EUROPASS DIPLOMA SUPPLEMENT

TITLE OF THE DIPLOMA (ES)

Técnico Superior en Desarrollo de Proyectos de Instalaciones Térmicas y de Fluidos

TRANSLATED TITLE OF THE DIPLOMA (EN) (1)

Higher Technician in the Development of Projects on Thermal and Fluids Installations

(1) This translation has no legal status.

DIPLOMA DESCRIPTION

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

Developing projects and planning the assembly of heat and fluids installations in buildings and industrial processes, in accordance with the established rules and regulations, following protocols on quality, safety and labour risk prevention and environmental protection.

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

"Electrical and Automatic Systems"

The holder:

– Selects electrical machines and their associated power supply, protection and control systems, analysing technical requirements and describing their function within the system.
– Configures wired regulation and control systems, analysing technical needs according to the different technologies (pneumatic, hydraulic and electrical), designing schemes and applying regulations.
– Performs fitting operations of automatic system for regulation and control interpreting installation plans and schemes.
– Verifies how automatic security systems work and their conditions carrying out tests and comparing characteristic magnitudes with reference values.
– Identifies malfunctions or failures in automatic systems analysing symptoms and relating them with the causes that produce them.
– Repairs malfunctions or failures in automatic systems verifying restoration of working parameters of the system.
– Configures programmable automatic systems describing how the equipment and elements of the system work and their application.
– Starts programmable automatic systems fitting equipment and preparing programs.
– Carries out fitting operations of programmable automatic systems interpreting schemes and verifying they work.

"Thermal Equipment and Installations"

The holder:

– Calculates the thermal load of heating, refrigeration and air conditioning installations, using tables, diagrams and computer programs.
– Determines heat production equipment and installations analysing how they work and describing the function that every component carries out in the group as a whole.
– Determines cooling equipment and installations analysing how they work and describing the function that every component carries out in the group as a whole.
– Determines air conditioning and ventilating equipment and installations analysing how they work and describing the function that every component carries out in the group as a whole.
– Determines the parameters that intervene in the transport of fluids using tables, diagrams, nomograms and computer programs.
– Determines fire protection equipment and elements analysing the characteristics of installations and applying current regulations.

"Installations Fitting Processes"

The holder:

– Identifies the different materials and their treatments used in installations analysing their physical and chemical properties.
– Carries out operations for the transformation of elements applying manual machining and shaping techniques, relating how machines work with the conditions of the process and the characteristics of the product.
– Makes non-welded joints analysing the characteristics of each joint and applying the techniques appropriate to each joint.
– Makes welded joints selecting the appropriate technique for each type of material and installation.

– Fits equipment and elements of cooling and air conditioning installations (hermetic compressors, splits, among others) at a low scale, applying fitting techniques and interpreting plans and the manufacturer's instructions.
– Fits equipment and elements of heating and water heating installations (single boilers and heaters) at a low scale, applying fitting techniques and interpreting plans and the manufacturer's instructions.
– Carries out tests on the watertightness of thermal and fluids installations applying technical and regulatory criteria.
– Performs operations for the fitting of electrical systems associated with thermal and fluids installations, interpreting fitting instructions and schemes.
– Starts thermal and fluids installations fitted at a low scale, checking they work properly.

"Graphical Representation of Installations"

The holder:

– Represents elements and equipment of thermal and fluids installations relating them with the normalised symbols applied in plans and schemes.
– Prepares initial schemes for thermal and fluids installations using computer-aided design programs.
– Designs thermal and fluids installations plans applying representation conventionalisms and design programs.
– Designs detailed plans and isometrics of installations describing the selected constructive solution.

"Renewable Energies and Energy Efficiency"

The holder:

– Calculates energy savings and gas emissions of renewable energy facilities comparing them with conventional facilities.
– Calculates losses due to shade, slope and orientation of a solar facility analysing the location data and environmental conditions.
– Calculates incident energy and radiation absorbed through a solar collector analysing the constructive characteristics and using solar radiation tables.
– Measures solar facilities in buildings analysing thermal needs and applying energy efficiency criteria.

