Leonardo da Vinci Transfer of Innovation Project

EC-AQUA

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http://ec-aqua.org

EC-AQUA competence map

Tutorial to training providers

Contractor: Scientific Research Department of the Sofia University (NIS-SU)

Sofia, 2013

LLP - Leonardo da Vinci

Transfer of Innovation Project

Implementation of ECVET for qualification design in sanitation and water loss management

EC-AQUA

LLP-LdV-TOI-2011-1BG1-LEO 05-05029

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EC-AQUA competence map

Tutorial to training providers

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Welcome to EC-AQUA competence map!

This is a product developed and realized within the framework of the multinational Transfer of Innovation project “Implementation of ECVET for qualification design in sanitation and water loss management – EC-AQUA” 2011-1BG1-LEO 05-05029, with the financial support of LLP Leonardo da Vinci Vocational Education and Training Programme.

EC-AQUA COMPETENCE MAP

- EC-AQUA competence map is a tool determining the competences of defined set of professionals working in field of water sanitation and water loss sector.

- The map comprises expected by the targets competences, which will be requested to demonstrate:
    - Technical competences in advance theoretical and practical aspects of EC-AQUA area
    - Enabling competences including professionalism, ethical behaviour, written and oral communication, leadership, problem solving and decision making.

- The specific competences expectations are defined in EC-AQUA competence map, which describes the knowledge, skills and proficiency levels expected of candidates and members of a certain team. This map was developed by the EC-AQUA partnership comprising educational experts, in consultation with academic, practitioners and employers to ensure the needs of public practice, industry and government. It provides a model for the development of competence map based certification programme including evaluation and prospects for accreditation.

EC-AQUA COMPETENCE MAP STRUCTURE & QUALIFICATION DESCRIPTIONS

THE STRUCTURE

- EC-AQUA competence map is a **tool for description of vocational qualifications** for VET professionals in water sanitation and water loss sector.
- It offers a **scheme for narrative presentation of occupational profiles** through their main descriptors – **Certification Units of Learning Outcomes (LO).**
- LOs are defined in terms of **knowledge, skills and wider competence** development, thus providing consistent and structured learning process and clear criteria for assessment.
- Comprehensive LO are designed for target professionals working in the project area.
- For each target group **competence profile** is described, comprising professional, methodical, personal and social competences to be gained upon defined training. The occupational profiles correspond to EQF reference levels 5, 6, 7 (http://ec.europa.eu/education/pub/pdf/general/eqf/leaflet_en.pdf) and fit as well Bulgarian National Lifelong Learning Strategy for 2008 - 2013, Action Plan 2012 – 2013 (http://www.mon.bg/opencms/export/sites/mon/en/top_menu/vocational_education).
- To validate and recognize Learning Outcomes in EC-AQUA learning context, **ECVET points** are assigned and allocated in

accordance with the relative "value" of the unit of learning outcomes measured on the basis of a defined qualification.

- The completion of a defined training cycle and acquisition of certain ECVET points is documented by a **Competence certificate** issued by the training provided institution.

THE QUALIFICATION DESCRIPTION

- Qualification should be designed to outline in an eligible and understandable way the knowledge, skills and competencesл
- Qualification is aimed at those involved in a range of formal and informal management roles encompassing decision making, project delivery and benefits realization.
- It must be coherently constructed and organised in respect to an overall qualification to allow the discrete assessment and validation of the Learning Outcomes it comprises.
- A basic descriptor of a qualification is the **competence profile** defined in terms of Learning Outcomes.
- EC-AQUA Competence map offers the description of 13 competence profiles divided in 5 subgroups relevant to water supply and waste water treatment targets, as follows:
  - Teaching/Training professionals
  - General subject trainers
  - Specific subject trainers
  - Institution managers
  - Policy decision makers

- For each EC-AQUA occupational profile, a description of general and specific profile activities in respect to knowledge, skills, wider competences and behaviours that fits certain EQF reference level is elaborated.
- For each occupational profile at corresponding EQF level **Learning Pathways (LP)** and **Short Intensive Courses (SIC)** are structured, comprising the innovative learning content of EC-AQUA competence map. They are built from relevant Learning Outcomes selected on the basis of complete work assignments, working processes, areas of work, fields of action or fields of competence, typical for the particular profession.

