INNOVATIVE QUALIFICATIONS FOR TECHNOLOGICAL AND ORGANIZATIONAL INNOVATION IN BUILDING SECTOR

T. 3.1 – Guidelines for improving/implementing the innovative aspects related to the common qualification “Construction Site Technician”

WP3 – Implementation and update of the common qualification “Construction Site Technician”

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Description of the deliverable (3-5 lines)	This document will provide requested guidelines for implementing and updating the profile called "Construction site technician". It will cover main qualification units, competences and learning outcomes needed to achieve to get this qualification.
Key words	Construction sector, building sector, innovations, qualification, technician, Vocational Training, Work Based Learning, national policies

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1. INTRODUCTION

The technological and organisational innovation and the new normative framework in the construction industry emposes redefinition of the profiles and the training of the construction site technicians, integrating and in some cases replacing the existing knowledge, skills and capabilities.

The existing Qualification of Construction Site Technician in some countries needs to be upgraded (Italy, Spain) and introduced in several EU countries (e.g. Lithuania) and must reflect:

- the EU, national or interregional context;
- the degree of achieved or achievable agreement between the involved institutional actors and the social partners;
- the considered professional and training field.

This document is based on:

- The analysis of the existing VET training systems - Task 2.1;
- The results of the Task 2.2 of survey on the companies needs;
- The UNIBO report, which presents the results of the Task 2.3 - the review of the innovative factors requested by EU directives and policies in the construction industry;
- Guidelines for implementation and update of the common qualification Construction Site Technician - Task 3.1;
- Examples of profiles of the technical construction site in Italy and Spain.

2. MAIN TERMS AND DEFINITIONS:

European Qualifications Framework (EQF) is a translation tool that helps communication and comparison between qualification systems in Europe. It has been developed to promote workers' and learners' mobility between countries and facilitating their lifelong learning.

National Qualifications Framework (NQF) is a formal system describing qualifications by level, based on learning outcomes.

Qualification is the entirety of person's possessed competencies or professional experience and possessed competencies necessary for a certain professional activity, recognised in accordance with the procedure laid down by legal acts of the country.

Competence is the ability to perform a certain activity on the basis of the entirety of acquired knowledge, skills, abilities and values.

Limits of competencies are descriptions of what a learner knows, understands and is able to do in terms of learning outcomes.

Learning outcome unit is a component of a qualification consisting of a detailed set of knowledge, skills and competence that can be evaluated, validated and certified. Units enable progressive achievement through transfer and accumulation of learning outcomes defined in knowledge, skills and competence terms. Units of learning outcomes can be specific to a single qualification or common to several qualifications and may also describe so-called additional qualifications which are not part of a formal qualification or curriculum. They are subject to assessment and validation which verify whether the learner has achieved the learning outcomes expected.

European Credit system for Vocational Education and Training. (ECVET) works hand in hand with the European Qualifications Framework (EQF) to provide greater transparency in European qualifications, promoting the mobility of workers and learners, and facilitating lifelong learning. Unfortunatelly in Italy ecvet system is not well known

and considered in the formal qualification process. Generally, it is used in the European project wtith agreement among partners and also in the mobility, but in this case, only in exceptional cases at the end of mobility follows a recognition of credits by the regions. This is very disappointing and demotivating for those who make a mobility experience abroad.

3. DURATION OF THE COURSE AND LEARNING UNITS

Based on ECVET principles, duration of a course is counted by accumulating the following:

- lecture hours (Theory): the amount of expected timetabled hours of teacher-student contact, including lectures, tutorials, seminars and workshops for delivering the theoretical part.
- self-study hours (Individual work): the study of something by oneself without direct supervision or attendance in a class.
- On the job training (Practice): practical sessions which can also be supervised.
- assessment hours: the time needed to prepare an assignment, including the time allocated to the exam (if any).

It is recommended that the duration of each learning is 25 hours, leading to the total duration of course of 75 hours. Certainly the duration of each learning unit should not be considered as strictly defined but as a recommended indicator for each learning unit, so that integration with existing VET courses can be flexible.

To enable a common approach for the application of ECVET credits, a convention is used according to which 60 credit points are allocated to the learning outcomes expected to be achieved in a year of formal full time VET.

Successful ECVET implementation requires that qualifications be described in terms of learning outcomes; with learning outcomes brought together in units; and units often accumulated to form the basis of qualifications or awards. Assessment, validation and recognition processes must also be agreed among all those participating and should respect

existing national, regional, sectoral or institutional practice. Furthermore, ECVET requires the use of units to facilitate the transfer, recognition and accumulation of assessed learning outcomes of individuals who are aiming to achieve a professional profile.
In cases where credit is able to be awarded, a points system might also be considered with points directly attributed to ECVET units and qualifications.

4. QUALIFICATION OF CONSTRUCTION SITE TECHNICIAN (EQF LEVEL 5)

4.1. Description of a qualification level 5 (complexity, independence, variability, responsibility, etc):

Construction Site Technician (called Master in Lithuania), EQF Level 5, performs the supervision of the tasks related to construction and operation of structures that require high workmanship. Construction Site Technician organizes the work of lower qualified Technicians: formulates tasks, plans and divides activities within the group, assesses the results and their correspondence to quality requirements, controls time of task performance, completes timesheets, calculates required material amounts and quantity of performed work. Independently selects methods and tools for task solution. Takes decisions in unforeseen situations. Gives expert opinion and assesment of processes and products. Trains lower qualified workers and assesses their competencies. Construction Site Technician coordinates his/her tasks with higher qualified professionals. He/she has latest knowledge about digital construction, energy efficiency and other management skills.

4.2. Requirements for awarding the qualification:

The qualification of Construction Site Technician, EQF Level 5, is awarded to persons having all the competencies listed in the following learning programme (duration of the course 110 ECVET credits):

- ***Italian case***:

- Tertiary vocational courses offered by Higher Technical Institutes and Vocational and Professional training centres;
- Organization accredited by the region to provide training activities.

– ***Lithuanian case***:
  - VET centres accredited with Level 5 programmes. (Students are required to have Construction Site Technician VET programme or similar programme of EQF level 4 and fixed-duration professional experience (a 5 year working experience according to the Construction Site Technician competencies);
  - Tertiary vocational training courses offered by Colleges (duration of courses 90-110 ECVET credits).

– ***Spanish case***:
  - VET programmes in the employment system: Professional certificate programmes Level 3 linked to the national catalogue of occupational standards (CNCP) (High-grade training cycle EQF-4/5) provided by VET organizations accredited by the State Public Employment Service (SEPE) and regional employment services. Certifications issued by the Ministry of Employment and Social Security or the corresponding autonomous regional administration within the scope of its competence. (Duration of courses from 550 to 750 hours, all including 120 hours of WBL.)
  - VET programmes in the education system: Higher Initial Vocational Education and Training (IVET) programm (EQF 5) provided by Higher Tecnichal Institutes and VET organizations accredited by the Ministry of Education. (Duration of each course: 2 000 hours (120 ECTS, being 22 ECTS WBL), over two academic years.

4.3. EU policy

Learning content is closely linked to the following EU policies: Energy-efficient buildings - Energy performance of buildings; Energy-efficient products - Energy label and

ecodesign; renewable energy - moving towards a low carbon economy; Urban environment; Sustainable development; Bioconstruction; Waste and recycling; Circular economy; European standards; Digital economy – digital single market; Skills and qualification; Moving and working in Europe; International cooperation and policy dialogue; Industry competitiveness and innovation.

The review of the EU Policies helps to understand which are the main goals of the European Union that are related with the construction sector and to find out the directions that the EU wants to take on a range of specific issues.

4.4. Energy efficiency & sustainable construction

Learning content focuses on energy efficiency and sustainable construction. It describes the use of energy efficiency strategies and renewable energy system integration in buildings. The learning units enclose basics on energy legislation and certifications, on the characteristics of sustainable construction (passivhaus standards and Nearly Zero Energy Building specifications), bioclimatic strategies measures, and the integration of renewable energy systems. Basic principles how to choose alternative solutions to oil-based fuels through renewable energies that can be easily applied to buildings consumptions: heating, cooling, hot water and electricity (DHW) are presented. Learning content introduces technologies of high energy efficiency applied during the installation of renewable energy systems and tools applied for energy monitoring in lighting consumption and generation. Energy efficiency deals not only with renewable sources but also with construction process. Thats why learning content presents how evaluation of the thermal behaviour of the building is made, proper technological and constructive solutions to reduce heat losses and entry of heat. Together with this the main knowledges how to monitor and manage the execution of ventilated facades, external wall insulation systems, execution of waterproofing and insulation of roofs, walls and underground floors according to technical specifications of the project are presented. These topics about energy efficiency and sustainable construction are covered in Competence Unit 3.