"Air Conditioning, Heating and Water Heating Configuration"

The holder:

– Determines the suitable type of installation analysing need programmes and design conditions.
– Configures installations of air conditioning, heating and water heating of businesses or buildings selecting the necessary equipment and elements.
– Designs initial plans and schemes of thermal installations applying representation rules and using computer-aided design programs.
– Prepares estimates of air conditioning, heating and water heating installations using computer applications and pricing practices.
– Prepares the technical documentation of air conditioning, heating and water heating installations writing documents included in the project.

"Cooling Installations Configuration"

The holder:

– Determines the suitable type of cooling installation analysing the programme requirements and design conditions.
– Configures cooling installations selecting the necessary equipment and elements.
– Designs initial plans and schemes of cooling installations applying representation rules and using computer-aided design programs.
– Prepares estimates of cooling installations using computer applications and pricing practices.
– Prepares the technical documentation of cooling installations writing the documents included in the project.

"Fluids Installations Configuration"

The holder:

– Determines the suitable type of fluids installation analysing the needs programme and design conditions.
– Configures fluids installations selecting the necessary equipment and elements.
– Designs initial plans and schemes of fluids installations applying representation rules and using computer-aided design programs.
– Prepares estimates of fluids installations using computer applications and pricing practices.
– Prepares the technical documentation of fluids installations drafting documents included in the project.

"Installations Fitting Plan"

The holder:

– Selects the documentation relevant for the fitting plan analysing projects or technical reports.
– Determines installations fitting processes, describing and relating each one of their stages.
– Prepares installations fitting processes, applying scheduling techniques.
– Prepares procurement programmes establishing storage conditions of equipment, materials, components and tools.
– Prepares fitting estimates assessing work units and setting prices.
– Prepares instruction manuals of installations, using the equipment technical information.

"Project on Thermal and Fluids Installations"

The holder:

– Identifies the needs of the production sector, relating them with 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.

"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 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 the Development of Projects on Thermal and Fluids Installations.

"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 organization relating it to the production and marketing of the products obtained.
– 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.
– Determines the characteristics of cooling installations, thermal installations in building or fluids installations from a preliminary draft applying the corresponding regulations and rules.
– Plans the fitting of cooling installations, thermal installations in building or fluids installations from the technical documentation of the project.
– Designs initial plans and schemes of cooling installations, thermal installations in building or fluids installations applying representation rules and using computer-aided design applications.

RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE DIPLOMA

The Higher Technician in the Development of Projects on Thermal and Fluids Installations works in the industries in charge of fitting and maintaining thermal and fluids installations related with the sub-sector of HVAC (heating, ventilating and air conditioning) and water heating within the industrial sector and the construction and civil works sector.

The most relevant occupations or jobs are the following:

- Heating installations design draughtsperson
- Air conditioning and ventilating installations design draughtsperson
- Cooling installations design draughtsperson
- Fluids distribution networks and systems design draughtsperson
- Technician in the planning of heating installations fitting
- Technician in the planning of air conditioning and ventilating- air replacement installations fitting
- Technician in the planning of cooling installations fitting
- Technician in the planning of processes of fluids distribution networks and systems fitting

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 _____ of the European Qualifications Framework (EQF__).

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 219/2008, of 15 February, according to which the diploma of Higher Technician in the Development of Projects on Thermal and Fluids Installations 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
Electrical and Automatic Systems.	10
Thermal Equipment and Installations.	14
Installations Fitting Processes.	13
Graphical Representation of Installations.	7
Renewable Energies and Energy Efficiency.	4
Air Conditioning, Heating and Water Heating Configuration.	10
Cooling Installations Configuration.	10
Fluids Installations Configuration.	10
Installations Fitting Plan.	6
Project on Thermal and Fluids Installations.	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