HOW IS EC-AQUA COMPETENCE MAP OPERATING

STEP-BY-STEP INSTRUCTIONS TO A TRAINER

Step 1: Instead of preamble

- Chose online or offline version of the competence map
  - For online - go to http://ec-aqua.org/en/
  - For offline – Insert the DVD into the DVD-ROM drive. The DVD is compatible with any modern operating system (Linux, Mac OS, or Windows – please consult the DVD cover for detailed OS-specific instructions on running the e-platform). You also need a recent version of JavaScript installed on you system.
- Select a language via the language (flag) buttons situated in the upper right corner of EC-AQUA *e*-platform 'home' page. The product is available in Bulgarian, German, English, French and Turkish languages (Fig. 1).

Fig. 1 Project *e*-portal home page

Step 2: Check and choose EQF levels

- Open 'How to gain competence' submenu by clicking either on the top menu or on the left-side menu (Fig. 2).

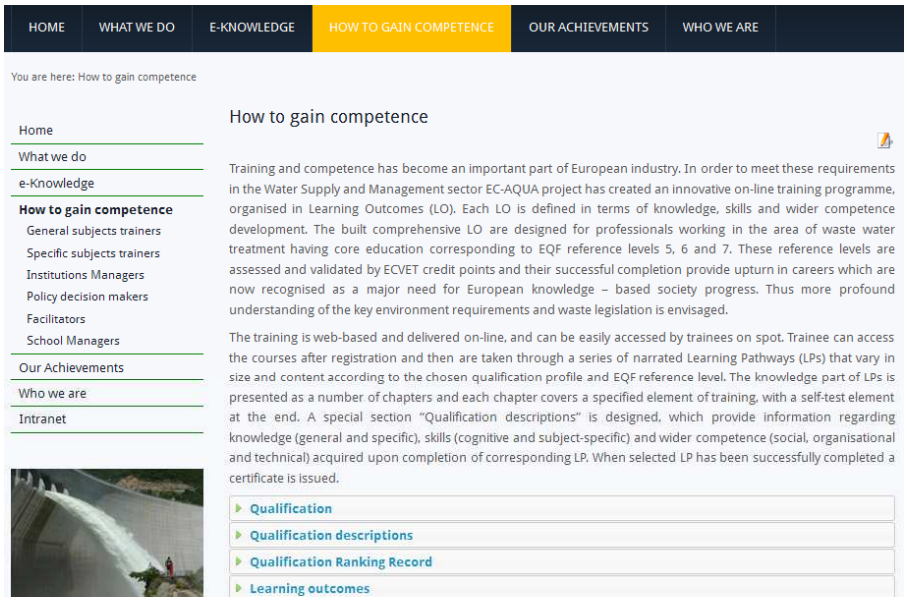
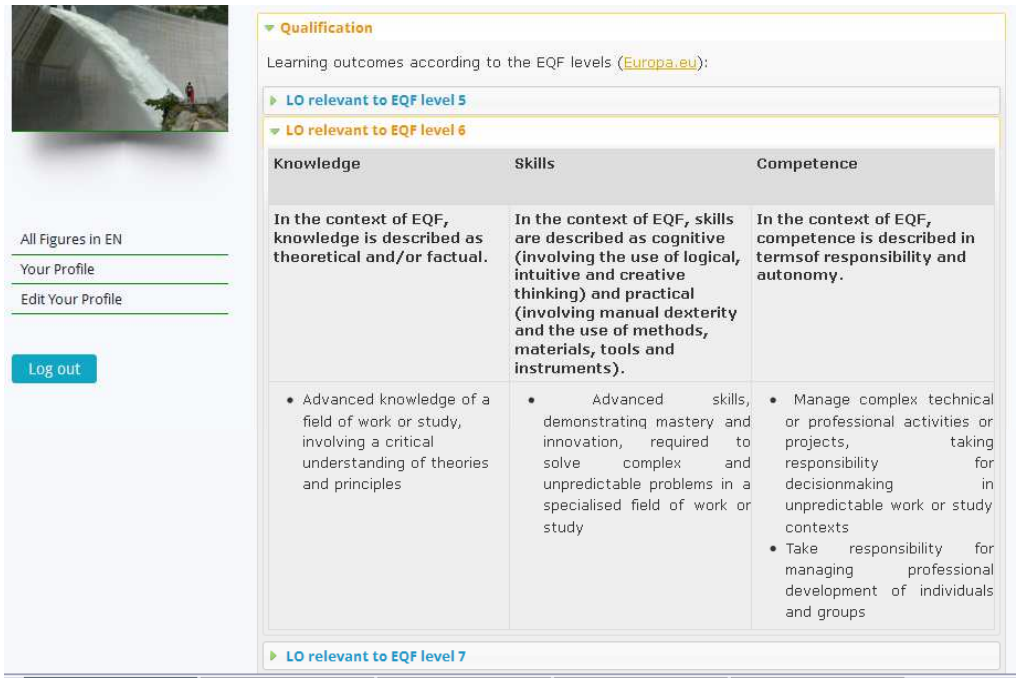