4.5. Waste management

One more unit presented in this learning content is dedicated to waste management. The main aim of it is to present general EU policy and regulations regarding waste management. It introduces to different waste materials and their procedures of diposal. Main konowledges about construction waste chain and its management are introduced. Competence Unit 4 covers these topics.

4.6. Digitalisation of construction

The learning content covering digital construction is primarily concerned with digital tools designed to collaborate with other participants in construction projects. It includes tools for communication, project management. It acquaints with digital data used in construction projects and learn how to view it, how to collect data and store it correctly in the digital space. Of course, the learning content also deals with Building Information Modelling (BIM) methodology, which is increasingly used in construction, and its application in professional field. The related learning unit introduces practical knowledge, through the study of different use cases where BIM methods and other digital tools are effectively applied or used. Different levels of detail in digital models of buildings are presented, digital tools for monitoring the different work phases, from the preliminary survey to the construction late stages. Also, abilities of digital tool to be connected to BIM project are presented. Finally, the latest GDPR regulations and how to properly store digital data in accordance with them are presented. All these topics are covered in Competence unit 5.

4.7 Organisational, management & communication skills

These listed skills are covered in three different Competence Units. Nevertheless, they are all closely related. Competence unit 1 introduces to Construction Site Technician's preliminary activities. Skills such as the identification of the best methodology for the implementation of technical solutions are developed, knowledge about normative documents of occupational health and safety and how to implement it, knowledge of requirements of legal acts for environmental protection and safe use of materials, warehousing, energy efficiency and effective use of other resources, monitoring and

improving the process. It is presented how inspections, recons, preparation of reports are made.

Second Competence Unit presents management of construction process. It covers such areas like: Preparation of construction documentation, filling of variuos forms, monitoring of the correct execution of work, monitoring of logistics and procurement process, coordination of work teams in accordance with the project schedule of works. It also introduces to preparation of the technological (executive) design of construction works, construction rules, assessment of effectiveness of solutions, identification of budgetary estimation for the working activities, selection of means and materials and construction products according to the structure design documentation. Main principles of construction process monitoring are presented. Also, comunication skills, that helps to transmit tasks to others orally and written are highlighted.

The last sixth Competence Unit is dedicated to soft skills. It focuses on preparation of main theme questions, highlights, collection of information, data, conclusions and other outcomes, materials of the activity for presentation which helps to participate in discussion. Problem-solving skills are developed such as: adaptability and flexibility, identification of needs and problems, and to resolve conceptual problems and problem situations in digital construction environments. Main information which helps to keep up-to-date with the digital evolution is presented.

4.8. Additional Qualification Units:

Due to the different legal regulations in different countries, additional Units of Competence are also provided. These units are not mandatory for acquiring Construction Site Technician qualification, but optional to choose. These additional qualification units deal with specific skills with reference to the construction site typology. It presents general knowledges about: hydraulics structures; communication constructions; plant systems; building and commercial structures; water supply and sewerage systems; heating, ventilation and air-conditioning systems; electricity network, low voltage and

communication systems. Also, introduction is made on prevalent industrialized building types, pre-assembly and assembly on-site and Lean construction principles.

4.9. Assessment methods:

According to ECVET principles, assessment comprises methods and processes used to establish the extent to which a learner has attained particular knowledge, skills and competence of learning units. In this context, tasks that validate the understanding of the learning outcomes by learners have to be developed, giving a clear indication of their coverage and depth.

Common assessment procedures consist of written, oral and practical methods such as case-studies, open-ended and closed-ended tests, projects, practical tasks, self-assessment, simulations, group projects, essays, interviews, presentations, portfolios, assignments, skill demonstration, etc.

To have a clear evidence that learner has gained enough knowledge, each competence unit needs to be evaluated separately. Theoretical knowledge of this units needs to be evaluated by answering questionnaire with open-ended and closed-ended questions. Practical knowledge needs to be evaluated after finishing practical tasks, projects, presentations and etc. This can be done at any time of learning process.

After finishing all learning units, theoretical and practical knowledge must be assessed. Theoretical knowledge – by answering block of questions covering all the competence units. Practical knowledge must be assessed after finishing assigned task designed to demonstrate learned skills.

4.10. Description of the qualification:

Name of the profile
Construction Site Technician
Description of profile
Activity object: construction of structures of limited and unlimited complexity, classes of low, medium and high reliability and supervision of their use. **Typical working tools:** information technology hardware, software, digital and

analogous measuring, quality check, assessment equipment and devices, normative, design documents of a structure, etc.

Typical working conditions: work in an office and/or building object, in a structure in use in various weather conditions.

Additional information: At work, the Construction Site Technician observes European and national normative documents of construction, requirements of occupational health and safety, ergonomics, working hygiene, fire safety, environmental requirements, principles of sustainable construction. The following personal qualities are important: leadership, organisation, logical, analytical thinking, abilities to lead and work in a team. The Construction Site Technician works independently (with exception of all structures of unlimited complexity, high-reliability class, where he/she works under management of higher qualification construction engineer), chooses modes and means for dealing with objectives, keeps improving himself/herself on a continuous basis, organises work of his/her subordinates, improves their working methods. A supervisor sets work objectives for him/her. Upon acquisition of this qualification, persons can work in companies engaged in construction, building maintenance, technical supervision of construction, expert examination, examination, consulting and sate construction control institutions and establishments.

Occupation

Holder of Certificate for Construction Site technician may work in the construction sector. Main activities of this qualification:
Coordinate building site processes according the stages of buildings construction; Ensure compliance of applicable regulations conditions regarding quality, safety, occupational health and the environment; Plan, organize and control assigned working units by assigning workloads, managing resources and ensuring the tasks meets requirements of the project specifications; Perform surveys and monitoring, transmit instructions received from higher technicians; Be able to overcome unforeseen events which may occur within all the construction processes on site.

Levels (of diplomas and titles)

European Qualification Framework (EQF)
Level 5
Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and 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.
National Qualification Framework (NQF)

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 profiles 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 technician performs the activities independently and is supervised only as regards the evaluation of results. Technician uses typical working tools together with digital ones in order to perform all the tasks. The activity tasks are set by a higher qualification profile, who frequently grants the technician performing the activities with a certain level of discretion as to the choice of methods and measures to complete the tasks. The technician 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 as well as their environment are constantly changing, the changes are often unforeseeable and may be related to new areas of activity.

Entry access requirements

Italian case:

- Young people and adults, employed or unemployed, who have completed upper secondary education.
- Access is also allowed to those who have been admitted to the fifth year of high school and to those who have a professional diploma obtained as a result of the fourth year of Vocational Education and Training (Diploma"Building Technician"). In addition, people who have not graduated can also have access, after having ascertained the skills acquired in previous education, training and work pathways.

Lithuanian case:

- certificate or Diploma of Professional qualification (at least Level 4) in the same professional family and area and three years of working experience corresponding to a qualification of at least Level 4.

