 2011. *The national qualifications framework of the Slovak Republic and the referencing of the levels to the levels of the EQF*. The process of NQF revision and fine-tuning of level descriptors is ongoing at the moment in Slovakia.

	Knowledge	*Skills*	*Competences*
Level 3	• Must be able to apply basic factual knowledge, principles and processes, general concepts in an occupational area or field of study. • Must be able to apply basic theoretical knowledge in performing simple tasks within an occupational area or field of study.	• Must be able to orientate oneself in routine technical and non-technical documentation, norms and standards used within a field of study. • Must be able to apply simple, concrete, creative and logical thinking required to select and use appropriate information, work procedures, methods, tools, raw materials, machinery, etc. in accordance with routine conditions and performance standards of partial or complex tasks.	• Must be able to complete tasks and adapt one's own behaviour within the guidelines of common work contexts. • Must be able to take and assume responsibility for the accomplishment of independent tasks within an occupation or field of study. • Must be able to manage a smaller group of people, with some degree of autonomy in common contexts.
Level 4	• Must be able to analyse factual knowledge, principles and processes, general concepts in broadly defined contexts within an occupational area or field of study. • Must be able to analyse theoretical knowledge in performing more complex tasks in broadly defined contexts within an occupational area or field of study.	• Must be able to orientate oneself in specific technical and non-technical documentation, norms and standards used within a field of study. • Must be able to apply basic abstract logical thinking required to select and use appropriate information, work procedures, methods, tools, raw materials, materials, machinery, etc. in accordance with varying conditions and specific performance standards of complex tasks.	• Must be able to complete and take some responsibility for complex tasks and adapt one's own behaviour within the guidelines of work or study contexts that are predictable, or subject to change. • Must be capable of self-management and supervision of a group of people, with some degree of autonomy, in contexts that are usually predictable, but may be subject to change.
Level 5	• Must be able to analyse and synthesise extensive and specialised, factual knowledge, principles and processes, general concepts in broadly defined contexts within an occupational area or field of study and must have an awareness of boundaries of that knowledge. • Must be able to analyse and synthesise theoretical knowledge in performing complex tasks in broadly defined contexts within an occupational area or field of study and must have an awareness of boundaries of that knowledge.	• Must be able to orientate oneself in a broad range of technical and non-technical documentation, norms and standards used within a field of study. • Must be able to apply abstract logical thinking required to generate and develop creative solutions of specific information, abstract work procedures and problems under unpredictable conditions. • Must be able to perform complex specific activities and, progressively, use methods, tools, equipment and materials in partially unpredictable conditions and propose simple methods and procedures.	• Must be able to complete and manage complex tasks, including supervision in contexts of work or study activities where there is unpredictable change. • Must be able to take and assume full responsibility for the management, limited responsibility for the evaluation and development of activities, evaluate and develop one's own performance and that of others in unpredictable work or study contexts.

	Knowledge	*Skills*	*Competences*
Level 6	• Must have crosscutting knowledge of a field of study, with an emphasis on applications, at a level corresponding to the current state of knowledge. • Must have broad knowledge and understanding of a specialised area, including the knowledge of practical connections and relations to relevant fields.	• Must be able actively to acquire information and use it to solve practical problems in a field of study. • Must be able to solve practical problems in a field using current research and development procedures, exercising critical judgement of their expediency and adequacy.	• Must be able to solve professional tasks and coordinate partial activities and take responsibility for the performance of the team. • Must be able to identify and evaluate ethical, social, and other implications of investigated problems. • Must be able to acquire new knowledge independently and actively extend one's own knowledge.
Level 7	• Must have deep and crosscutting knowledge of a specialised area including knowledge of connections and relations to relevant fields. • Must have knowledge and understanding of theories, methods and procedures used in a field, with potential applications in science and research.	• Must be able actively to acquire new knowledge and information, integrate and use it in applications for the development of a field. • Must be able creatively to solve theoretical and practical problems in a field, using the theory, and research and development procedures. • Must be able to contribute to the development of a field of study by acquiring new knowledge in solving relevant tasks.	• Must be able to solve problems, coordinate the courses of action in teams, and take decisions, autonomously and responsibly, in a changing environment. • Must be ready to take responsibility for one's own activity and decisions, with account taken of broader social implications. • Must be able to formulate information on the progress and outcomes of the solution of tasks, discuss professional views with experts.
Level 8	• Must have a systematic, self-contained and comprehensive body of knowledge of a specialised area, including the knowledge and understanding of relations to other parts of a field and to related fields. • Must have deep understanding of theories, sophisticated methods and procedures of science and research meeting the highest international criteria.	• Must be able actively to acquire new knowledge and information, critically analyse and re-evaluate it and use it, both, in theory and in practical applications for the development of a field of study. • Must be able to apply and creatively refine and develop theories and research, development and innovation procedures in a field of study and develop new ones. • Must be able to identify the world scientific and innovation developments in a field of study and in related fields and use them in steering and developing a field, while integrating knowledge from different fields.	• Must be able to plan for and initiate solutions of complex problems/projects, including formulating of objectives, tools, and methods in the area of the development of a field. • Must be able to assess and modify own professional activity in a broader context, in relation to long-term impact on the field and from the aspect of social, ethical, environmental and other criteria. • Must be able to formulate information on outcomes and conclusions of the scientific, research and development work at an international level, and manage comprehensive research tasks and teams.

Slovenia

Main NQF level descriptor elements in Slovenia

Level descriptor elements		
Knowledge	***Skills***	***Competence***
Is the result of learning and acquisition of concepts, principles, theories and practices. It is obtained in different settings: in education, at work and in the context of private and social life.	In the context of the Slovenian qualifications framework, skills are described as cognitive (e.g. use of logical, intuitive and creative thinking) and/or practical (e.g. manual skills, creative skills, the use of materials, tools and instruments).	Pertains to the ability to use and integrate knowledge and skills in educational, work, personal and/or professional situations. Competences vary in the light of their complexity, independence and responsibility for action. We distinguish between generic and vocationally-specific competences.

Descriptor for levels 1-10 ([72])

	Knowledge	***Skills***	***Competence***
Level 1	Elementary general knowledge enabling continuing systematic learning.	Basic literacy and the ability to learn data and facts. Demonstrating practical skills enabling to perform simple, repetitive task or a short sequence of simple tasks.	Ability to operate in a specifically defined and highly structured setting.

([72]) Slovenian Institute for Vocational Education and Training (2011). *Slovenian qualifications framework: proposal by the steering committee group on the preparation of the national qualifications framework*. http://www.nok.si/en/files/nok/userfiles/datoteke/68_file_path.pdf [accessed 7.5.2013].