Fig. 2 Opening 'How to gain competence' menu

- Make reference of a current or desired EQF level by clicking the 'Qualification' collapsible content panel and checking the descriptors defining levels in the European Qualifications Framework at: http://ec.europa.eu/education/pub/pdf/general/eqf/leaflet_en.pdf. EC-AQUA competence map is operating for EQF levels 5, 6 and 7 (Fig. 3) and you can consult about the knowledge, skills and competence needed for a qualification in respect to a defined EQF level.



All Figures in EN

Your Profile

Edit Your Profile

Log out

Qualification

Learning outcomes according to the EQF levels (Europa.eu):

LO relevant to EQF level 5

LO relevant to EQF level 6

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 termsof responsibility and autonomy.
• 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 decisionmaking in unpredictable work or study contexts • Take responsibility for managing professional development of individuals and groups

LO relevant to EQF level 7

Fig. 3 Descriptive chart of EQF reference levels 5, 6 & 7

Step 3: EC-AQUA qualification profile: LP or SIC

- Open again the ‘How to gain competence’ submenu and click the ‘Qualification descriptions’ collapsible content panel (Fig. 2).
- Select between ‘Learning Pathways (LPs)’ and ‘Short Intensive Courses (SIC)’ options.
- The LPs are designed for 4 subgroups of professionals: General subject trainers, Specific subject trainers, Institution managers, and Policy decision makers (Fig. 4).
- Accordingly, the SIC are envisaged for Teaching/Training professionals: Learning Facilitator and School Counsellor (Fig. 5).

Learning Pathways (LPs)

Qualification	Qualification description	
General subjects trainers		
Toxicology Trainer	EQF 6	EQF 7
Microbiology Trainer	EQF 6	EQF 7
Environment, Health and Safety Trainer	EQF 6	EQF 7
Hydrogeology Trainer	EQF 6	EQF 7
Water Chemistry Trainer	EQF 6	EQF 7
Specific subjects trainers		
Water Supply and Sanitation Trainer	EQF 6	EQF 7
Water Management Trainer	EQF 6	EQF 7
Institutions Managers		
Water Quality Manager	EQF 6	EQF 7
Wastewater Treatment Manager	EQF 6	EQF 7
Engineering and Construction Manager	EQF 6	EQF 7
Policy decision makers		
Environmental Analyst	EQF 6	EQF 7

Short Intensive Courses (SICs)