Spanish case:

- *Bachiller* Diploma (upper secondary education) or equivalent;
- Professional Certificate Level 2 in the same professional family and area.
- *If neither of the above or higher certifications are held, a key skills test level 3 pass will be required.*

Main qualification units, Competences and Learning outcomes illustrating the achievement of competencies

Qualification Units	**Competences**	**Learning outcomes illustrating the achievement of**

		competencies
1. Construction Site Technician's preliminary activities	1.1. To be able to analyse technical project and planning of working activities.	Identification of best methodologies for the implementation of technical solutions, instructed by a supervisor; The Construction site technician is able to analyse systemised information and data, to perform calculations and to approve the materials selected in accordance with the construction project; Is also able to explain the choices with argumentations.
	1.2. To be able to implement occupational health and safety solutions.	Knows normative documents of occupational health and safety; Is able to adopt rational and effective solutions, in collaboration with profiles in charge of security at work; Is able to evaluate the security working plan, also considering subcontracting actors.
	1.3. To be implement circular economy and environmental protection solutions at the stages of building construction and use.	Knowledge of requirements of legal acts for environmental protection and safe use of materials, warehousing, energy efficiency and effective use of other resources, monitoring and improving the process; Acquisition of information
	1.4 To be able to apply instructions of the project and technical	

	documentation concerning the environmental resources.	concerning industrial process, machinery and plants, row materials; Inspections, recons, firm and environmental examinations; Preparation of reports on the environmental conduct of the company; Design of environmental embedded and unified management systems.
2. Site management and coordination of building site's activities (residential and commercial buildings, engineering structures, infrastructure);	2.1. To be able to prepare construction documentation, under the management of the supervison and be able to manage the daily work on site.	Preparation of construction documentation (graphs, models and parts of drawings). Filling of paper and digital forms; Monitor of the correct execution of work by managing the variances.
	2.2. To be able to supervise the implementation of the technical solutions of the project and the construction process.	Preparation of the technological (executive) design of construction works, construction rules, assessment of effectiveness of solutions fulfilling the instructions of the supervisor; Identification of budgetary estimation for the working activities, implementation of metric estimate.
	2.3. To be able to organise technical construction works on site.	Selection of means and materials for completion of work; Selection of construction products according to the structure design

		documentation; Monitoring of construction process, inspection of compliance of received materials and constructions to the design specification, order documents, quality; Preparation of daily and periodic reports; Monitoring of logistics and procurement process.
	2.4. To be able to coordinate Construction Site staff	Coordination of work teams, sub-contractors in accordance with the project schedule of works; Communicating tasks orally and in writing; Completing working time documentation, control and assessment of performance of work teams and sub-contractors.
3. Energy efficiency and sustainable construction	3.1 To be able to control the execution of the elements that influence the energy performance of the building using the adequate technology	Contribute to the reduction of energy demand of buildings; satisfy such demand through renewable energies and use installations with the highest energy efficiency. Identify the components of energy labels for buildings and their indicators. Choose alternative solutions to oil-based fuels through renewable energies that can be easily applied to buildings consumptions: heating, cooling, hot water

		and electricity (DHW). Apply technologies of high energy efficiency during the installation of renewable energy systems. Apply energy monitoring tools in lighting consumption and generation.
	3.2 To be able to analyse the thermal behaviour of the building and the recognition of pathologies, outlining the phases to be taken in a retrofitting building envelope site.	Evaluate the thermal behaviour of the building for recognition of pathologies and outline phases to be taken. Use of proper technological and constructive solutions to reduce heat losses and entry of heat.
	To be able to monitor the construction of Ventilated Facades.	Monitor and manage the execution of ventilated facades, according to technical specifications of the project.
	To be able to monitor the installation of External Wall Insulation Systems.	Monitor and manage the performing of external wall insulation systems, according to technical specifications of the project.
	To be able to manage waterproofing and insulation of roofs, walls and underground floors. *These tasks are implemented with the support of technicians and experts in the specific field.*	Monitor and manage the execution of waterproofing and insulation of roofs, walls and underground floors according to technical specifications of the project.
4. Waste management	4.1 To be able to manage	Knowledge of legislative

	the construction and demolition waste chain, by overseeing all the step of the process.	requirements for waste management; Knowledge of different waste materials and of different procedures of disposal; Capability to understand and plan waste management strategy according to project documentation.
	4.2 To be able to manage the specific types of waste materials. *These tasks are implemented with the support of technicians and experts in the specific field.*	
5. Digitalization	5.1 To be able to get the information and data needed for the construction work	Capability to read, understand, and filter data through the use of digital tools (internet, digital archives) and devices (pc, tablet, smartphone); Capability to evaluate and interpret the collected data and to avoid misinformation.
	5.2 To be able to communicate and collaborate with the other construction stakeholders and colleagues	Capability to interact in digital work environments through digital tools (internet) and devices (pc, tablet, smartphone); Capability to store, share and collaborate through digital files on cloud-based environments; Capability to work on project management software and applications in order to ease the team-work, track the work phases and meet the deadlines; Capability to work

		following a certain 'netiquette', which means acceptable behaviour on the internet and in general on digital environments.
	5.3 To be able to create, understand, manage and analyse digital content in construction	Capability to use and navigate the digital environments mostly used in the construction sector, such as CAD and BIM; Capability to understand and amend the required digital content at all levels of detail and complexity: 2D (plans, sections, technical drawings, etc.), 3D (CAD models, BIM models, etc.), 4D (models with time-related information for the project planning), 5D (models with cost-related elements for the cost estimation and management); Capability to use digital tools and devices on the construction site in order to monitor the different work phases, from the preliminary survey to the construction late stages (AR/VR, wearables, laser scanner, 3D scanner, cameras to use also for photogrammetry, thermal cameras, other survey tools). Understanding how GPS-based equipment, tool tracking devices work, and how it can be linked to a

		BIM model; Understanding what the Internet of Things is and how it works.
	5.4 To be able to protect the personal and other digital data	Capability to protect her/his own personal data, as well as the colleagues'; Awareness of the latest GDPR regulations; Capability to protect the sensible work data and digital files, as well as the digital tools used in the construction process.
6. Soft skills	6.1 To be able to communicate and present the construction progress report.	Preparation of main theme questions, highlights, collection of information, data, conclusions and other outcomes, materials of the activity for presentation; Participation in discussions; This profile should be an intermediate figure, who interfaces with the companies' technical management and sub-contractors; Problem solving skills; Organisation and time management; Adaptability and flexibility: • being sufficiently flexible to re-prioritise tasks if something unexpected occurs on a project;

		• being prepared to relocate for each project.
	6.2 to be able to do problem solving with digital tools.	To identify needs and problems, and to resolve conceptual problems and problem situations in digital construction environments, or communicate them to superiors; To keep up-to-date with the digital evolution.
Additional qualification units		
7. Specific skills with reference to the construction site typology	7.1 To be able to manage and supervise technical aspects of the construction project	Knowledges in hydraulics structures; knowledges in means of communication constructions; Knowledges in plant systems; Knowledges in building and commercial structures.
	7.2 To be able to manage and supervise industrialized construction (IC)	Knowledge on prevalent industrialized building types (timber, steel, concrete, masonary structures); Knowledge on pre-assembly and assembly on-site; Knowledge on Lean construction principles.
	7.3 To be able to manage and supervise water supply and sewerage system installation according to construction documentation.	General knowledge of water supply system installation. General knowledge of sewage system installation. General knowledge about the supervision of the

		installation of water supply and sewerage systems and ensuring their compliance with the project.
	7.4 To be able to manage and supervise heating, ventilation and air-conditioning system installation according to construction documentation.	General knowledge of heating system installation. General knowledge of the installation of ventilation and air conditioning systems. General knowledge of heating, ventilation and air-conditioning systems monitoring and ensuring their compliance with the project.
	7.5 To be able to manage and supervise installation of electricity network, low voltage and communication systems according to construction documentation.	General knowledge of electrical network installation. General knowledge of the installation of low voltage and communication systems. General knowledge about the supervision of the installation of the electricity network, low voltage, communication systems and ensuring their compliance with the project.