	Knowledge	***Skills***	***Competence***
Level 2	Basic general and applied knowledge with the understanding of the main social and natural concepts, processes and laws. This serves as the basis for further learning and social participation.	Basic functional linguistic, mathematical, natural science, digital and cultural competence. Demonstrating practical skills, including the use of basic tools, methods and materials. Performing simple, repetitive tasks, consisting of a small number of operations.	Ability to engage in a restrictedly independent activity based on oral or written instructions and to acquire new knowledge and skills in a foreseeable and structured setting. Accepting limited responsibility.
Level 3	Predominantly practical, life-and vocationally relevant knowledge with some theoretical basis, acquired primarily through the examination of examples, imitation and practice in the context of a specific discipline.	Basic functional linguistic, mathematical, natural science, digital and cultural competence. Demonstrating practical skills, including the use of basic tools, methods and materials. Using well-known solutions when resolving predictable problems within a limited scope. Performing transparent and standardised tasks.	Ability to acquire new knowledge and skills in a structured setting and under appropriate guidance. Ability to engage in a restrictedly independent activity in a predictable and structured setting based on simple oral or written instructions. Accepting limited responsibility.
Level 4	Predominantly vocational knowledge supplemented by the knowledge of theoretical principles, notably from the relevant discipline. Examination of examples, integration and application of knowledge take precedence over scientific systematism principles.	Applying knowledge in resolving different tasks and problems, also in less typical situations. Demonstrating skills which in terms of the scope of action are wide-ranging and specialised, including the use of appropriate tools, methods and different technology procedures and materials. Performing relatively transparent, less standardised tasks.	Ability to operate in a well-known and less familiar setting with greater responsibility and independence. Assuming responsibility for quality of products/services linked to work tasks or work processes. Assuming responsibility for one's own learning. Acquiring new knowledge and skills in a controlled setting. This level is characterised by certain entrepreneurial orientation, ability to organise and be included in working groups.
Level 5	General and/or professional knowledge acquired by getting to know different scientific and/or professional fields and theoretical principles. This serves as the basis for further learning and some depth of understanding of the discipline. Learning proceeds primarily by way of analytical thinking.	Demonstrating skills which in terms of the scope of action are wide-ranging and can also be specialised, including the use of appropriate tools, methods, different technology procedures, materials and theories. Assessing and using information to take decisions and resolve different problems or atypical situations. Formulating solutions in connection with well-defined abstract problems. Performing different and often non-standardised tasks.	Ability to operate in different and specific settings. Assuming responsibility for characteristics and quality of the work process and results, whereby independence and some level of self-initiative is demonstrated. Assuming responsibility and initiative for the acquisition of new knowledge and skills. This level is characterised by entrepreneurial orientation, ability to organise and be included in complex and heterogeneous working groups.

	Knowledge	***Skills***	***Competence***
Level 6	Professional and theoretical knowledge in the specific field as well as practical knowledge for resolving concrete professional tasks. Knowledge enables the resolution of more complex tasks in a specific field of the discipline.	Performing complex operative and professional tasks linked to works in the pipeline and control of work processes, particularly when it comes to works pertaining to organisation and management of the work process. Tasks are complex in terms of the scope of action, normally specialised and involve abstract thinking and the use of appropriate tools, methods, different technology procedures, materials and theories.	Ability to operate in different and specific settings with elements of creativity. Independent activity characterised by taking on responsibility for the work of individuals, groups, material sources and information. Performing in numerous, complex and heterogeneous situations. In addition, it is required to have the ability to make basic connections and place issues in a general social context. Identifying one's own learning needs and providing for knowledge transfer in a work setting.
Level 7	In-depth professional – theoretical and practical – knowledge in a specific field backed by a broader theoretical and methodological basis.	Performing complex operative and professional tasks which also involve the use of methodological tools. Managing demanding and complex work processes through the independent use of knowledge in new work situations. Diagnosing and resolving problems in different and specific work settings linked to education and training. The basis for original findings and critical reflection.	Ability to operate in different settings and functions and to articulate new knowledge. Assuming responsibility for determining and achieving one's own work results and/or work results of a heterogeneous group in defined work areas. Ability to participate in an argument-supported debate in specific work settings linked to the education and training domain. Identifying one's own needs for learning, assuming initiative for one's own learning, having ability to transfer knowledge in a group.
Level 8	In-depth theoretical, methodological and analytical knowledge with elements of research serving as the basis for very complex professional work.	Managing highly demanding and complex work processes and methodological tools in specialised areas. Working situations are normally atypical. Planning and guiding work processes by way of creative resolution of problems linked to the education and training area. Ability to formulate original findings and engage in critical reflection.	Independently and autonomously performing tasks in normally atypical settings, in wider and multidisciplinary settings. Ability to assume responsibility for one's own professional development. Assuming responsibility for decisions pertaining to activities, processes and management of complex and heterogeneous groups. Ability to guide independently, professionally and ethically one's own learning and learning of others in different settings.

	Knowledge	***Skills***	***Competence***
Level 9	In-depth theoretical and methodological work serving as the basis for original research and scientific work creating new knowledge.	Planning, guiding and performing the most complex works, including participation in scientific and research projects and resolving theoretical and practical problems in special work situations. Ability to formulate original findings, engage in critical reflection and abstract thinking.	Autonomously performing tasks in atypical settings, or multidisciplinary settings connected to basic and/or applied scientific and research work. Ability to assume responsibility for one's own professional development and development of the discipline. Ability to guide independently, professionally and ethically one's own learning and learning of others in different settings.
Level 10	In-depth knowledge for independent and original scientific and research work or development of a discipline at the highest level, which is also linked to scientific and/or professional recognition in the local and international environment.	Planning, guiding and performing the most complex tasks, including scientific and research projects as well as resolving the most complex theoretical and practical problems. Ability to engage in critical reflection, in-depth abstract thinking and synthesise new and complex ideas.	Ability prominently and autonomously to create, interpret and search for answers to the most abstract and complex questions in the discipline and science. Ability to transfer knowledge between the discipline and science by engaging in a critical dialogue and ability to assess responsibly the impact stemming from the use of new knowledge in different settings.

Spain

Main NQF level descriptor elements in Spain

Knowledge described as theoretical and/or practical:	**Skills and abilities** described as cognitive and practical:	**Competence** described as autonomy and responsibility:
• to have or understand knowledge.	• to apply knowledge; • ability to communicate in various languages; • analysis ability.	• learning ability; • attitudes.

Descriptors for levels 1-8 ([73])

	Knowledge	***Skills and abilities***	***Competence***
Level 1	• Enough basic knowledge to meet the needs arisen in everyday life.	• To read, write and apply the basic calculus techniques. • Basic skills necessary to carry out ordinary tasks. • Basic communication that makes it possible to express and understand simple messages and to manage everyday situations. • Analysis of the consequences of one's own actions in simple contexts.	• Work or study directly supervised in a structured context. • Adequate attitudes to manage everyday life, as well as to understand their environment.

([73]) Draft level descriptor. October 2012.

	Knowledge	*Skills and abilities*	*Competence*
Level 2	• Basic knowledge in a work field or in different study areas.	• Basic knowledge application to carry out simple tasks in a field of work or in everyday life. • Skills to solve simple problems in a specific work area. • Communication of knowledge, abilities, feelings and activities in simple contexts. • Basic use of new technological resources and communication in a field of work or in everyday life. • Introduction to communication by means of different artistic representations and expressions. • Analysis of the consequences of one's and others' actions in simple contexts.	• Supervised work or study with a certain degree of autonomy. • Responsibility regarding everyday situations that demand some analysis and assessment ability. • Effective attitude in all areas of personality and in relationships with others that makes coexistence easier and which is against violence and any kind of prejudices.
Level 3	• General knowledge of facts, principles, processes and concepts in a work field or in different study areas, mainly linguistic, mathematical, natural environment, social, cultural and artistic.	• Application of general knowledge and the necessary skills to carry out tasks and to solve problems selecting and applying methods, tools, materials and general information in specific contexts. • Communication of knowledge, abilities, feelings and activities in relatively simple contexts. • Basic use of new technological resources and in communication through different artistic representations and expressions in a work or study field. • Analysis and resolution of problems in a concrete context	• Individual or team work or study taking responsibilities. • Adapting own behavior to the circumstances in a responsible way to solve problems and to understand others.
Level 4	• Knowledge in wide contexts in various study areas or in a specialised professional field.	• Knowledge application to carry out a set of activities in defined and generally previewed contexts. • Skills to resolve generally predictable problems in the knowledge areas or a field of work. • Supervision of other people's everyday work taking some responsibility for the evaluation and	• Self-management of education in a study or professional field, with maturity to improve learning and training skills at higher levels. • Responsible attitudes towards education that will allow them realise the value of new possibilities and of