Fig. 4 Selecting Learning Pathways

Qualification descriptions

The units of learning outcomes are accepted as the main descriptor of the qualifications. According to the European Recommendations, the units which design a qualification should: outline in an eligible and understandable way the knowledge, skills and competences; be coherently constructed and organised in respect to the overall qualification; and allow the discrete assessment and validation of learning outcomes organised in it. Following these requirements an EC-AQUA competence map has been created, comprising description of 13 occupational profiles divided in 5 subgroups relevant to the water supply and waste water treatment targets in the sector: Teaching / Training professionals, General subject trainers, Specific subject trainers, Institution managers, and Policy decision makers. Applying several descriptive elements (the basic title of the qualification, the EQF reference level to which a qualification relates, description of general and specific profile activities in respect to knowledge, skills, wider competences and behaviours) charts presenting qualifications are developed. Each EC-AQUA occupational profile is described in terms of learning outcomes, comprising professional, methodical, personal and social competences to be gained by the learner upon defined period of training in the frame of the EC-AQUA project. Its content is simply designated, and is understandable for the labour market operators (teachers/trainers, employees, business people, social partners, etc).

Learning Pathways (LPs)

Short Intensive Courses (SICs)

Qualification	Qualificaiton description	
Facilitators		
Learning facilitator	EQF 5	EQF 6
School Managers		
School manager	EQF 5	EQF 6

Fig. 5 Selecting Short Intensive Courses

- Choose among the occupational profiles for a defined qualification, selecting the appropriate EQF reference level, to which this chosen qualification relates. Learn about the LO represented as general and specific profile activities in respect to knowledge, skills, wider competences and behaviours. For instance, opening 'Microbiology Trainer EQF 6' the chart of Learning Outcomes for Microbiology Trainer relevant to EQF level 6 will appear (Fig. 6).

Microbiology Trainer

	Knowledge	Skills	Competence
LO relevant to EQF level 6	Trainer-specific knowledge: Know how to: • apply principles and methods of curriculum and training strategies; • interpret human behaviour and performance; individual differences in ability, learning and motivation; psychological research methods; • determine training needs of students or workers; • administer oral, written, or performance tests to measure progress and to evaluate training effectiveness; • develop curricula and plan course content and methods of instructions; Subject-specific knowledge: Know how to: • apply basic principles of microbiology, including bacteriology, haematology, mycology, parasitology, serology and virology; • use ground rules of chemistry and biochemistry; • use microbiological methods of	Cognitive skills: Able to: • supervise and monitor students' use of tools and equipment; • develop teaching aids or study materials; • observe and evaluate students' work and make suggestions for improvement • communicate information and ideas in speaking so others will understand; • listen to and understand information and ideas presented through spoken words and sentences; • monitor/assess performance of individuals; • keep up-to-date technical and scientific knowledge. Subject specific skills: Able to: • conduct Microbiology training programmes; • study growth, structure, development, and general characteristics of bacteria and other microorganisms to understand their relationship to	Social: • to be motivated, mobilized and collaborative towards meeting objectives. • to interact efficiently and in synergy with others, networking and creative problem solving. • to be able to adapt relatively easy to a new environment Organizational: • competences and skills in use of modern technological tools to facilitate organisation and logistics, • competence and skills in following and improving the teaching process, • competence and skills in meeting the objectives/produce deliverables with prescribed norms and conditions. • expertise in curriculum structuring and function, preparation of action plans, results reports, organization of seminars and meetings; • participate in conferences, seminars, and training sessions to keep abreast of developments in the field, and