Annex I. Example of existing qualification in Italy

Profiles of the technical construction site figure (EQF level 5) at Regional level: examples: Emilia Romagna Region, Lombardy Region and Piedmont Region (we refer to the vocational training provided by the regional system)
It is a post diploma training course similar to IFTS training course (hour amount 800 and classified as 4 level

Regional Vocational Training of level 5 in three Regions

Emilia-Romagna	**Lombardy**	**Piedmont**
Construction site technician ISTAT codes 3.1.350 Construction technicians - 3.1.5.20 Construction site management technicians ADA.11.270.10 - Site management and works calculation	Responsible for managing construction sites ISTAT codes 3.1.350 Construction technicians - 3.1.5.20 Construction site management technicians ADA.11.270.10 - Site management and works calculation	Construction site technician ISTAT codes 3.1.350 Construction technicians - 3.1.5.20 Construction site management technicians ADA.11.270.10 - Site management and works calculation
Description of level EQF 5 **Knowledge:** comprehensive and specialized theoretical and practical knowledge and awareness of the limits of such knowledge **Skills:** Advanced skills that demonstrate mastery and innovation necessary to solve complex and unpredictable problems in a specialized field of work or study. **Skills:** Ability to manage	Description of level EQF 5 **Knowledge:** comprehensive and specialized theoretical and practical knowledge and awareness of the limits of such knowledge **Skills:** Advanced skills that demonstrate mastery and innovation necessary to solve complex and unpredictable problems in a specialized field of work or study. **Skills:** Ability to manage	Description of level EQF 5 **Knowledge:** comprehensive and specialized theoretical and practical knowledge in a field of work or study and awareness of the limits of such knowledge **Skills:** Advanced skills that demonstrate mastery and innovation necessary to solve complex and unpredictable problems in a specialized field of work or study. **Skills:** Ability to manage and supervise activities in the

and supervise activities in the context of work or study activities exposed to unpredictable changes. Examine and improve personal and others' performance	and supervise activities in the specific context of work or study activities exposed to unpredictable changes. Examine and develop his/her and others' performance	context of work or study activities exposed to unpredictable changes. Examine and develop his/her and others' performance
Site management and works calculation **Description:** The construction site technician is able to plan and manage the works of the site by verifying the congruence between the project, specific proposals and budget, defining implementation times and resource requirements (human and technical) and periodically monitoring compliance with the technical-economic program.	**Site management and works calculation** **Description:** The person in charge of the management of building sites organizes and coordinates the activities of the building site workers, planning daily the activities and the material to be put in place, following the progress of the work, verifying the safety of the site and checking the material in order and delivery to the site.	**Site management and works calculation** **Descrizione**: The site technician is an intermediate figure who interfaces with the company's technical management, the management and subcontractors. On the basis of the directives received, it manages the process of the construction site, dealing with: safety, planning and accounting works, applying the management of the work in the sites and the techniques of the traditional work type.
Competences 1. Construction site configuration 2. Planning site activities 3. Accounting administration of the site 4. Quality control and site safety	**Competences** 1. Coordinates the activities of the site workers 2. Controls the quality and safety of the building site	**Competences** 1. Prepare the documentation relating to the accounting of the works and the management of the site in compliance with the sector regulations and the safety regulations in force 2. Set up the site in accordance with the supplied plan and constantly update the necessary documentation 3. Coordinate work teams, sub-contractors and activities in accordance with the

		project, schedule of works and current safety regulations 4. Monitor the logistic process of procurement by verifying the regularity of the materials
Expected results 1.Carry out the executive program of the works in compliance with the project and contract documentation, organizing human and instrumental resources, coordinating any subcontractors and compiling the necessary documentation 2. Monitor the logistic and procurement process, ascertaining the regularity of the materials, the level of stocks and purchase requirements, and constantly updating the administrative and accounting documentation of the works 3. Monitor the correct execution of the work by managing the variances and compiling the technical documentation relating to the activities carried out and the materials used	**Expected results** 1.Carry out the executive program of the works in compliance with the project and contract documentation, organizing human and instrumental resources, coordinating any subcontractors and compiling the necessary documentation 2. Monitor the logistic and procurement process, ascertaining the regularity of the materials, the level of stocks and purchase requirements, and constantly updating the administrative and accounting documentation of the works 3. Monitor the correct execution of the work by managing the variances and compiling the technical documentation relating to the activities carried out and the materials used	**Expected results** 1.Carry out the executive program of the works in compliance with the project and contract documentation, organizing human and instrumental resources, coordinating any subcontractors and compiling the necessary documentation 2. Monitor the logistic and procurement process, ascertaining the regularity of the materials, the level of stocks and purchase requirements, and constantly updating the administrative and accounting documentation of the works 3. Monitor the correct execution of the work by managing the variances and compiling the technical documentation relating to the activities carried out and the materials used

High technical school

The following profiles are drawn up from an analysis of the various regional vocational profiles and taking into account both European Union indications and regional provisions This pofile is provided bu the education system (ministry of education)

Higher technical level for innovation and quality of housing
EQF level 5
Construction Sector
The Areas of Activity associated with qualification are as follows:
ADA.25.221.713 - Study and technological development of materials
ADA.11.270.10 - Site management and works calculation
ADA.11.7.9 - Work planning
ADA.11.7.8 - Implementation of interventions to support the construction project
ISTAT codes 3.1.350 Construction technicians
3.1.5.20 Building site management technicians

Skills

- Evaluate with the designer and the client the cost-benefit balance of the interventions
- Drawing up technical sheets and documenting the quality, conservation and risks of the artefacts and interventions
- Propose innovative, eco-compatible and sustainable technological solutions for processes and products
- Producing graphic documentation of the project, including the technical specifications
- Planning the implementation of the project
- Instruct the procedures provided for by the regulations for building permits or for the protection of intellectual property rights
- Carry out checks, tests and trials in progress and final, on equipment, materials and products also for the improvement of quality
- Collaborate in the design, construction and maintenance of buildings and artifacts

Techniques for organizing and managing the construction site Three-year vocational education and training - Four-year VET program
This profile is provided by an agreement of education and training system together

EQF level 4
The Areas of Activity associated with qualification are as follows:
A.D.A. 11.270.10 Site management and works calculation
ISTAT Codes 3.1.3.5.0 Civil engineering technicians and related professions
ISTAT Codes 3.1.5.2.0 Building site management technicians

Skills

- To adopt behavior and strategies that are functional to an effective and efficient execution of the activities
- Interact in the working group, adopting methods of communication and behavior that can ensure the achievement of a common result.
- Manage the organization of work on the site

The following is another example of eqf level 4 training course provided by the Region for unemployed adults who want to obtain a formal qualification. (300 hours)

Example of Regione Emilia Romagna, (*)

Title: Site management and works calculation
Duration of the path 300 hours of which 114 hours of stage

Professional sector according to ATECO code Construction technicians - Construction site management technicians

Work field: Site management and works calculation

Description of the professional profile:
The construction site technician is able to plan and manage the works of the site by verifying the congruence between the project, specific proposals and budget, defining implementation times and resource requirements (human and technical) and periodically monitoring compliance with the technical-economic program.
Performance and output
1. Construction site configuration
2. Planning site activities
3. Accounting administration of the site
4. Quality control and site safety

Expected results

1.Carry out the executive program of the works in compliance with the project and contract documentation, organizing human and instrumental resources, coordinating any subcontractors and compiling the necessary documentation

2. Monitor the logistic and procurement process, ascertaining the regularity of the materials, the level of stocks and purchase requirements, and constantly updating the administrative and accounting documentation of the works

3. Monitor the correct execution of the work by managing the variances and compiling the technical documentation relating to the activities carried out and the materials used

Contents of the path:

- Reception and classification of the professional figure,
- skills that improve performance (communication, teamwork, active job search),
- energy saving and energy certification,
- worksite Organisation,
- public procurement management,
- job order management,
- project management methods and techniques at the worksite,
- accounting at the worksite,
- quality control of works,
- management of worksite safety at 360°.

Certification

At the end of the course, after passing a final exam, will be issued a Professional qualification Certificate of "Construction site Technician”

Annex II. Example of existing qualifications in Spain

EXAMPLE 1 (VET EMPLOYMENT SYSTEM)

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EUROPASS SUPPLEMENT (*)

SPAIN

1. TITLE OF THE CERTIFICATE (ES)
Certificado de Profesionalidad de nivel 3 en EOCO0109 CONTROL DE PROYECTOS Y OBRAS DE CONSTRUCCIÓN

2. TRANSLATED TITLE OF THE CERTIFICATE (EN)
Professional Certificate Level 3 in EOCO0109 CONTROL OF CONSTRUCTION PROJECTS AND WORK MONITORING (This translation has no legal status)

3. PROFILE OF SKILLS AND COMPETENCES

The holder of this certificate will have acquired the general competence to calculate, monitor and update planning and cost control, and supervise the documentation generated, in construction projects and work, throughout all the phases of the process and following established guidelines This general competence is divided into the following skills units (UC):

- Monitor construction planning (UC0874_3).
- Process construction cost control (UC0875_3).
- Manage documentation systems for construction projects (UC0876_3).

The professional skills are acquired through the learning outcomes defined within the related Training Modules (MF):

- Planning in construction (MF0874_3).
- Documentary control in construction (MF0875_3).
- Cost control in construction (MF0876_3).
- Practical training at the workplace in Control of construction projects and work MONITORING(MP0135)

(See legal basis for all learning outcomes information acquired by the holder of this Certificate in each MF).

