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EUROPASS DIPLOMA SUPPLEMENT

TITLE OF THE DIPLOMA (ES)

Técnico Superior en Gestión del Agua

TRANSLATED TITLE OF THE DIPLOMA (EN) (1)

Higher Technician in Water Management

(1) This translation has no legal status.

DIPLOMA DESCRIPTION

The holder of this diploma will have acquired the General Competence with regard to:

Managing the efficient use of water, organising and developing the assembly, implementation, exploitation and maintenance of water networks and waste water treatment plants, applying the quality standards (both to water and water facilities) and the measures to prevent labour risks and to protect the environment as required in the current legislation.

Within this framework, the PROFESSIONAL MODULES and their respective LEARNING OUTCOMES acquired by the holder are listed below:

"Planning and drawing".

The holder:

- Identifies project activities and the execution of construction works, relating them to the project stages and the means of production.
- Defines the main types of construction works in water networks and waste water treatment plants, relating the processes for their operation with their basic characteristics and requirements.
- Carries out the measurement of system units and budgets, calculating quantities and expressing the results in standard documents.
- Represents and interprets construction elements, drawing sketches, maps, construction details, floor plans, elevations, side view and drawing sections, by means of drawing tools, hardware, peripherals of graphic output, and suitable software.
- Represents and interprets electric elements, drawing sketches, maps, construction details, electrical diagrams by means of drawing tools, hardware, peripherals of graphic output and suitable software.
- Sketches and drawing layout plans, selecting the drawing method and writing down significant data.
- Draws construction works points and elements, materialising their marks in the field and/or in the construction works.

"Water quality and treatment".

The holder:

- Determines water quality by relating the typical parameters with its origins in the integral water cycle.
- Defines the treatment sequence for obtaining drinking water, dealing with the operation parameters and their relation with those specified for quality.
- Defines the treatment sequence for obtaining drinking water from salt or brackish water, dealing with the most important operation variables.
- Determines the different water treatment operations in waste water treatment plants, identifying the usual operation conditions, the typical deviations and their possible causes.
- Identifies the different existing configurations to carry out a biological treatment, associating it with the nutrient removal and the treated water quality required.
- Determines the features of the different types of tertiary treatment, with special attention to disinfection, recognising the possible uses of reclaimed water.
- Defines the different processes taking place in the management of sludge, identifying their energy use.

"Water efficiency management".

The holder:

- Defines the concept of environmental sustainability by associating the energy consumption with the real water use.
- Performs the necessary operations to carry out the stages of an energy audit in water facilities, analysing their typical parameters.
- Monitors the improvement plan derived from energy audits, implementing the necessary proceedings to carry it out.
- Measures the energy use and consumption of several systems by using measuring devices and equipment.
- Determine the size of equipment and elements of the facilities from an energy efficiency approach.
- Provides improvement plans for energy efficiency in the integral water cycle, defining the procedures to be applied in the different stages of the process.

“Water supply network setup”.

The holder:

– Determines basic hydraulic parameters in water facilities, interpreting the fundamental equations of hydraulics and related concepts.
– Applies the calculation methods associated with hydraulic parameters.
– Sets up distribution networks, selecting the constituent elements of the facilities according to the network hydraulic features.
– Sets up sanitation networks, selecting the constituent parts of the facilities according to network hydraulic features.
– Sets up other kinds of water networks, such as irrigation or fire water networks among others, selecting the constituent parts of the facilities according to network hydraulic features.

“Electric systems in water facilities”.

The holder:

– Defines the different electrical systems of water networks and facilities, relating their functions to the operational environment in water management.
– Carries out electrical measures and electrical security testing, using suitable equipment and interpreting the outcomes.
– Sets up electric circuits with characteristic components, interpreting diagrams and verifying their operation.
– Connects electric equipment with auxiliary elements of control, protection and speed regulation, interpreting diagrams and verifying their functioning.
– Selects and applies electrical safety standards, recognising the associated risks, actions and equipment to prevent them.