Fig. 6 Learning Outcomes for Microbiology Trainer relevant to EQF 6

Step 4: Offer your trainees to cross-check EQF level and qualification profile

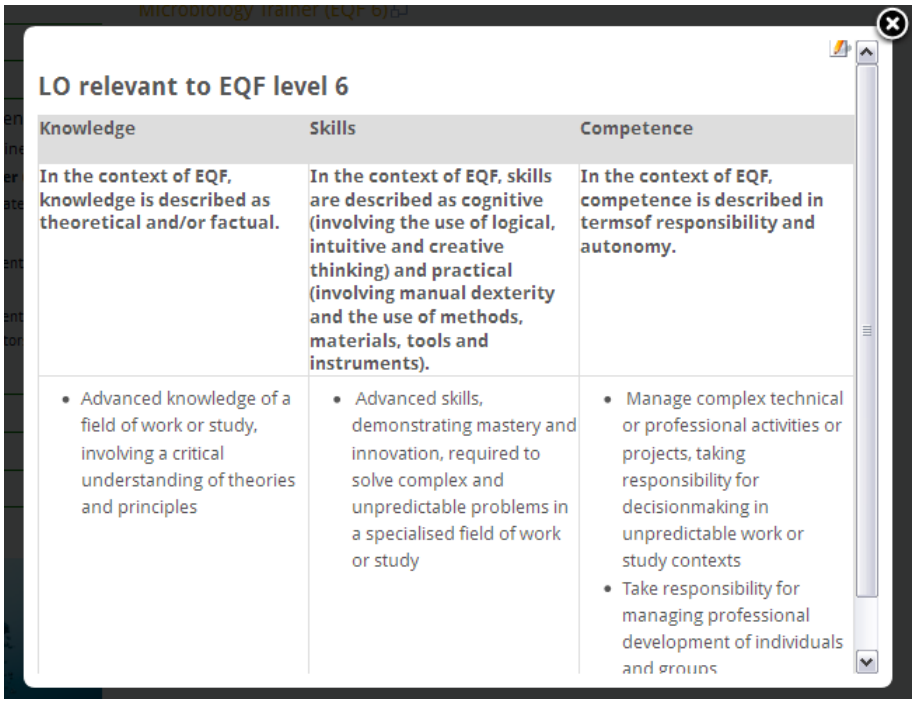
- Before starting a LP/SIC your trainee can cross-check the EQF reference level / Qualification profile chosen or offered. For this purpose let him/her to go to the LP/SIC main page through one of the following two options:

- Open the 'Qualification descriptions' collapsible content panel and chose one of the 11 subgroups corresponding to a defined LP occupational profile / EQF level (Fig. 4). For instance, for 'Microbiology Trainer EQF 6' this is subgroup 'General subjects trainers', profession 'Microbiology Trainer'. In the same way select among the 4 possibilities for the SICs (Fig. 5).
- Alternatively, chose the 'Quick links' button situated in the right side menu of the 'home' page and follow the submenu 'Qualification design' (Fig. 7).

- Check the reference level in accordance to EQF by opening the corresponding hyperlink. For instance for Toxicology trainer, EQF 6, this is the Toxicology Trainer (EQF 6) hyperlink (Fig. 8). Extra-window with the relevant information will open (Fig. 9).
- Check as well the EC-AQUA qualification description via the button EQF 6 (Fig. 8). Again, popup window with the relevant information will open (Fig. 10). Both windows can be easily closed without disturbing the main flow of information of the selected LP/SIC.

Fig. 7 Selecting a desired LP/SIC via the 'quick links' menu and checking EQF level / Qualification profile

Fig. 8 Checking EQF reference level / Qualification profile of a selected LP/SIC.



LO relevant to EQF level 6

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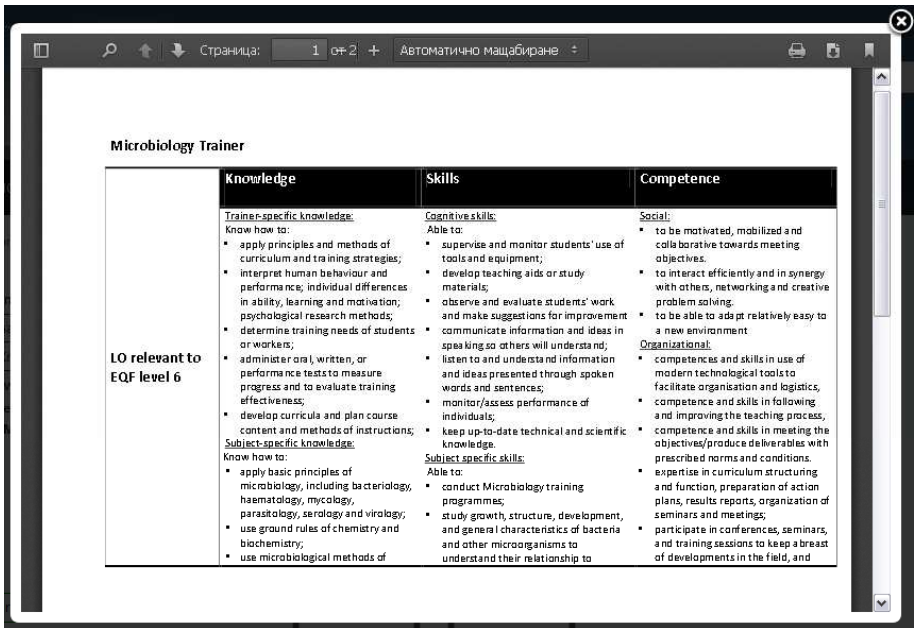
Fig. 9 The EQF reference level window