As a reference the learning outcomes include in the Practical training at the workplace that complete and reinforce the learning outcomes acquired in the other training modules, are:

- Plan the complete construction process, establishing its progress by its phases and most significant elements, preparing the information needed for its application.
- Prepare the documentation needed for the cost control of a construction process, monitoring the real cost, certifying the progress of the project and noting any variations arising during its development, while generating data on the process.
- Interpret and document events in a construction process, storing, processing and registering the documentation obtained, generating reports on the situation of a project.
- Take part in the company's working processes, following the rules and instructions established at the workplace.

4. RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THIS CERTIFICATE

The holder of this certificate may work in building and civil works constructors, project managers, architectural studios, consultants, property developers and urban developers. The most pertinent occupations and positions are:

- Technical project assistant.
- Assistant to the head of the technical office.
- Planning assistant.
- Technical cost control assistant.
- Documentary control specialist.

The holder of this professional certificate has recognition of the basic level training in labour risk prevention, according to Annex IV of the Royal Decree 39/1997 of 17 of January approving the Labour Risks Prevention Act.

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5. OFFICIAL BASIS OF THE CERTIFICATE
Name and status of the national/regional authority providing accreditation/recognition of the certificate The Ministry of Employment and Social Security or the corresponding autonomous regional administration within the scope of its competence, in the name of the King. The certificate is valid throughout Spain.
Level of the certificate The Professional Certificate Level 3 of the National Repertoire of Professional Certificates corresponds to level 4 of the International Standard Classification of Education (ISCED-P 2011). The European Qualification Framework (EQF) level:
Grading scale/Pass requirements The grading scale and pass level of the training modules are expressed on a scale of 0 to 10. The minimum score for a pass is 5 in every training module including a pass in the practical training at the workplace module. The grading system is as follows: - FAIL: 0 to 4.9 - PASS-SATISFACTORY: 5 to 6.9 - PASS-GOOD: 7 to 8.9 - PASS-EXCELLENT: 9 to 10
Access to next level of education/training This Professional Certificate Level 3 gives access to Professional Certificate Level 3 within the same professional area and family. For validation purposes, the educational authorities will recognise the professional module or modules of the VET diplomas corresponding to the skills units included in the training modules of this certificate.
Legal basis Royal Decree 644/2011 of 9 July, establishing five professional certificates in the professional family Construction and Civil Work, which are included in the National Repertoire of Professional Certificates. (Appendix V, Code: EOCE0109)

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SPAIN

6. OFFICIALLY RECOGNISED WAYS OF ACQUIRING THE CERTIFICATE

This certificate may be acquired by:

1. Training: Completion with a pass grade of the face-to-face or online training programme.
2. Recognition of the professional skills acquired through professional experience or non-formal training (prior learning): Completion of a process of skills evaluation and accreditation in all the skills units making up the professional certificate.
3. Dual training: Completion of a training and apprenticeship contract, which may range from 1 year (or 6 months, if stipulated as such in the collective agreement) to 3 years, during which effective working time is combined with time dedicated to training under the training programme for the professional certificate.

The training method (number 1 above) requires successful completion of the training modules and the practical training at the workplace:

Description of vocational training received	Percentage of total programme (%)	Duration (hours)
Training modules	78	430
Practical training at the workplace	22	120
Total duration of training leading to the certificate		**550**

Entry/access requirements:

- *Bachiller* Diploma (upper secondary education); or
- Professional Certificate Level 2 in the same professional area.
- If neither of the above or higher certifications are held, a pass in the key skills tests.

Additional information: Professional certificates are instruments for official accreditation of the professional qualifications in the National Catalogue of Professional Qualifications for all economic activities, within the scope of the labour administration. The National Repertoire of Professional Certificates is divided into three qualification levels (Level 1, Level 2 and Level 3), and by sectors into 26 professional families and 102 professional areas. More information is available at: www.sepe.es

National Europass Centre: www.oapee.es

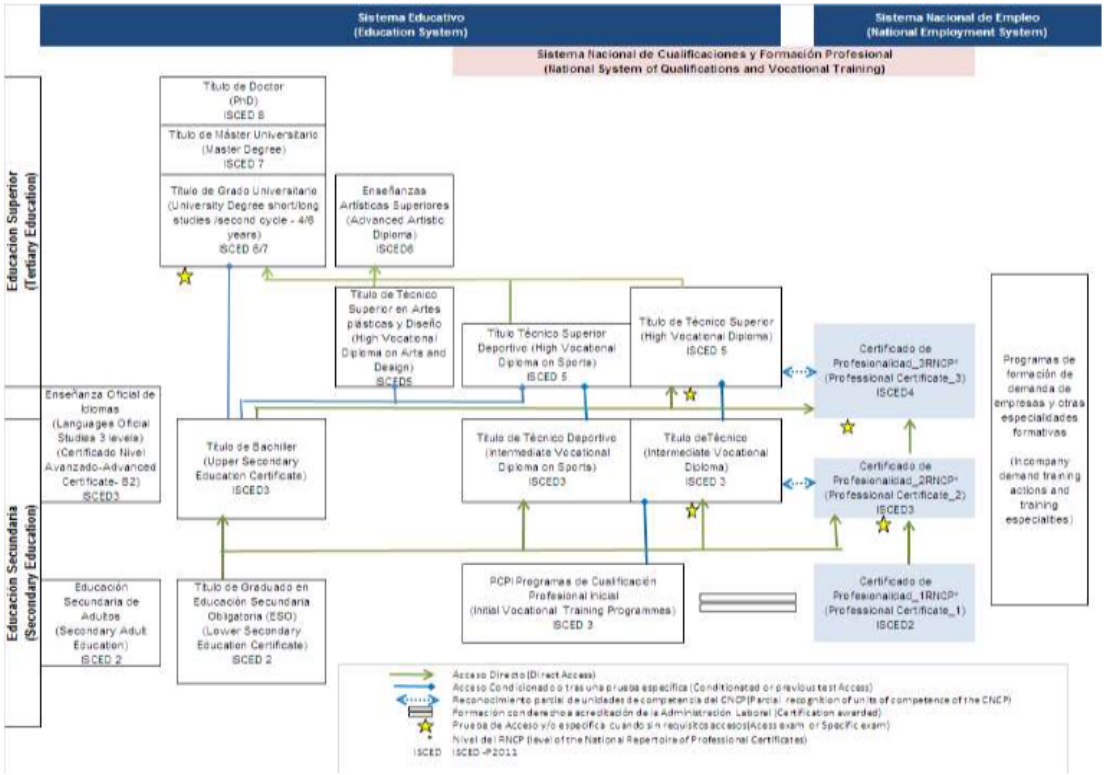
(*) **Explanatory note:** This document is designed to provide additional information about the specified certificate, but has no legal status in itself. The format of the description is based on the following texts: Council Resolution 93/C 49/01 of 3 December 1992 on the transparency of qualifications; Council Resolution 96/C 224/04 of 15 July 1996 on the transparency of vocational training certificates; and Recommendation 2001/613/EC of the European Parliament and of the Council of 10 July 2001 on mobility within the Community for students, persons undergoing training, volunteers, teachers and trainers.

More information is available at: http://europass.cedefop.eu.int

EUROPASS SUPPLEMENT (*)

SPAIN

Information on Professional Certificates of the Map of Qualifications and Vocational Training in Spain



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EXAMPLE 2 (VET EMPLOYMENT SYSTEM)

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EUROPASS SUPPLEMENT (*)

SPAIN

1. TITLE OF THE CERTIFICATE (ES)
Certificado de Profesionalidad de nivel 3 en EOCO0112 CONTROL DE EJECUCIÓN DE OBRAS DE EDIFICACIÓN

2. TRANSLATED TITLE OF THE CERTIFICATE (EN)
Professional Certificate Level 3 in EOCO0112 MONITORING OF BUILDINGS CONSTRUCTION ONSITE (This translation has no legal status)

3. PROFILE OF SKILLS AND COMPETENCES

The holder of this certificate will have acquired the general competence to manage on site the stages of buildings construction -in building constructions of new residential, retrofitting or others, organising and supervising the development, coordinating and transmitting instructions to the various stakeholders, performing surveys, monitoring the development of the short-term planning and assigning workloads to ensure that works are done with the quality and the time limit scheduled, observing the safety and health working conditions, and following the blueprint specifications and the instructions received by the top or higher responsible. This general competence is divided into the following skill units (UC):

- Perform surveys in the pits and organise the topography services works (UC2140_3).
- Check the laying out of the formwork, passive armatures and concrete (UC2141_3).
- Check the groundwork preparation and the foundation and building structure construction (UC2147_3).
- Monitor the execution of the building isolation cover (UC2148_3).
- Monitor the execution of domestic dwellings, facilities and finishes in buildings (UC2149_3).
- Organise and manage the development of construction works (UC2146_3).
- Monitor the specific building renovations techniques (UC2150_3).
- Monitor at a basic level labour risks in construction (UC1360_2).