“Automation and remote control in water facilities”.

The holder:

– Defines the elements of instrumentation, control and measurement used in water networks and facilities, selecting elements and assessing parameters.
– Defines electronic and tension control diagrams, identifying and installing the components.
– Sets up and programmes the electronic and automation equipment of facilities, carrying out and adjusting control systems.
– Sets up the drives used in water networks and facilities, recognising their operation and using technical documentation.
– Defines transmission and communication systems for the remote control of processes, recognising their components and signals.
– Uses automatic control applications that have SCADA software, simulating controls and identifying system adjustments.
– Controls operation parameters from a control centre, performing operations and providing information as specified in protocols.

“Operations in water networks and facilities”.

The holder:

– Carries out assembly operations of water networks, following the guidelines set out in the technical documentation and the work plan established.
– Applies the procedures for the commissioning of water networks and facilities, observing the quality and safety requirements.
– Applies preventive maintenance plans in water networks and facilities, developing actions and managing resources on the basis of the established criteria.
– Carries out the corrective maintenance in water networks and facilities, sorting out malfunctions and breakdowns according to the established protocol.
– Fills in and organises the necessary documentation for the operation management in water networks and facilities.
– Selects and applies measures for the prevention, safety and environmental protection as regards operations in water networks and facilities, analysing the current legislation.

“Operation, quality and environment management”.

The holder:

– Designs work plans for construction works and the assembly of water networks and facilities, establishing connections between the defined project and its operation.
– Determines the supply needs of essential material and human resources on the basis of the interpretation of water networks and facilities projects as well as the available resources.
– Carries out the monitoring plan in construction works and the assembly of water networks and facilities, applying programming techniques and providing some suggestions to the deviations detected.
– Applies quality plans, managing the documentation and regulations for quality assurance and management.
– Establishes environment protection measures, applying the environment management systems established.

“Assembly techniques in water facilities”.

The holder:

– Identifies materials and their treatments used in water facilities and networks, analysing their physical and chemical properties.

– Carries out operations for element transformation by applying machining and shaping techniques, associating the operation of the machinery with the conditions of the process and the product characteristics.
– Makes non-welded joints, analysing the characteristics of each joint and applying suitable techniques for each type of joint.
– Makes welded joints, selecting the adequate technique for each kind of material and installation.
– Carries out the assembly and the maintenance of equipment and components of water facilities and networks, applying assembly techniques, reading maps and interpreting the manufacturer's instructions.
– Complies with the standards on labour risk prevention and environmental protection, identifying the associated risks, the actions and equipment to prevent them.

"Communication and relationships techniques".

The holder:

– Applies communication techniques, analysing their characteristics and potential.
– Caters for potential customers, relating their needs to the product or service characteristics.
– Transmits the business image, relating it to the characteristics and goals of the company.
– Manages customer complaints, claims and suggestions, analysing problems and recognising the applicable law.
– Monitors the quality of the service provided, analysing the level of satisfaction of potential clients.

"Project on water efficiency management".

The holder:

– Identifies the needs of the production sector, relating them to the standard projects that may satisfy them.
– Designs projects related to the competences described in the diploma, including and developing their constituting stages.
– Plans the project implementation, determining the intervention plan and associated documentation.
– Defines the procedures for the monitoring and control of the project implementation, justifying the selection of variables and instruments used.

"Vocational Training and Guidance".

The holder:

– Selects job opportunities, identifying the different possibilities of labour integration, and the alternatives of lifelong learning.
– Applies teamwork strategies, assessing their effectiveness and efficiency on the achievement of the company's goals.
– Exercises rights and complies with the duties derived from labour relationships, recognising them in the different job contracts.
– Determines the protective action of the Spanish Health Service in view of the different covered eventualities, identifying the different types of assistance.
– Assesses risks derived from his/her activity, analysing job conditions and risk factors present in his/her labour setting.
– Participates in the development of a risk prevention plan in a small enterprise, identifying the responsibilities of all agents involved.
– Applies protection and prevention measures, analysing risk situations in the labour setting of the Higher Technician in Water Management.