	Knowledge	Skills and abilities	Competence
		improvement of work or study activities. • To communicate knowledge, abilities, feelings and activities correctly in generally predictable contexts through different resources and forms of expression. • Analysis of the consequences of one's and others' actions in generally predictable contexts. • Analysis of concrete information needed to assess and solve problems within their own study or professional field. • Finding creative solutions for problems in a study or professional field.	carrying out activities independently. • Responsible attitude towards other people's work, enabling them critically to value new possibilities to make improvements. • Responsible attitude regarding the application of workplace risk prevention, their own and people's safety, work quality and environmental protection where professional activity is carried out.
Level 5	• Specialised knowledge in a study or professional field, with critical comprehension for transferring, integrating and innovating knowledge.	• Advanced technological knowledge application and integration when defining and developing both predictable and not predictable working procedures. • Management and supervision of the work techniques and outcomes, carried out by oneself and other people. • To communicate knowledge, abilities, feelings and activities properly in predictable and not predictable contexts. • Correct management of technological resources in a work or study field. • Analysis of the consequences of one's and other's actions in predictable and not predictable contexts. • Analysis of varied and wide information, necessary for evaluating and solving problems within its study or professional field. • Search for creative and innovative solutions when solving problems in a study or professional field.	• Self-management of education in a study or professional field with the aim of making progress to higher training levels or of improving the application of new knowledge. • Autonomy and responsibility for carrying out predictable and unpredictable activities in a professional field, and in charge of supervising the activities by subordinate people • Responsibility and autonomy so as to implement and supervise workplace risk prevention, people safety, work quality and protection of the environment where the professional activity is carried out.

	Knowledge	*Skills and abilities*	*Competence*
Level 6	• Specialised and advanced knowledge based on study and/or on the professional experience, including some knowledge in the vanguard of a study or work field.	• Application of knowledge in complex work contexts in a professional way. • Command and innovation qualities, necessary for solving complex and unforeseeable problems in a specialised work or study field. • Management of activities or complex technical or professional projects, assuming responsibilities for taking decisions in unforeseeable work or study contexts. • Communication and transfer of information, ideas, problems and solutions both to a specialised and to a non-specialised audience. • advanced use of technological resources in a specialised work or study field. • preparation, argument defence and problem solutions within their work and study field. • critical comprehension of theories and principles. • synthesis and interpretation of significant data within their work or study field.	• Self-management of training in a professional field, with maturity enough for innovating in its application and making progress in learning and training at higher levels. • Responsible attitude towards work and training, making possible to assume responsibilities concerning the management of individuals and group professional development.
Level 7	• Highly specialised knowledge in the vanguard of a specific work or study field, laying the foundations of original thought or research.	• Application of achieved knowledge with a high level of creativity and autonomy. • Solution to wide and multidisciplinary problems related to their work or study field. • Solution to research or innovation problems, to develop new knowledge and procedures, and to integrate knowledge in different fields. • Management and change of complex and unforeseeable work or study contexts requiring new strategic approaches. • Conclusions communication and transfer- as well as knowledge and latest thinking supporting them – to specialised and non-specialised audience in a clear and non-ambiguous way.	• Self-management of knowledge application and improvement to the point of being original when developing and implementing ideas and carrying out activities for advancing in the knowledge of a study or professional field. • Responsible attitude towards work and training, making it possible to develop supervision activities as a team in a completely autonomous way. • Ability to assume responsibilities concerning the knowledge development and/or vocational practices and the supervision of teams strategic performance.

	Knowledge	***Skills and abilities***	***Competence***
		• Very advanced use of technological resources in a specialised work or study field. • Analysis and criticism in a specific field and at the point of articulation between different fields. • Integration of knowledge and formulation of complex opinions from incomplete or limited information, including reflections about social and ethical responsibilities linked to their knowledge and opinion application.	
Level 8	• Knowledge at the most advanced point of a study field or a specific study and at the articulation point between different fields. • Methods of advancing the knowledge related to a study or professional field.	• Scientific, technical or professional rigor, to conceive, design, put into practice and assume an essential process of knowledge. • Application of the most advanced and specialised techniques, in particular with regard to synthesis and assessment, necessary for solving critical problems in the research and/or innovation and for increasing and redefining existing knowledge or vocational practices. • Communication with colleagues, with the academic or professional community as a whole and with society in general about the knowledge fields with a high level of depth and rigor. • Innovative use of technological resources in a specialised work or study field. • Critical analysis, with evaluation and synthesis of new and complex ideas at the highest level.	• Promotion, in academic and professional contexts, of the technological, social or cultural advance within a society based on knowledge. • Responsible and creative attitude towards the advance of the knowledge, making possible to develop and carry out activities as a team in an autonomous way. • Authority, innovation, autonomy, essential professional and academic integrity and continuous commitment, authorised according to the development of new ideas or processes in the vanguard of work or study contexts, including research.

Sweden

Main NQF level descriptor elements in Sweden

Knowledge	Skills	Competence
(experience-based and/or theoretical)	(performs tasks and solve problems)	(ability to take responsibility, to evaluate, and to act autonomously and to cooperate with others)

Descriptors for levels 1-8 ([74])

	Knowledge (experience-based and/or theoretical)	Skills (perform tasks and solve problems)	Competence (ability to take responsibility, to evaluate, to act autonomously and to cooperate with others)
Level 1	**Can demonstrate:** • basic general knowledge of a field of work or study; • understanding of the essence of simple instructions and descriptions in a field of work or study.	**Knows how:** • to perform routine tasks in a field of work or study; • to follow simple instructions and descriptions in a field of work or study.	**Knows how:** • to perform simple tasks under supervision; • to cooperate with others under supervision.
Level 2	**Can demonstrate:** • broader knowledge in a field of work or study; • knowledge of how facts can be gathered, compiled and presented.	**Knows how:** • to apply given rules, methods and tools to perform assigned tasks; • to follow instructions and descriptions in a field of work or study; • retrieve and process factual information from various fields of work or study.	**Knows how:** • to perform work or studies with a certain degree of independence and take responsibility for simple assignments; • cooperate with others under supervision and contribute to collective results; • evaluate the performance of his or her own assignments.

([74]) Level descriptors are in draft form.

	Knowledge (experience-based and/or theoretical)	**Skills** (perform tasks and solve problems)	**Competence** (ability to take responsibility, to evaluate, to act autonomously and to cooperate with others)
Level 3	**Can demonstrate:** • the knowledge necessary to perform assignments in a certain field of work or study; • knowledge of various procedures for collecting, organising and presenting information.	**Knows how:** • to select and use information using stipulated methods, tools and materials; • to perform assignments both alone and in a group within given time frames; • autonomously to retrieve and process • information; • to communicate experience and knowledge in his or her native language.	**Knows how:** • to take responsibility for his or her own learning and for ensuring that assigned tasks are completed; • to evaluate his or her own results and group results; • to evaluate information from various sources.
Level 4	**Can demonstrate:** • deeper knowledge in a field of work or study; • knowledge of models and methods in a field of work or study.	**Knows how:** • to select and use relevant concepts, theories, models, materials, tools and methods in a particular field of work or study; • to follow instructions and perform defined practical and theoretical tasks within given timeframes; • to communicate in at least one foreign language in the particular field of work or study.	**Knows how:** • to take initiative, reflect, organise and carry out work and studies autonomously; • to deal autonomously with content in a particular field of work or study that could lead to further learning and professional development; • to evaluate critically and maintain an independent stance relative to source selection; • to evaluate and draw conclusions of his or her own results and group results; • to take responsibility in cooperation with others and to a limited extent to lead and evaluate others' work.
Level 5	**Can demonstrate:** • specialised knowledge in a field of work or study; • knowledge and an overview of fields touching on the person's own field of work or study; • knowledge of work processes and quality criteria within a field of work or study.	**Knows how:** • to plan, perform and identify resources for carrying out specialised assignments; • to resolve complex problems within a field of work or study; • to communicate undertakings and solutions in a field of work or study in at least one foreign language.	**Knows how:** • to handle autonomously content in a field of work or study that leads to further learning and professional development; • to supervise work or study activities and complete assigned projects.