The professional skills are acquired through the learning outcomes defined within the related Training Modules (MF):

- Organization and development of onsite work in construction (MF2140_3).
- Onsite development of formwork, passive armatures and concrete (MF2141_3).
- Ground preparation, foundation and building structure works (MF2147_3).
- Building cover works (MF2148_3).
- Dwellings and finishes, and facilities installations in buildings (MF2149_3).
- Organization of resources and workload in construction works (MF2146_3).
- Specific rehabilitation works in buildings (MF2150_3).
- Basic occupational risks prevention in construction (MF1360_2).
- Practical training at the workplace in Monitoring of buildings construction onsite (MP0541).

(See legal basis for all learning outcomes information acquired by the holder of this Certificate in each MF).

As a reference the learning outcomes include in the Practical training at the workplace that complete and reinforce the learning outcomes acquired in the other training modules, are:

- Use organization and monitoring software for surveys onsite following the instructions and under the supervision of the responsible.
- Monitor and manage the performing of formwork, passive armatures and concrete, following the instructions of a superior responsible.
- Control and manage the ground preparation, the foundation works, the retaining structures, the complementary elements of the foundation and of different types of building structure -which includes reinforced concrete structures and prefabricated elements of different materials, according to the blueprint and following the instructions of the superior responsible.
- Monitor and manage the execution of the building cover: flat roofs, pitched roofs and façades, according to the blueprint and following the instructions of the superior responsible.
- Monitor and manage the execution of domestic dwellings, facilities installation and finishes of the building according to the blueprint and following the instructions of the superior responsible.
- Organise and manage residential buildings construction according to the blueprint and following the instructions of the superior responsibility.
- Monitor and manage the rehabilitation works of the buried sewage network, demolition/construction in building according to the blueprint and following the instructions of the superior responsible.

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SPAIN

3. PROFILE OF SKILLS AND COMPETENCES
– Participate in the working processes of the company, following the rules and instructions established at the workplace.

4. RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THIS CERTIFICATE
The holder of this certificate may work in the construction sector, in buildings works and specialized construction activities. The most relevant occupations and work positions are: – Site manager or team work leaders. – Building work foreman in general. – Finishing buildings working team manager. – Managers and/or team leaders in assembly of metallic structures workshops. – Structures construction onsite managers and team leaders. – Responsible for rehabilitation and home reform. – Foreman in buildings construction. The holder of this professional certificate has recognition of the basic level training in labour risk prevention, according to Annex IV of the Royal Decree 39/1997 of 17 of January approving the Labour Risks Prevention Act.

5. OFFICIAL BASIS OF THE CERTIFICATE
Name and status of the national/regional authority providing accreditation/recognition of the certificate
The Ministry of Employment and Social Security or the corresponding autonomous regional administration within the scope of its competence, in the name of the King. The certificate is valid throughout Spain.
Level of the certificate
The Professional Certificate Level 3 of the National Repertoire of Professional Certificates corresponds to level 4 of the International Standard Classification of Education (ISCED-P 2011). The European Qualification Framework (EQF) level:
Grading scale/Pass requirements
The grading scale and pass level of the training modules are expressed on a scale of 0 to 10. The minimum score for a pass is 5 in every training module including a pass in the practical training at the workplace module. The grading system is as follows: – FAIL: 0 to 4.9 – PASS-SATISFACTORY: 5 to 6.9 – PASS-GOOD: 7 to 8.9 – PASS-EXCELLENT: 9 to 10
Access to next level of education/training
This Professional Certificate Level 3 gives access to Professional Certificate Level 3 within the same professional area and family. For validation purposes, the educational authorities will recognise the professional module or modules of the VET diplomas corresponding to the skills units included in the training modules of this certificate.
Legal basis
Royal Decree 986/2013 of December 13th, by which three professional certificates of the professional family Construction and Civil Work, included in the National Repertoire of professional certificates are established, and certain professional certificates of the professional family "Extractive industries" established in Royal Decree 1217/2009 of July 17th and in Royal Decree 713/2011 of May 20th are updated. (Appendix II, Code: EOCO0112)

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EUROPASS SUPPLEMENT (*)

SPAIN

6. OFFICIALLY RECOGNISED WAYS OF ACQUIRING THE CERTIFICATE

This certificate may be acquired by:

1. Training: Completion with a pass grade of the face-to-face or online training programme.
2. Recognition of the professional skills acquired through professional experience or non-formal training (prior learning): Completion of a process of skills evaluation and accreditation in all the skills units making up the professional certificate.
3. Dual training: Completion of a training and apprenticeship contract, which may range from 1 year (or 6 months, if stipulated as such in the collective agreement) to 3 years, during which effective working time is combined with time dedicated to training under the training programme for the professional certificate.

The training method (number 1 above) requires successful completion of the training modules and the practical training at the workplace:

Description of vocational training received	Percentage of total programme (%)	Duration (hours)
Training modules	84	630
Practical training at the workplace	16	120
Total duration of training leading to the certificate		**750**

Entry/access requirements:

- *Bachiller* Diploma (upper secondary education); or
- Professional Certificate Level 2 in the same professional area.
- If neither of the above or higher certifications are held, a pass in the key skills tests.

Additional information: Professional certificates are instruments for official accreditation of the professional qualifications in the National Catalogue of Professional Qualifications for all economic activities, within the scope of the labour administration. The National Repertoire of Professional Certificates is divided into three qualification levels (Level 1, Level 2 and Level 3), and by sectors into 26 professional families and 102 professional areas. More information is available at: www.sepe.es