"Business and Entrepreneurial Initiative".

The holder:

– Recognises skills related to entrepreneurial initiative, analysing the requirements derived from job positions and business activities.
– Defines the opportunity of creating a small enterprise, assessing the impact on the performance setting and incorporating ethic values.
– Carries out the activities for the setting-up and implementation of a company, choosing the legal structure and identifying the associated legal obligations.
– Carries out basic administrative and financial management activities of an SME, identifying the main accounting and tax obligations and filling in documentation.

"On the Job Training".

The holder:

– Identifies the company's structure and organisation, relating them to the kind of service provided.
– Applies ethical and work habits in the development of his/her professional activity, according to the characteristics of the job and the procedures established by the enterprise.
– Defines the type of process in water facilities, determining the procedures required to carry it out, the possible water destinations and the use of waste when applicable.
– Defines the required operations in the framework for improvement actions on energy efficiency and water efficiency management in the given facilities, determining actions to implement improvement or correction measures.
– Sets up a water network or facilities, given the hydraulic characteristics and the pertaining uses, measuring and selecting the constituent parts.

– Organises and gets involved in the assembly, implementation and maintenance of water networks and facilities, using the required means and complying with the measures to be observed.
– Diagnoses breakdowns or malfunctions in water networks and facilities, determining the measures to be taken for their correction or repair.

RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE DIPLOMA

The Higher Technician in Water Management.

The most relevant occupations or jobs are the following:

- Water Supply and Distribution Network Assembly Manager.
- Water Network and Sanitation Facilities Assembly Manager.
- Water Network Maintenance Manager.
- Sewerage Network maintenance Manager.
- Water Supply Treatment Plant Operator.
- Wastewater treatment Plant Operator.
- Water Efficiency Management Technician.
- Water Distribution Systems Technician.

AWARD, ACCREDITATION AND LEVEL OF THE DIPLOMA

Name of the body awarding the diploma on behalf of the King of Spain: Spanish Ministry of Education or the different Autonomous Communities according to their areas of competence. The title has academic and professional validity throughout Spain.

Official duration of the education/ training leading to the diploma: 2000 hours.

Level of the diploma (national or international)

- NATIONAL: Non-University Higher Education
- INTERNATIONAL:
  - Level 5 of the International Standard Classification of Education (ISCED5).
  - Level 5 of the European Qualifications Framework (EQF 5).

Entry requirements: Holding the Certificate in Post-Compulsory Secondary Education (Bachillerato) or holding the corresponding access test.

Access to next level of education/training: This diploma provides access to university studies.

Legal basis. Basic regulation according to which the diploma is established:

- Minimum teaching requirements established by the State: Royal Decree 113/2017, according to which the diploma of Higher Technician in Water Management and its corresponding minimum teaching requirements are established.

Explanatory note: This document is designed to provide additional information about the specified diploma and does not have any legal status in itself.

COURSE STRUCTURE OF THE OFFICIALLY RECOGNISED DIPLOMA

PROFESSIONAL MODULES IN THE DIPLOMA ROYAL DECREE	CREDITS ECTS
Planning and drawing.	11
Water quality and treatment.	8
Water efficiency management.	6
Water supply network setup.	11
Electric systems in water facilities.	5
Automation and remote control in water facilities.	9
Operations in water networks and facilities.	13
Operation, quality and environment management.	7
Assembly techniques in water facilities.	11
Communication and relationships techniques.	3
Project on water efficiency management.	5
Vocational Training and Guidance.	5
Business and Entrepreneurial Initiative.	4
On the Job Training.	22
	TOTAL CREDITS
	120
OFFICIAL DURATION (HOURS)	***2000***

* The minimum teaching requirements shown in the table above comprise 55% official credit points valid throughout Spain. The remaining 45% corresponds to each Autonomous Community and can be described in the **Annex I** of this supplement

INFORMATION ON THE EDUCATION SYSTEM