	Knowledge (experience-based and/or theoretical)	**Skills** (perform tasks and solve problems)	**Competence** (ability to take responsibility, to evaluate, to act autonomously and to cooperate with others)
Level 6	**Can demonstrate:** • advanced knowledge in the primary area of the field of work or study; • insight into the field's established methods of knowledge development; • in-depth knowledge in some part of the field and an orientation in current research and development topics in the field.	**Knows how:** • to identify, formulate, analyse and solve problems and perform complex tasks; • to communicate undertakings and solutions within the field of work or study, in both national and international contexts.	**Knows how:** • to evaluate information and methods within the field of work or study in consideration of relevant social, ethical and scientific aspects; • to apply specialised knowledge for development with the field of work or study; • to take responsibility for leading individual and group development through work.
Level 7	**Can demonstrate:** • highly advanced knowledge in a field of work or study; • deep knowledge of the research and development methods current in the field; • in-depth insight into the current research and development issues of the field.	**Knows how:** • to participate in research and development work; • to identify and formulate questions; • to analyse, evaluate and solve advanced, complex problems; • to communicate the knowledge base and conclusions of research and of the field, in both national and international contexts.	**Knows how:** • to evaluate information, fact base and methods within a field of work or study, in consideration of relevant aspects; • to identify any need for further knowledge; • to evaluate the potential and limitations of a particular field; • to take responsibility and lead, within the student's own field of work or study; • to take responsibility for the results of his or her own research and/or development work.
Level 8	**Can demonstrate:** • the most advanced and systematic knowledge in a field of work, study or research; • current specialist knowledge within a well-defined subfield and a general picture of closely related fields; • a mastery of methods of knowledge development in general, and of the methods of the particular field of work, study or research in particular.	**Knows how:** • to analyse, synthesise and critically review and assess complex phenomena; • questions and situations; • to plan and implement development or research work and other qualified tasks; • to communicate the results of development and research in both national and international contexts.	**Knows how:** • to evaluate the research or development work of the particular field of work or study; • to create and select his or her own research/innovation/development tasks; • to evaluate the potential and limitations of qualified development work or science; • to take responsibility for how the results of development or research are used; • to take responsibility for/lead professional and operations development.

Turkey

Main NQF level descriptor elements in Turkey

Knowledge	*Skills*	*Competence*
Under the scope of TQF 'knowledge' is defined in general as theoretical and/or practical knowledge involving the comprehension of facts, principles, theories and practices related to an area of work or learning.	Under the scope of TQF 'skill' is defined in general as 'utilisation of knowledge', 'problem-solving', 'transferring knowledge and skills to others' which requires the ability to use logical, intuitive and creative thinking and dexterity, method, material, tools and instruments acquired in an area of work or learning.	Under the scope of TQF 'competence' is defined as utilisation of knowledge and skills in an area of work and/or learning by taking responsibility and/or displaying autonomy, determination and satisfaction of learning requirements.

Descriptors for levels 1-8 ([75])

	Knowledge	*Skills*	*Competence*
Level 1	Possess basic knowledge to perform simple activities in line with the given instructions in familiar environments of learning or work.	Perform routine activities in line with the instructions using the basic knowledge in in familiar environments of learning or work.	Take limited responsibility to perform routine activities under guidance and supervision.
Level 2	Possess basic theoretical knowledge and practical knowledge related to the standard tools, instruments and methods required to perform clearly defined activities related to an area of work or learning.	Utilise the knowledge required to perform clearly defined activities related to an area of work or learning and to work out solutions for the problems foreseen.	Take responsibility in the performance of clearly defined activities under guidance and/or supervision, and determine needs and goals of learning under guidance.

([75]) Draft level descriptors of TQF, October 2012.

	Knowledge	***Skills***	***Competence***
Level 3	Possess theoretical and practical knowledge required to perform uncomplicated activities in different environments related to an area of work or learning.	Interpret data, evaluate results, select appropriate standard tasks and methods and apply them systematically, provide solutions to unforeseen problems related to uncomplicated activities in an area of work or learning.	Take responsibility in performing uncomplicated activities under limited guidance and/or supervision; determine needs and goals of learning under guidance, when guidance is required.
Level 4	Possess theoretical and practical knowledge required to perform complicated activities in different environments related to an area of work or learning.	Analyse data, interpret results, select appropriate tasks and methods and apply them systematically, provide solutions to unique and/or unforeseen problems related to complicated activities in an area of work or learning; transfer knowledge and skills to others when required.	Take responsibility in performing complicated activities in standard settings; undertake supervision and limited audit over activities which are performed by others under one's responsibility; satisfy needs of learning and set future goals of learning.
Level 5	Possess theoretical and practical knowledge required for expertise in an area of work or learning.	Analyse data that belong to complicated and interrelated activities in an area or work or learning, evaluate results with an interrogative approach, draw conclusions, define appropriate tasks and methods and apply them or have them applied systematically; develop evidence- based solutions to unique and/or unforeseen problems encountered for the first time; transfer knowledge and skills to others.	Take limited responsibility in performing complicated activities in environments where unforeseen changes take place; undertake supervision and audit over activities which are performed by others under one's responsibility; satisfy learning needs in line with learning goals, guide people under one's responsibility related to the determination of their learning needs and development of their performance.
Level 6	Possess advanced theoretical and practical knowledge required for expertise in an area of work or learning.	Analyse approaches, methods and tasks related to activities in an area of work or learning with a holistic perspective, evaluate results critically, suggest improvements based on research and evidence; predict likely problems in new practices and suggest preventive action; inform others about improvements and solutions developed.	Take responsibility as an individual or a team member in performing complicated activities in environments where unforeseen changes take place; conduct an advanced assignment or project partially independently; plan and manage activities for the project-based development of others under one's responsibility; plan and manage activities to develop self-performance and performance of others under one's responsibility in line with goals of learning.

	Knowledge	***Skills***	***Competence***
Level 7	Possess advanced theoretical and practical knowledge which provide a basis for the development of original ideas in an area of work or learning; comprehend interdisciplinary interactions related to the area.	Interpret knowledge one has gained in an area of work or learning through integrating them with knowledge in other disciplines, formulate new knowledge, methods and approaches; solve complicated unforeseen problems in one's area through using research methods; Transfer newly-formulated knowledge, methods, approaches and suggested solutions to others.	Take responsibility as an individual or a team member in performing complicated activities in environments where unforeseen and complicated changes exist and under conditions requiring new strategic approaches; conduct an advanced assignment or project independently; Lead studies in his/her area, evaluate the strategic performance of persons and groups under one's responsibility and manage improvement activities.
Level 8	Possess highly advanced knowledge in development of original thoughts, approaches, design, method and techniques in area of work or learning; relate these to multiple disciplines.	Develop an innovative thought, method, approach, design and/or application in an area of work or learning or adapt an already recognised thought, method, approach, design and/or applications to another area, conduct research on, comprehend, design and apply an original theme; solve emerging complicated problems in one's area using approaches and methods of different disciplines, transfer research and applications results to others.	Take responsibility as an individual or a team member or take leadership in themes requiring innovation and creativity; conduct an advanced original assignment or project independently; encourage continuous learning through activities within and out of one's area, contribute to the sustainable development of the society.