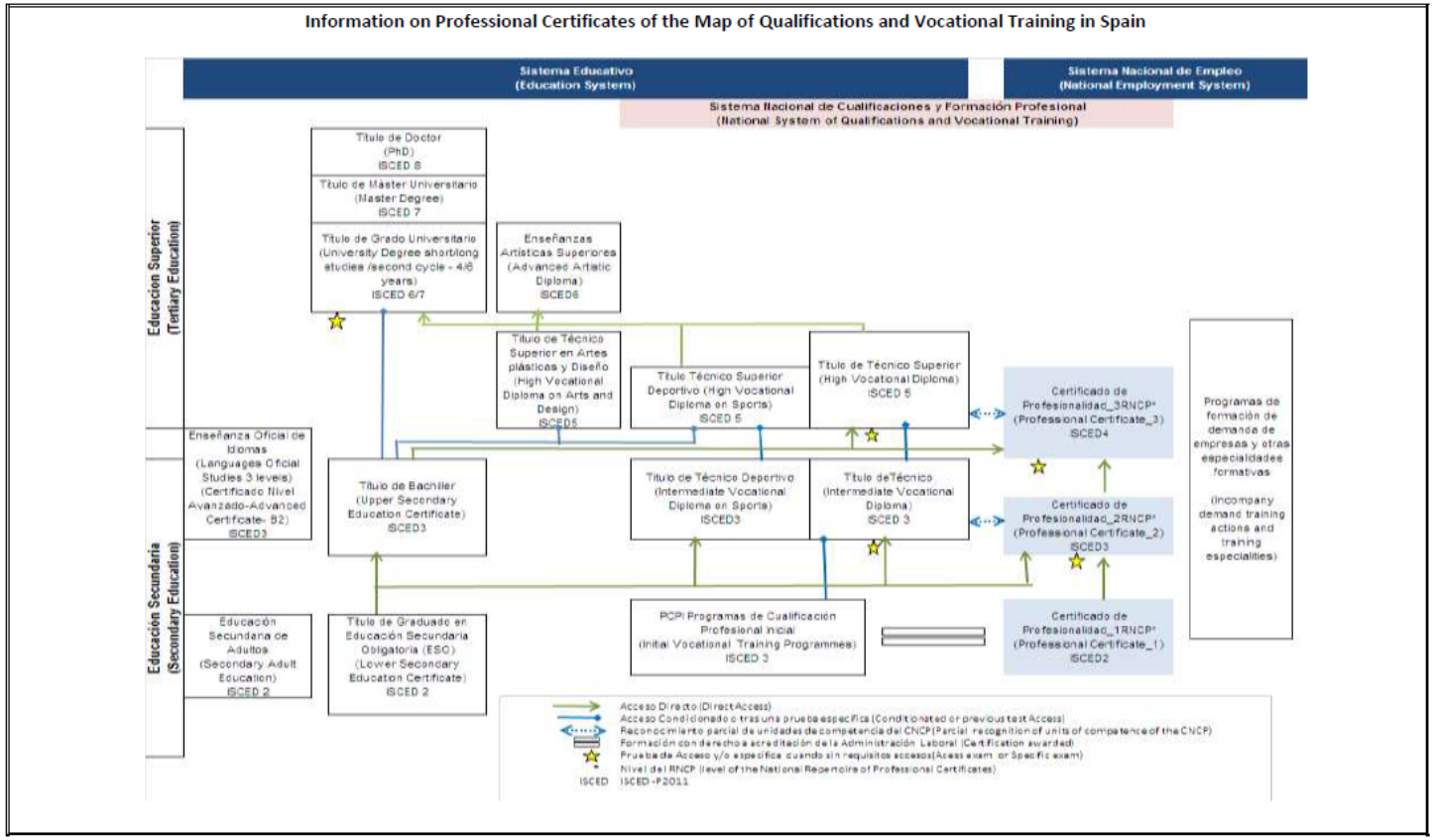
National Europass Centre: www.sepie.es

(*) **Explanatory note:** This document is designed to provide additional information about the specified certificate, but has no legal status in itself. The format of the description is based on the following texts: Council Resolution 93/C 49/01 of 3 December 1992 on the transparency of qualifications; Council Resolution 96/C 224/04 of 15 July 1996 on the transparency of vocational training certificates; and Recommendation 2001/613/EC of the European Parliament and of the Council of 10 July 2001 on mobility within the Community for students, persons undergoing training, volunteers, teachers and trainers.

More information is available at: http://europass.cedefop.eu.int

EUROPASS SUPPLEMENT (*)

SPAIN



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EXAMPLE 3 (VET EMPLOYMENT SYSTEM)

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SPAIN

1. TITLE OF THE CERTIFICATE (ES)
Certificado de Profesionalidad de nivel 3 en EOCO0212 CONTROL DE EJECUCIÓN DE OBRAS CIVILES

2. TRANSLATED TITLE OF THE CERTIFICATE (EN)
Professional Certificate Level 3 in EOCO0212 MONITORING OF CIVIL WORKS CONSTRUCTION ONSITE (This translation has no legal status)

3. PROFILE OF SKILLS AND COMPETENCES

The holder of this certificate will have acquired the general competence to manage on site the various working areas of civil works constructions, organizing and supervising the execution, performing surveys, monitoring the development of the short-term planning and assigning workloads to ensure that works are done with the quality and the time limit scheduled, observing the safety and health working conditions, and following the blueprint specifications and the instructions received by the top or higher responsible. This general competence is divided into the following skill units (UC):

- Perform surveys in the pits and organise the topography services works (UC2140_3).
- Check the laying out of the formwork, passive armatures and concrete (UC2141_3).
- Monitor the foundations works and structures in civil works (UC2142_3).
- Monitor the earthmoving works in civil works (UC2143_3).
- Monitor the pipes and facilities services installations in civil works (UC2144_3).
- Monitor the road surface constructions and complementary elements in civil works (UC2145_3).
- Organise and manage the development of construction works (UC2146_3).
- Monitor at a basic level labour risks in construction (UC1360_2).

The professional skills are acquired through the learning outcomes defined within the related Training Modules (MF):

- Organization and development of onsite work in construction (MF2140_3).
- Onsite development of formwork, passive armatures and concrete (MF2141_3).
- Foundation works and civil engineering structures (MF2142_3).
- Earthmoving works in civil engineering (MF2143_3).
- Civil works of pipelines and facilities services installations (MF2144_3).
- Road surfaces and complementary elements in civil engineering (MF2145_3).
- Organization of resources and workload in construction works (MF2146_3).
- Basic occupational risks prevention in construction (MF1360_2).
- Practical training at the workplace in monitoring of civil works construction onsite (MP0542).

(See legal basis for all learning outcomes information acquired by the holder of this Certificate in each MF).

As a reference the learning outcomes include in the Practical training at the workplace that complete and reinforce the learning outcomes acquired in the other training modules, are:

- Use organization and monitoring software for surveys onsite following the instructions and under the supervision of the responsible.
- Monitor and manage the performing of formwork, passive armatures and concrete, following the instructions of a superior responsible.
- Control and manage the foundations works, the retaining structures, the complementary elements of the foundations and of different types of buildings structure in civil works which includes reinforced concrete structures and prefabricated elements of different materials, according to the technical documentation and following the instructions of the superior responsible.
- Monitor and manage the earthmoving works or gardening works in civil works according to the blueprint and following the instructions of the superior responsible.
- Monitor and manage the construction of pipes and facilities services installations in civil works according to the blueprint and following the instructions of the superior responsible.
- Monitor and manage the implementation of strong and complementary elements in civil works according to the blueprint and following the instructions of the superior responsible.
- Organise and manage construction work and/or urban development works, according to the blueprint and

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3. PROFILE OF SKILLS AND COMPETENCES
following the instructions of the superior responsibility. – Participate in the working processes of the company, following the rules and instructions established at the workplace.

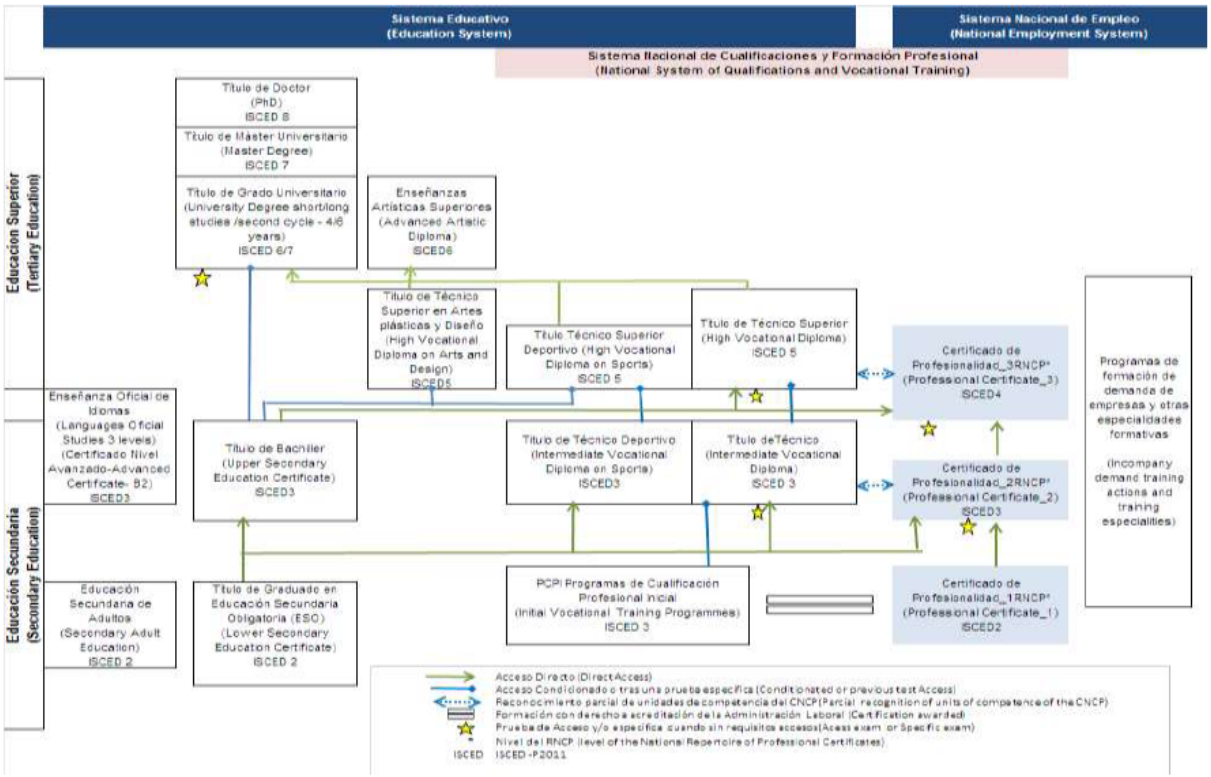
4. RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THIS CERTIFICATE
The holder of this certificate may work in the construction sector, in civil engineering works and specialized construction activities services. The most relevant occupations and work positions are: – Civil works managers in general. – Managers and/or team leaders in assembly of metallic structures workshops. – Site manager – Structures construction onsite managers and team leaders. – Earthmoving works managers. – Road surface and pavements onsite managers. – Pipes and facilities services installation manager. The holder of this professional certificate has recognition of the basic level training in labour risk prevention, according to Annex IV of the Royal Decree 39/1997 of 17 of January approving the Labour Risks Prevention Act.

