

# EUROPASS CERTIFICATE SUPPLEMENT

## TITLE OF THE DIPLOMA (ES)

*Técnico en Excavaciones y Sondeos*

## TRANSLATED TITLE OF THE DIPLOMA (EN)<sup>(1)</sup>

*Technician in Excavation and Drilling*

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(1) This translation has no legal status.

## DIPLOMA DESCRIPTION

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

Carrying out excavations to extract natural resources or to carry out underground and open-cast works, as well as perforating mineral exploration and geotechnical investigation probe holes, assembling and maintaining plans and machinery applying the legislation on environmental protection and on labour risk prevention.

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

### “Probe Holes”

The holder:

- Prepares the transfer and the placing of the frilling equipment, relating it to type of probe hole, the characteristics of the sole and the technique used.
- Installs the equipment and the auxiliary drilling resources, describing the sequence of the operations to be carried out.
- Applies drilling techniques for probe holes, characterizing the procedures and the machinery to be used, according to the kind of probe hole and sole.
- Carries out recovery or correction operations during drilling, relating the condition of the well or the drilling to the machine and the equipment to be used.
- Carries out first-level maintenance in probe holes machinery, relating the techniques or maintenance work to the equipment, the materials and the tools.
- Complies with the rules on labour risk prevention and environmental protection, identifying the associated risks, the measures and the equipment to prevent them.

### “Geotechnical Work”

The holder:

- Identifies and takes samples of soils and rocks for analysis, relating them to the extraction method, collection, purpose and the type of material to be sampled.
- In non-recoverable core drilling obtains samples by rotary percussive drilling, relating the drilling fluid type to the collection system and to the features of the sample obtained.
- Extracts continuous sampling by means of rotative drillings, characterizing the extraction sequence and the drilling parameters.
- Carries out cone penetration, pressuremeter and dilatometric, measures describing the process according to the techniques and the applicable legislation.
- Carries out the vane test and the plate-bearing test, describing the process depending on the techniques and the applicable regulations.
- Applies permeation measures in situ by means of production and pumping tests amongst others, relating the hydrological parameters and the aquifer features to the testing techniques and the applicable regulations.
- Measures the length, diversions, piezometric head and stress variation in drilling, relating the equipment and the instruments used to the sequence and the way to carry out the measures.
- Carries out soil and rock laboratory tests, relating them to the necessary devices and materials and describing the process, depending on technique and the applicable regulations.
- Complies with the rules on labour risk prevention and environmental protection, identifying the associated risks, the measures and the equipment to prevent them.

### “Drilling”

The holder:

- Carries out verification operations of the condition of the face, support, gas monitoring and others, relating the condition of the excavation to the machinery or equipment to be used.

- Drills holes by using manual equipment, applying the required techniques and procedures.
- Drills by using equipment with top or down the hole hammer, relating the drilling parameters to the required techniques and procedures.
- Drills holes by using jumbo, interpreting the parameters, techniques and drilling patterns.
- Drills holes by using rotary, pneumatic or electro-hydraulic drill, relating the operations to the technical documentation, the characteristics and the purpose of the drilling.
- Carries out first-level maintenance in drilling machinery, relating the techniques or maintenance work to the equipment, materials and tools.
- Complies with the rules on labour risk prevention and environmental protection, identifying the associated risks, the measures and the equipment to prevent them and preparing the equipment for individual and collective protection.

### **“Blasting Techniques”**

The holder:

- Prepares blasting equipment, machines, tools and accessories, relating the parameters that must be controlled to the measurements in situ.
- Handles industrial explosives and simulated initiation systems and blasting accessories, relating their features to the modus operandi.
- Loads the simulated blasting in open-pit and underground mining, applying the procedures established in the technical documentation.
- Carries out simulated blasting in open-pit and underground mining, relating the bursting charge and the initiation system to the blasting pattern.
- Destroys industrial explosives and simulated initiation systems, by using the most suitable method, according to their nature and composition.
- Complies with the rules on labour risk prevention and environmental protection, identifying the associated risks and the measures and the equipment to prevent them.

### **“Support”**

The holder:

- Protrudes concrete according to the product’s specifications, describing the sequence of the operations to be carried out.
- Carries out the support by means of a tuss or a set, according to the established procedure, describing and applying the techniques to stabilize the room.
- Carries out the support by means of bolts, anchoring or micropiles, depending on the procedure established, describing and applying the techniques to stabilize the room.
- Applies ripping and lifting techniques in galleries and tunnels, describing the sequence of the operations to be carried out, and the security conditions established.
- Complies with the rules on occupational risks prevention and environmental protection, identifying the associated risks as well as the measures and equipment for individual and collective protection to prevent them.

### **“Slope Stabilisation”**

The holder:

- Prepares the slope, describing the sequence of the operations to be carried out and the security conditions established.
- Modifies the slope’s geometry and drains it, relating the techniques to the terrain conditions.
- Reinforces the slope with resistant elements, according to the established procedure, characterizing the correction techniques.
- Strengthens the slope by means of superficial modifications, characterizing the sequence of the operations to carry out.
- Complies with the rules on labour risk prevention and environmental protection, identifying the associated risks, the measures and the equipment to prevent them.