The United Kingdom
England, Northern Ireland and Wales

Qualifications and credit framework (QCF): main elements

Summary	*Knowledge and understanding*	*Application and action*	*Autonomy and accountability*

Descriptors for levels 1-8 ([76])

	Summary	*Knowledge and understanding*	*Application and action*	*Autonomy and accountability*
Entry Level	Entry 1 recognises progress along a continuum that ranges from the most elementary of achievements to beginning to make use of skills, knowledge, or understanding that relate to the immediate environment.			
	Achievement at Entry 2 reflects the ability to make use of skills, knowledge and understanding to carry out simple, familiar tasks and activities with guidance.	• Use knowledge or understanding to carry out simple, familiar activities. • Know the steps needed to complete simple activities.	• Carry out simple, familiar tasks and activities. • Follow instructions or use rehearsed steps to complete tasks and activities.	• With appropriate guidance begin to take some responsibility for the outcomes of simple activities. • Actively participate in simple and familiar activities.
	Achievement at Entry 3 reflects the ability to make use of skills, knowledge, and understanding to carry out structured tasks and activities in familiar contexts, with appropriate guidance where needed.	• Use knowledge or understanding to carry out structured tasks and activities in familiar contexts. • Know and understand the steps needed to complete structured tasks and activities in familiar contexts.	• Carry out structured tasks and activities in familiar contexts. • Be aware of the consequences of actions for self and others.	• With appropriate guidance take responsibility for the outcomes of structured activities. • Actively participate in activities in familiar contexts.

([76]) Ofqual (2008). *Regulatory arrangements for qualifications and credit framework (QCQ)*. Coventry: Office of the Qualifications and Examinations Regulator. http://www.ofqual.gov.uk/files/Regulatory_arrangements_QCF_August08.pdf [accessed 8.5.2012]. The QCF is jointly regulated by the England's regulator Ofqual, Wales' DCELLS and Northern Ireland's CCEA.

	Summary	*Knowledge and understanding*	*Application and action*	*Autonomy and accountability*
Level 1	Achievement at level one reflects the ability to use relevant knowledge, skills and procedures to complete routine tasks. It includes responsibility for completing tasks and procedures subject to direction or guidance.	• Use knowledge of facts, procedures and ideas to complete well-defined, routine tasks. • Be aware of information relevant to the area of study or work.	• Complete well-defined, routine tasks. • Use relevant skills and procedures. • Select and use relevant information. • Identify whether actions have been effective.	• Take responsibility for completing tasks and procedures subject to direction or guidance as needed.
Level 2	Achievement at level two reflects the ability to select and use relevant knowledge, ideas, skills and procedures to complete well-defined tasks and address straightforward problems. It includes taking responsibility for completing tasks and procedures and exercising autonomy and judgement subject to overall direction or guidance.	• Use understanding of facts, procedures and ideas to complete well-defined tasks and address straightforward problems. • Interpret relevant information and ideas. • Be aware of the types of information that are relevant to the area of study or work.	• Complete well-defined, generally routine tasks and address straightforward problems. • Select and use relevant skills and procedures. • Identify, gather and use relevant information to inform actions. • Identify how effective actions have been.	• Take responsibility for completing tasks and procedures. • Exercise autonomy and judgement subject to overall direction or guidance.
Level 3	Achievement at level three reflects the ability to identify and use relevant understanding, methods and skills to complete tasks and address problems that, while well-defined, have a measure of complexity. It includes taking responsibility for initiating and completing tasks and procedures as well as exercising autonomy and judgement within limited parameters. It also reflects awareness of different perspectives or approaches within an area of study or work.	• Use factual, procedural and theoretical understanding to complete tasks and address problems that, while well-defined, may be complex and non-routine. • Interpret and evaluate relevant information and ideas. • Be aware of the nature of the area of study or work. • Have awareness of different perspectives or approaches within the area of study or work.	• Address problems that, while well-defined, may be complex and non-routine. • Identify, select and use appropriate skills, methods and procedures. • Use appropriate investigation to inform actions. • Review how effective methods and actions have been.	• Take responsibility for initiating and completing tasks and procedures, including, where relevant, responsibility for supervising or guiding others. • Exercise autonomy and judgement within limited parameters.

	Summary	*Knowledge and understanding*	*Application and action*	*Autonomy and accountability*
Level 4	Achievement at level four reflects the ability to identify and use relevant understanding, methods and skills to address problems that are well-defined but complex and non-routine. It includes taking responsibility for overall courses of action as well as exercising autonomy and judgement within broad parameters. It also reflects understanding of different perspectives or approaches within an area of study or work.	• Use practical, theoretical or technical understanding to address problems that are well-defined but complex and non-routine. • Analyse, interpret and evaluate relevant information and ideas. • Be aware of the nature and approximate scope of the area of study or work. • Have an informed awareness of different perspectives or approaches within the area of study or work.	• Address problems that are well-defined but complex and non-routine. • Identify, adapt and use appropriate methods and skills. • Use appropriate investigation to inform actions. • Review the effectiveness and appropriateness of methods, actions and results.	• Take responsibility for courses of action, including where relevant responsibility for the work of others. • Exercise autonomy and judgement within broad parameters.
Level 5	Achievement at level five reflects the ability to identify and use relevant understanding, methods and skills to address broadly-defined, complex problems. It includes taking responsibility for planning and developing courses of action as well as exercising autonomy and judgement within broad parameters. It also reflects understanding of different perspectives, approaches or schools of thought and the reasoning behind them.	• Use practical, theoretical or technological understanding to find ways forward in broadly-defined, complex contexts. • Analyse, interpret and evaluate relevant information, concepts and ideas. • Be aware of the nature and scope of the area of study or work. • Understand different perspectives, approaches or schools of thought and the reasoning behind them.	• Address broadly-defined, complex problems. • Determine, adapt and use appropriate methods and skills. • Use relevant research or development to inform actions. • Evaluate actions, methods and results.	• Take responsibility for planning and developing courses of action, including where relevant responsibility for the work of others. • Exercise autonomy and judgement within broad parameters.
Level 6	Achievement at level six reflects the ability to refine and use relevant understanding, methods and skills to address complex problems that have limited definition. It includes taking	• Refine and use practical, conceptual or technological understanding to create ways forward in contexts where there are many interacting factors.	• Address problems that have limited definition and involve many interacting factors. • Determine, refine, adapt and use appropriate methods and skills.	• Take responsibility for planning and developing courses of action that are capable of underpinning substantial changes or developments.

	Summary	Knowledge and understanding	Application and action	Autonomy and accountability
	responsibility for planning and developing courses of action that are able to underpin substantial change or development, as well as exercising broad autonomy and judgement. It also reflects an understanding of different perspectives, approaches or schools of thought and the theories that underpin them.	• Critically analyse, interpret and evaluate complex information, concepts and ideas. • Understand the context in which the area of study or work is located. • Be aware of current developments in the area of study or work. • Understand different perspectives, approaches or schools of thought and the theories that underpin them.	• Use and, where appropriate, design relevant research and development to inform actions. • Evaluate actions, methods and results and their implications.	• Initiate and lead tasks and processes, taking responsibility, where relevant, for the work and roles of others. • Exercise broad autonomy and judgement.
Level 7	Achievement at level seven reflects the ability to reformulate and use relevant understanding, methodologies and approaches to address problematic situations that involve many interacting factors. It includes taking responsibility for planning and developing courses of action that initiate or underpin substantial change or development, as well as exercising broad autonomy and judgement. It also reflects an understanding of relevant theoretical and methodological perspectives and how they affect their area of study or work.	• Reformulate and use practical, conceptual or technological understanding to create ways forward in contexts where there are many interacting factors. • Critically analyse, interpret and evaluate complex information, concepts and theories to produce modified conceptions. • Understand the wider contexts in which the area of study or work is located • Understand current developments in the area of study or work. • Understand different theoretical and methodological perspectives and how they affect the area of study or work.	• Conceptualise and address problematic situations that involve many interacting factors. • Determine and use appropriate methodologies and approaches. • Design and undertake research, development or strategic activities to inform the area of work or study or produce organisational or professional change. • Critically evaluate actions, methods and results and their short- and long-term implications.	• Take responsibility for planning and developing courses of action that initiate or underpin substantial changes or developments. • Exercise broad autonomy and judgement. • Initiate and lead complex tasks and processes, taking responsibility, where relevant, for the work and roles of others.