5. OFFICIAL BASIS OF THE CERTIFICATE
Name and status of the national/regional authority providing accreditation/recognition of the certificate
The Ministry of Employment and Social Security or the corresponding autonomous regional administration within the scope of its competence, in the name of the King. The certificate is valid throughout Spain.
Level of the certificate
The Professional Certificate Level 3 of the National Repertoire of Professional Certificates corresponds to level 4 of the International Standard Classification of Education (ISCED-P 2011). The European Qualification Framework (EQF) level:
Grading scale/Pass requirements
The grading scale and pass level of the training modules are expressed on a scale of 0 to 10. The minimum score for a pass is 5 in every training module including a pass in the practical training at the workplace module. The grading system is as follows: – FAIL: 0 to 4.9 – PASS-SATISFACTORY: 5 to 6.9 – PASS-GOOD: 7 to 8.9 – PASS-EXCELLENT: 9 to 10
Access to next level of education/training
This Professional Certificate Level 3 gives access to Professional Certificate Level 3 within the same professional area and family. For validation purposes, the educational authorities will recognise the professional module or modules of the VET diplomas corresponding to the skills units included in the training modules of this certificate.
Legal basis
Royal Decree 986/2013 of December 13th, by which three professional certificates of the professional family Construction and Civil Work, included in the National Repertoire of professional certificates are established, and certain professional certificates of the professional family "Extractive industries", established in Royal Decree 1217/2009 of July 17th and in Royal Decree 713/2011 of May 20th are updated. (Appendix III, Code: EOCO0212)

EUROPASS SUPPLEMENT (*)

SPAIN

Information on Professional Certificates of the Map of Qualifications and Vocational Training in Spain



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Annex III. Example of existing qualification in Lithuania

STUDY PROGRAM DATA

No.	Parameters		Data	
1.	Name of study program		**Construction Engineering**	
2.	State code of the study program		6531EX012	
3.	Study program code according to the International Standard Classification of Education (ISCED)		6550732	
4.	Names and codes of study field, group of fields or descriptions of study field (if any), regulations of study fields (if there is)		Civil Engineering, Engineering Sciences, Description of the Engineering Study Fields Group	
5.	Field of education		Architecture and construction	
6.	Education sub - area		Construction and civil engineering	
7.	Program level		College studies – level 6	
8.	Type of study		Degree studies	
9.	Degree of study		Primary degree studies	
10.	Qualification awarded (name, code)		Professional Bachelor's Degree in Engineering Sciences, KVALLAIP00811	
11.	Attributes of qualification degrees		Professional bachelor's degree in a group of study fields	
12.	Name and code of the education certificate form to be issued		Professional bachelor's diploma, code 6632	
13.	Name of the required qualification to start studies according to the program, state code (if established)		-	
14.	Minimum education		At least secondary education, taking into account the learning outcomes of the entrants or other criteria set by the higher education institution.	
15.	Other data		-	
16.	Program volume in credits	Form of studies	Duration of studies (years)	Year of first admission to the program
	180	Permanent	3	2003
	180	Part time	4	2003
17.	Names of program specializations in Lithuanian and English (if any)		-	
18.	Program specialization description (if any)		-	
19.	Possibility to choose studies in a related field (yes/no)		No	

20.	Program Financial Group Code	2.2
21.	Structure of the study system	Postgraduate studies
22.	Summary of Profile of a Study Programme	**General Description:**
		Objective(s) of a study programme:
		The aim of Professional Bachelor study programme of Construction Engineering is to prepare highly qualified construction engineers, who are able to assess the building materials, product characteristics, field of application and modern construction technologies and who are able to use the most advanced design and modeling systems of construction information as well as organizing of construction works and preparation of estimated outlay documentation.
		Learning outcomes:
		The graduate of Construction Engineering programme will be able to: 1. Know and apply common patterns and laws of natural sciences and mathematics in civil engineering. 2. Know, understand and apply the key concepts of the study field of civil engineering. 3. Analyze problems related to construction activity by planning their solution strategies. 4. Interpret the processed data to solve the problems of innovation in construction. 5. Collect independently, analyze, process and interpret data necessary problem solving in implementing innovations in the area of construction. 6. Recognize and apply professional solutions in order to achieve balance in terms of costs, benefit, safety, quality, reliability, suitability for use and environmental impact. 7. Find and interpret professional information in databases and scientific and engineering information sources. 8. Conduct experiments by using laboratory equipment, process and produce practical conclusions on the findings in the area of civil engineering.

		9. Prepare the structural part of a project and choose optimum construction methods taking into consideration the construction environment, aesthetic and architectural aspects, economic factors and anticipated maintenance conditions. 10. Apply of International, European and Lithuanian regulatory technical construction documents and standards in the designing of buildings and construction process. 11. Plan and organize of the construction process, while ensuring quality of works and environmental and human safety. 12. Use of information technology and basic software, employment of applications in the designing of buildings and preparation of estimate documentation. 13. Apply creative, innovative and reasonable thinking, ability to solve problems of civil engineering and handle issues individually and in a team. 14. Know the key processes of construction project implementation and management, planning and organisation of activities of a construction company/subsidiary.
		Activities of teaching and learning:
		The Construction Engineering study programme is oriented to the development of generic and specialist competences and creativity: lectures, seminars, discussions, individual and group projects, practice, case studies, public presentation and defense of projects, mind-maps, problem - solving reading, writing articles, information search and systematizing, etc.
		Methods of student achievement assessment:
		The assessment of the learning outcomes of the study programme is carried out during the semester and the examination session applying a cumulative assessment system. During the semester, the learning outcomes are assessed by means of interim assignments: tests, individual and group

		projects, case studies, information search and systematizing, discussions, essays, independent creative tasks, seminars, term papers, practice reports, examinations, final projects and / or qualifying exams.
		Framework:
		Study subjects (modules), practical training:
		Study subjects (121 credits): Professional Communication, Applied Research Methodology, Foreign Language (English, Russian),Basics of Management, Construction Materials, Applied Chemistry, Engineering and Special Graphics, Applied Mechanics, Environmental and Human Safety, Construction Law, Geotechnics, Constructions of Buildings, Construction Calculations, Engineering Systems of Buildings, Construction Organization, Business Economics of Construction, Information Modeling of Buildings, Industrial Building Constructions, Industrial Building Technology, Building Reconstruction and Repair Technology, Structural Modeling in BIM Environment, Construction Project Management. Optional subjects (6 credits). Practices (41 credits): Manufacturing of Construction Materials, Construction Works, Construction Business, Construction Technology, Construction Work Organization practices and Final Practice. Graduation Paper (12 credits).
		Specializations:
		-
		Optional courses:
		It is possible: - to select optional subjects; to select alternative subjects.
		Distinctive features of a study programme:
		During the study process students are able to evaluate the properties of building materials, products, field of application and are able to apply in the design and construction of structures; they use advanced design technologies and information modeling

		systems for designing and building information design of constructional works, are able to preparation of cost estimates; plans and organizes the construction works applying modern construction technologies and modern methods of management of construction.
		Access to professional activity or further study:
		Access to professional activity:
		Graduates will be able to pursue a career in construction engineers: construction work executives, technical maintenance of building construction, Estimators in various construction, design companies and public organizations. Have a great opportunity to create a private business.
		Access to further study:
		Access to the second cycle studies upon meeting requirements set by the accepting higher education institution.