Microbiology Trainer

	Knowledge	Skills	Competence
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Fig. 10 The EC-AQUA qualification description window

- Following the same algorithm you can make reference to the whole set of 26 Occupational profiles descriptions, offered by EC-AQUA Competence map.
- Furthermore, using the map as a model instrument you can explore its full potential generating and assembling occupational profiles on demand of your trainees.
- Thus, you can arrange occupational profiles fitting various EQF reference levels, occupational areas and individual requirements. You can apply the same model to other fields of economic activity using it as a reliable tool to design a study circle that matches the expectations of your trainees towards defined competence and qualification.

LEARN MORE ABOUT EC-AQUA PROJECT

WHO WE ARE

A consortium of training bodies (universities), non-governmental organizations, research organization, and consulting company, created on the basis of mutual agreement and understanding the need of transparency of qualifications within Sanitation and Water Loss Management sector.

- **Project Contractor** – Scientific Research Department of the Sofia University "St. Kliment Ohridski"
  BG

- **Project Coordinator** - "Intellect" Foundation
  BG

- **Partners**
  SEEMO - IPI AT
  R & D Center "Prof. Balan"
  BG
  INSA – Toulouse FR
  ERBIL Project Consulting Engineering Co.Ltd. TR

WHAT WE DO

- We develop new transferable qualifications description model and learning outcomes based competence map in accordance with the requirements of the European Qualifications Framework.
- We offer flexible innovative VET programme in sanitation and water loss management designed as user-friendly e-tool for gaining professional knowledge, skills and competence.
- We arrange a broad new interactive e-platform (http://ec-aqua.org/en/) organized as a knowledge-based scheme for innovative qualifications recognition in accordance with the ECVET and EQF specifications.
- We add social and economic value in water management sector, with a special focus on strategies for water sanitation improvement
- We provide support system in terms of learning pathways and short intensive courses (specific training packs based on the programme content)
- We propose on-line and off-line presentation of the body of knowledge in the field of sanitation and water loss management.

WHAT ARE THE BENEFITS FROM EC-AQUA COMPETENCE MAP

- Support participants in training activities for acquisition and use of knowledge, skills and competence.
- Facilitate professional development, employability and participation in the European labour market.
- Encourage the transparency and recognition of qualifications, including those acquired through non-formal and informal learning.
- Help EU citizens to communicate effectively their skills when looking for a job or training.
- Assist employers in understanding the skills and qualifications of the workforce.
- Urge educational and training authorities in the European countries to define and communicate the content of their requirements and offers.
- Contribute for establishment of a common European learning and working area.
- Promote Europe as the most competitive and dynamic knowledge-based market of the world.

WHAT ARE THE NEW DIRECTIONS OF EC-AQUA QUALIFICATION RECOGNITION MODEL

- New target groups: Teachers, trainers, learning facilitators, guidance professionals, schools and other institutions, managers, political decision makers
- New sectors: Chemical and eco-engineering, environmental protection, biotechnology, healthcare, food industry
- New end users: Colleges & universities, Initial / continuous training organizations, Formal, non-formal and informal educational units, R & D centres and SMEs
- New subjects: Sanitation and water loss management
- New languages: Bulgarian, German, French
- New institutional cooperation: Unified training, research and consultancy
- New job opportunities: Encouraged EU recognition of qualifications and cross border mobility

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