	Summary	*Knowledge and understanding*	*Application and action*	*Autonomy and accountability*
Level 8	Achievement at level eight reflects the ability to develop original understanding and extend an area of knowledge or professional practice. It reflects the ability to address problematic situations that involve many complex, interacting factors through initiating, designing and undertaking research, development or strategic activities. It involves the exercise of broad autonomy, judgement and leadership in sharing responsibility for the development of a field of work or knowledge or for creating substantial professional or organisational change. It also reflects a critical understanding of relevant theoretical and methodological perspectives and how they affect the field of knowledge or work.	• Develop original practical, conceptual or technological understanding to create ways forward in contexts that lack definition and where there are many complex, interacting factors. • Critically analyse, interpret and evaluate complex information, concepts and theories to produce new knowledge and theories. • Understand and reconceptualise the wider contexts in which the field of knowledge or work is located. • Extend a field of knowledge or work by contributing original knowledge and thinking. • Exercise critical understanding of different theoretical and methodological perspectives and how they affect the field of knowledge or work.	• Conceptualise and address problematic situations that involve many complex, interacting factors. • Formulate and use appropriate methodologies and approaches. • Initiate, design and undertake research, development or strategic activities that extend the field of work or knowledge or result in significant organisational or professional change. • Critically evaluate actions, methods and results and their short- and long-term implications for the field of work or knowledge and its wider context.	• Take responsibility for planning and developing courses of action that have a significant impact on a field of work or knowledge or result in substantial organisational or professional change. • Exercise broad autonomy, judgement and leadership as a leading practitioner or scholar sharing responsibility for the development of a field of work or knowledge or for substantial organisational or professional change. • Take responsibility for the advancement of professional practice.

Scotland

Main characteristics used for defining SCQF level descriptors in Scotland

- Knowledge and understanding.
- Practice: applied knowledge and understanding.
- Generic cognitive skills.
- Communication, ICT and numeracy skills.
- Autonomy, accountability and working with others.

Descriptors for levels 1-12 ([77])

Level 1	
Knowledge and understanding	SCQF level 1 recognises learning development and achievement that ranges from participation in experiential situations to the achievement of basic tasks, with varying degrees of support.
Practice: applied knowledge, skills and understanding	SCQF level 1 recognises learning development and achievement that ranges from participation in experiential situations to the achievement of basic tasks, with varying degrees of support.
Generic cognitive skills	SCQF level 1 recognises learning development and achievement that ranges from participation in experiential situations to the achievement of basic tasks, with varying degrees of support.
Communications, ICT and numeracy skills	SCQF level 1 recognises learning development and achievement that ranges from participation in experiential situations to the achievement of basic tasks, with varying degrees of support.
Autonomy, accountability and working with others	SCQF level 1 recognises learning development and achievement that ranges from participation in experiential situations to the achievement of basic tasks, with varying degrees of support.
Level 2	
Knowledge and understanding	Demonstrate and/or work with: • basic knowledge; • simple facts and ideas.
Practice: applied knowledge, skills and understanding	• Relate knowledge to a few simple everyday contexts with prompting. • Use a few very simple skills. • Carry out, with guidance, a few familiar tasks. • Use, under supervision, basic tools and materials.
Generic cognitive skills	• Use rehearsed stages for solving problems. • Operate in personal and/or everyday contexts. • Take some account, with prompting, of identified consequences of action.
Communications, ICT and numeracy skills	Use simple skills with assistance, for example: • produce and respond to a limited range of very simple written and oral communication in familiar/routine contexts; • carry out a limited range of simple tasks to process and access information; • use a limited range of simple numerical and graphical data in familiar and everyday contexts.

([77]) *Scottish credit and qualifications framework. SCQF level descriptors (2012).* http://www.scqf.org.uk/content/files/SCQF%20Revised%20Level%20Descriptors%20-%20Aug%202012%20-%20FINAL%20-%20web%20version.pdf [accessed 21.5.2013].

Autonomy, accountability and working with others	• Work alone or with others on simple routine, familiar tasks under frequent directive supervision. • Identify, given simple criteria, some strengths and/or weaknesses of the work.
Level 3	
Knowledge and understanding	Demonstrate and/or work with: • basic knowledge; • simple facts and ideas in, and associated with, a subject, discipline, sector.
Practice: applied knowledge, skills and understanding	• Relate knowledge to personal and/or everyday contexts with some prompting. • Use a few basic, routine skills to undertake familiar and routine tasks. • Complete pre-planned tasks. • Use, with guidance, basic tools and materials safely and effectively.
Generic cognitive skills	• Identify with some prompting a process to deal with a situation or issue. • Operate in familiar contexts using given criteria. • Take account of some identified consequences of action.
Communications, ICT and numeracy skills	Use simple skills, for example: • produce and respond to simple written and oral communication in familiar/routine contexts; • carry out simple tasks to process and access information; • use simple numerical and graphical data in everyday contexts.
Autonomy, accountability and working with others	• Work alone or with others on simple tasks under frequent directive supervision. • Participate in the setting of goals, timelines, etc. • Participate in the review of completed work and the identification of ways of improving practices and processes. • Identify, given simple criteria, own strengths and weaknesses relative to the work.
Level 4	
Knowledge and understanding	Demonstrate and/or work with: • basic knowledge; • some simple facts and ideas in, about, and associated with, a subject/discipline, sector; • knowledge of basic processes, materials and terminology.
Practice: applied knowledge, skills and understanding	• Relate knowledge to personal and/or practical contexts. • Use a few skills to complete straightforward tasks with some non-routine elements. • Prepare for familiar and routine tasks. • Select and use, with guidance, appropriate tools and materials safely and effectively.
Generic cognitive skills	• Use, with guidance, given stages of a process to deal with a problem, situation or issue. • Operate in straightforward contexts. • Identify and/or take account of some of the consequences of action/inaction.
Communications, ICT and numeracy skills	Use some routine skills, for example: • produce and respond to simple but detailed written and oral communication in familiar contexts; • use the basic features of familiar ICT applications to process and obtain information; • use basic numerical and graphical data in straightforward and familiar contexts.