### **“Selective Mining Excavations”**

The holder:

- Characterizes mechanized excavation processes through rock breaking and material cutting, relating the techniques to the machinery and the sections to be drilled.
- Prepares selective heading machines, relating the cutting tools to the excavation techniques and procedures with road header.
- Extracts and loads material with road header, describing the sequence of the operations to be carried out.
- Adapts the workplace for the ranging shearer and planers and sets up the machine, characterizing the mechanized digging methods with selective mining.
- Handles digging machinery, characterizing undercutting and planer systems and the suitable support for excavation works.

- Carries out first level maintenance in mechanized digging machinery with selective mining, relating maintenance techniques or labours to the equipment, materials and tools.
- Complies with the rules on labour risk prevention and environmental protection, identifying the associated risks, as well as the measures and the individual and collective protection equipment to prevent them.

#### **“Load and Transportation Operations in Excavations”**

The holder:

- Operates and loads with shovel loader, relating the features of the machine to the materials to be manipulated.
- Operates with scraper, relating the machinery features to the material to be loaded.
- Transports materials by means of continuous transportation systems, relating the features of the system to the type of material to be loaded.
- Handles and transports material by using a dumper, relating the features of the machine to the lay of the land.
- Carries out first-level maintenance in loading and transport machinery, relating the maintenance techniques or labour to the equipment, materials and tools.
- Complies with the rules on labour risk prevention and environment protection, indentifying the associated risks as well as the measures and the individual and collective protection equipment to prevent them.

#### **“Excavation Machinery Handling and Operation”**

The holder:

- Prepares the terrain, characterizing both mechanic and manual excavation processes and techniques.
- Excavates and prepares the terrain by using a bulldozer, relating the tools to the excavation techniques and procedures.
- Operates the excavator and the backhoe, relating the features of the machinery to the type of terrain and the operations to carry out.
- Carries out first-level maintenance in excavation machinery, relating the maintenance techniques or work to the equipment, materials and tools.
- Complies with the rules on labour risk prevention and environmental protection, identifying the associated risks, the measures and the individual and collective protection equipment to prevent them.

#### **“Professional 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 the risks derived from his/her activity, analysing the job conditions and the 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 the agents involved.
- Applies protection and prevention measures, analysing risk situations in the labour setting of the Technician in Excavation and Drilling

#### **“Business and Entrepreneurial Initiative”**

The holder:

- Recognises the 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 sphere of action and incorporating ethic values.
- Carries out the activities of the setting-up and implementation of a company, choosing its 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 organization, relating both to product marketing and production.
- Applies labour and ethic habits in his/her professional activity, according to the characteristics of the job position and the procedures established by the company.
- Prepares and installs the equipment and the accessory drilling means, applying the suitable techniques, depending on the characteristics of the terrain and the type of drilling.

- Carries out geotechnical tests, relating the necessary devices and equipment to the samples, the technique and the applicable regulations.
- Carries out earthwork operations with equipment and machinery, relating the tools to the excavation techniques and procedures.
- Undertakes excavations by means of a roadheader, coal cutter and planer, relating the techniques to the machinery and the sections to be drilled.
- Drills holes, relating the equipment and the machinery to the techniques, procedures, types of terrain and perforation patterns.
- Handles, loads and carries out opencast and deep simulated blastings, applying the security procedures established in the technical documentation.
- Applies procedures for stabilising and supporting slopes and gaps, relating the technical instruction to stabilization machinery and systems.
- Carries out loading and hauling operation in underground and opencast excavations, relating the type of machinery to the type and the purpose of the material.

### **RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE DIPLOMA**

The Technician in Excavation and Drilling works in companies devoted to mining, hydrogeological or geotechnical extraction or research. He/se also works for companies of the building sector, in geotechnical consultancy or companies specialised in earthworks, boring, drilling and trenching.

The most relevant occupations or jobs are the following:

- Miner
- Earthworks Machinery Driver-Operator
- Extraction and Excavation Machinery Driver-Operator
- Underground Loader Driver-Operator
- Ripping and Boring Machinery Operator
- Wells Drilling Machinery Operator
- Rock Breaking, Shearer and Planers Machinery Operator
- Explosives Expert
- Roadheader Operator
- Trench Shoring Expert
- Drill Operator
- Collier
- Mines Electromechanical
- Mechanical Officer
- Drill Operator for Mineral and Geotechnical Prospecting
- Drilling and Prospecting 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: Post-Compulsory Secondary Education
- INTERNATIONAL:
  - Level 3 of the International Standard Classification of Education (ISCED 3).
  - Level 4A of the European Qualifications Framework (EQF4).

**Entry requirements:** Holding the Certificate in Compulsory Secondary Education or holding the corresponding access test.

**Access to next level of education/training:** This diploma may provide access to Higher Technical Cycles provided that an entrance exam is passed.

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

- Minimum teaching requirements established by the State: Royal Decree 1592/2011, of 4 November, according to which the diploma of Technician in Excavation and Drill 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. An Annex I may be added and will be filled in by the corresponding Autonomous Community.

## INFORMATION ON THE EDUCATION SYSTEM