Autonomy, accountability and working with others	• Work alone or with others on tasks with regular, directive supervision. • Contribute to the setting of goals, timelines, etc. • Contribute to the review of completed work and offer suggestions for improving practices and processes. • Identify own strengths and weaknesses relative to the work.
Level 5	
Knowledge and understanding	Demonstrate and/or work with: • basic knowledge; • a range of simple facts, ideas and theories in, about, and associated with, a subject, discipline, sector; • knowledge and understanding of basic processes, materials and terminology.
Practice: applied knowledge, skills and understanding	• Relate knowledge and ideas to personal and/or practical contexts. • Use a range of skills associated with the subject, discipline, sector to complete some routine and non-routine tasks. • Plan and organise both familiar and unfamiliar tasks. • Select appropriate tools and materials and use them safely and effectively. • Adjust tools where necessary following safe practices.
Generic cognitive skills	• Use a process to deal with a problem, situation or issue that is straightforward. • Operate in a familiar context, but where there is a need to take account of/or use additional information of different kinds, some of which will be theoretical or hypothetical.
Communications, ICT and numeracy skills	Use a range of routine skills, for example: • produce and respond to detailed written and oral communication in familiar contexts; • use standard ICT applications to process, obtain and combine information; • use a range of numerical and graphical data in routine contexts that may have some non-routine elements.
Autonomy, accountability and working with others	• Work alone or with others on tasks with minimum directive supervision. • Agree goals and responsibilities for self and/or work team. • Take lead responsibility for some tasks. • Show an awareness of own and/or others' roles, responsibilities and requirements in carrying out work and contribute to the evaluation and improvement of practices and processes.
Level 6	
Knowledge and understanding	Demonstrate and/or work with: • an appreciation of the body of knowledge that constitutes a subject, discipline, sector; • a range of knowledge, facts, theories ideas, properties, materials, terminology, practices and techniques about, and associated with, a subject, discipline, sector; • relating the subject, discipline, sector to a range of practical and/or commonplace applications.
Practice: applied knowledge, skills and understanding	Apply knowledge, skills and understanding: • in known, practical contexts; • in using some of the basic, routine practices, techniques and/or materials associated with the subjects, discipline, sector; • in exercising these in routine contexts that may have non-routine elements; • in planning how skills will be used to address set situations and/or problems and adapt these as necessary.

Generic cognitive skills	• Obtain, organise and use factual, theoretical and/or hypothetical information in problem-solving. • Make generalisations and predictions. • Draw conclusions and suggest solutions.
Communications, ICT and numeracy skills	Use a wide range of skills, for example: • produce and respond to detailed and relatively complex written and oral communication in both familiar and unfamiliar contexts; • select and use standard ICT applications to process, obtain and combine information; • use a wide range of numerical and graphical data in routine contexts which may have non-routine elements.
Autonomy, accountability and working with others	• Take responsibility for carrying out a range of activities where the overall goal is clear, under non-directive supervision. • Exercise some supervisory responsibility for the work of others and lead established teams in the implementation of routine work within a defined and supervised structure. • Manage limited resources within defined and supervised areas of work. • Take account of roles and responsibilities related to the tasks being carried out and take a significant role in the evaluation of work and the improvement of practices and processes.
Level 7	
Knowledge and understanding	Demonstrate and/or work with: • an overall appreciation of the body of knowledge that constitutes a subject/discipline/sector; • knowledge that is embedded in the main theories, concepts and principles of the subject/discipline/sector; • an awareness of the dynamic nature of knowledge and understanding; • an understanding of the difference between explanations based on evidence and/or research and other sources, and of the importance of this difference.
Practice: applied knowledge, skills and understanding	Apply knowledge, skills and understanding: • in practical contexts; • in using some of the basic and routine professional skills, techniques, practices and/or materials associated with the subject/discipline/sector; • to practise these in both routine and non-routine contexts.
Generic cognitive skills	• Present and evaluate arguments, information and ideas that are routine to a subject/discipline/sector. • Use a range of approaches to address defined and/or routine problems and issues within familiar contexts.
Communications, ICT and numeracy skills	Use a wide range of routine skills and some advanced skills associated with a subject/discipline/sector, for example: • convey complex ideas in well-structured and coherent form; • use a range of forms of communication effectively in both familiar and unfamiliar contexts; • select and use standard ICT applications to process and obtain a variety of information and data; • use a range of numerical and graphical skills in combination; • use numerical and graphical data to measure progress and achieve goals/targets.

Autonomy, accountability and working with others	• Exercise some initiative and independence in carrying out defined activities at a professional level in practice or in a subject/discipline/sector. • Accept supervision in less familiar areas of work. • Exercise some managerial or supervisory responsibility for the work of others within a defined and supervised structure. • Manage limited resources within defined areas of work. • Take the lead in implementing agreed plans in familiar or defined contexts. • Take account of own and others' roles and responsibilities when carrying out and evaluating tasks. • Work, under guidance, with others to acquire an understanding of current professional practice.
Level 8	
Knowledge and understanding	Demonstrate and/or work with: • knowledge of the scope, defining features, and main areas of the subject/discipline/sector; • specialist knowledge in some areas; • a discerning understanding of a defined range of core theories, concepts, principles and terminology; • awareness and understanding of some major current issues and specialisms; • awareness and understanding of research and equivalent scholarly/academic processes.
Practice: applied knowledge, skills and understanding	Apply knowledge, skills and understanding: • in using a range of professional skills, techniques, practices and/or materials associated with the subject/discipline/sector, a few of which are advanced and/or complex; • in carrying out routine lines of enquiry, development or investigation into professional level problems and issues; • to adapt routine practices within accepted standards.
Generic cognitive skills	• Undertake critical analysis, evaluation and/or synthesis of ideas, concepts, information and issues that are within the common understandings in a subject/discipline/sector. • Use a range of approaches to formulate and critically evaluate evidence-based solutions/responses to defined and/or routine problems and issues.
Communications, ICT and numeracy skills	Use a wide range of routine skills and some advanced and specialised skills associated with a subject/discipline/sector, for example: • convey complex information to a range of audiences and for a range of purposes; • use a range of standard ICT applications to process and obtain data; • use and evaluate numerical and graphical data to measure progress and achieve goals/targets.
Autonomy, accountability and working with others	• Exercise autonomy and initiative in some activities at a professional level in practice or in a subject/discipline/sector. • Exercise managerial responsibility for the work of others within a defined structure. • Manage resources within defined areas of work. • Take the lead on planning in familiar or defined contexts. • Practise in ways that show awareness of own and others' roles, responsibilities and contributions when carrying out and evaluating tasks. • Work, under guidance, with others to acquire an understanding of current professional practice. • Manage, under guidance, ethical and professional issues in accordance with current professional and/or ethical codes or practices.

Level 9	
Knowledge and understanding	Demonstrate and/or work with: • an understanding of the scope and defining features of a subject/discipline/sector, and an integrated knowledge of its main areas and boundaries; • a critical understanding of a range of the principles, principal theories, concepts and terminology of the subject/discipline/sector; • knowledge of one or more specialisms that is informed by forefront developments.
Practice: applied knowledge, skills and understanding	Apply knowledge, skills and understanding: • in using a range of the principal professional skills, techniques, practices and/or materials associated with the subject/discipline/sector; • in using a few skills, techniques, practices and/or materials that are specialised and/or advanced; • in practising routine methods of enquiry and/or research; • to practise in a range of professional level contexts that include a degree of unpredictability.
Generic cognitive skills	• Undertake critical analysis, evaluation and/or synthesis of ideas, concepts, information and issues in a subject/discipline/sector. • Identify and analyse routine professional problems and issues. • Draw on a range of sources in making judgements.
Communications, ICT and numeracy skills	Use a wide range of routine skills and some advanced and specialised skills in support of established practices in a subject/discipline/sector, for example: • present or convey, formally and informally, information on standard/mainstream topics in the subject/discipline/sector to a range of audience; • use a range of ICT applications to support and enhance work; • interpret, use and evaluate numerical and graphical data to set and achieve goals/targets.
Autonomy, accountability and working with others	• Exercise autonomy and initiative in some activities at a professional level in practice or in a subject/discipline/sector. • Exercise managerial responsibility for the work of others and for a range of resources. • Practise in ways that show awareness of own and others' roles and responsibilities. • Work, under guidance, with specialist practitioners. • Seeking guidance where appropriate, manage ethical and professional issues in accordance with current professional and/or ethical codes or practices.
Level 10	
Knowledge and understanding	Demonstrate and/or work with: • knowledge that covers and integrates most of the principal areas, features, boundaries, terminology and conventions of a subject/discipline/sector; • a critical understanding of the principal theories, concepts and principles; • detailed knowledge and understanding in one or more specialisms, some of which is informed by, or at the forefront of, a subject/discipline/sector; • knowledge and understanding of the ways in which the subject/discipline/sector is developed, including a range of established techniques of enquiry or research methodologies.

Practice: applied knowledge, skills and understanding	Apply knowledge, skills and understanding: • in using a wide range of the principal professional skills, techniques, practices and/or materials associated with the subject/discipline/sector; • in using a few skills, techniques, practices and/or materials that are specialised, advanced and/or at the forefront of a subject/discipline/sector; • in executing a defined project of research, development or investigation and in identifying and implementing relevant outcomes; • to practise in a range of professional level contexts that include a degree of unpredictability and/or specialism.
Generic cognitive skills	• Critically identify, define, conceptualise and analyse complex/professional problems and issues. • Offer professional insights, interpretations and solutions to problems and issues. • Demonstrate some originality and creativity in dealing with professional issues. • Critically review and consolidate knowledge, skills, practices and thinking in a subject/discipline/sector. • Make judgements where data/information is limited or comes from a range of sources.
Communications, ICT and numeracy skills	Use a wide range of routine skills and some advanced and specialised skills in support of established practices in a subject/discipline/sector, for example: • present or convey, formally and informally, information about specialised topics to informed audiences; • communicate with peers, senior colleagues and specialists on a professional level; • use a range of ICT applications to support and enhance work at this level and adjust features to suit purpose; • interpret, use and evaluate a wide range of numerical and graphical data to set and achieve goals/targets.
Autonomy, accountability and working with others	• Exercise autonomy and initiative in professional/equivalent activities. • Exercise significant managerial responsibility for the work of others and for a range of resources. • Practise in ways that show awareness of own and others' roles and responsibilities. • Work, under guidance, in a peer relationship with specialist practitioners. • Work with others to bring about change, development and/or new thinking. • Manage complex ethical and professional issues in accordance with current professional and/or ethical codes or practices. • Recognise the limits of these codes and seek guidance where appropriate.
Level 11	
Knowledge and understanding	Demonstrate and/or work with: • knowledge that covers and integrates most, if not all, of the main areas of the subject/discipline/sector – including their features, boundaries, terminology and conventions; • a critical understanding of the principal theories, concepts and principles; • a critical understanding of a range of specialised theories, concepts and principles; • extensive, detailed and critical knowledge and understanding in one or more specialisms, much of which is at, or informed by, developments at the forefront; • a critical awareness of current issues in a subject/discipline/sector and one or more specialisms.

Practice: applied knowledge, skills and understanding	Apply knowledge, skills and understanding: • in using a significant range of the principal professional skills, techniques, practices and/or materials associated with the subject/discipline/sector; • in using a range of specialised skills, techniques, practices and/or materials that are at the forefront of, or informed by forefront developments; • in applying a range of standard and specialised research and/or equivalent instruments and techniques of enquiry; • in planning and executing a significant project of research, investigation or development; • in demonstrating originality and/or creativity, including in practices; • to practise in a wide and often unpredictable variety of professional level contexts.
Generic cognitive skills	• Apply critical analysis, evaluation and synthesis to forefront issues, or issues that are informed by forefront developments in the subject/discipline/sector. • Identify, conceptualise and define new and abstract problems and issues. • Develop original and creative responses to problems and issues. • Critically review, consolidate and extend knowledge, skills, practices and thinking in a subject/discipline/sector. • Deal with complex issues and make informed judgements in situations in the absence of complete or consistent data/information.
Communications, ICT and numeracy skills	Use a wide range of routine skills and a range of advanced and specialised skills as appropriate to a subject/discipline/sector, for example: • communicate, using appropriate methods, to a range of audiences with different levels of knowledge/expertise; • communicate with peers, more senior colleagues and specialists; • use a wide range of ICT applications to support and enhance work at this level and adjust features to suit purpose; • undertake critical evaluations of a wide range of numerical and graphical data.
Autonomy, accountability and working with others	• Exercise substantial autonomy and initiative in professional and equivalent activities. • Take responsibility for own work and/or significant responsibility for the work of others. • Take significant responsibility for a range of resources. • Work in a peer relationship with specialist practitioners. • Demonstrate leadership and/or initiative and make an identifiable contribution to change and development and/or new thinking. • Practise in ways which draw on critical reflection on own and others' roles and responsibilities. • Manage complex ethical and professional issues and make informed judgements on issues not addressed by current professional and/or ethical codes or practices.

Level 12	
Knowledge and understanding	Demonstrate and/or work with: • a critical overview of a subject/discipline/sector, including critical understanding of the principal theories, concepts and principles; • a critical, detailed and often leading knowledge and understanding at the forefront of one or more specialisms; • knowledge and understanding that is generated through personal research or equivalent work that makes a significant contribution to the development of the subject/discipline/sector.
Practice: applied knowledge, skills and understanding	Apply knowledge, skills and understanding: • in using a significant range of the principal professional skills, techniques, practices and/or materials associated with the subject/discipline/sector; • in using and enhancing a range of complex skills, techniques, practices and/or materials that are at the forefront of one or more specialisms; • in applying a range of standard and specialised research and/or equivalent instruments and techniques of enquiry; • in designing and executing research, investigative or development projects to deal with new problems and issues; • in demonstrating originality and creativity in the development and application of new knowledge, understanding and practices; • to practise in the context of new problems and circumstances.
Generic cognitive skills	• Apply a constant and integrated approach to critical analysis, evaluation and synthesis of new and complex ideas, information and issues. • Identify, conceptualise and offer original and creative insights into new, complex and abstract ideas, information and issues. • Develop original and creative responses to problems and issues. • Deal with complex and/or new issues and make informed judgements in the absence of complete or consistent data/information.
Communications, ICT and numeracy skills	Use a wide range of routine skills and a significant range of advanced and specialised skills as appropriate to a subject/discipline/sector, for example: • communicate at an appropriate level to a range of audiences and adapt communication to the context and purpose; • communicate at the standard of published academic work and/or critical dialogue and review with peers and experts in other specialisms/sectors; • use a range of ICT applications to support and enhance work at this level and specify software requirements to enhance work; • critically evaluate numerical and graphical data.
Autonomy, accountability and working with others	• Demonstrate substantial authority and exercise a high level of autonomy and initiative in professional and equivalent activities. • Take full responsibility for own work and/or significant responsibility for the work of others. • Take significant responsibility for a range of resources. • Demonstrate leadership and/or originality in tackling and resolving problems and issues. • Practise in ways which are reflective, self-critical and based on research/evidence. • Manage complex ethical and professional issues and make informed judgements on new and emerging issues not addressed by current professional and/or ethical codes or practices.

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Level descriptors are essential elements of national qualifications frameworks being established across Europe. They define what is meant by learning outcomes, describing what an individual is expected to know, be able to do and understand, having acquired a qualification at a particular level.
This Cedefop working paper shows that most of the 36 countries taking part in the implementation of the European qualifications framework (EQF) have now (spring 2013) defined – and for a large part adopted – their levels of learning outcomes.
The analysis illustrates the influence of the EQF on national level descriptors, but it also demonstrates how countries have adjusted and further developed the learning outcomes approach according to national needs and priorities. National level descriptors have mostly been developed through extensive dialogue between different stakeholders.
This report supports EQF implementation and feeds directly into the referencing process, in which countries relate their national qualifications levels to the EQF. It also provides input into continuing evaluation of the EQF, to be concluded by a report of the European Commission to the European Parliament and Council later in 2013.

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