

EUROPASS DIPLOMA SUPPLEMENT

TITLE OF THE DIPLOMA (ES)

Técnico Superior en Eficiencia Energética y Energía Solar Térmica

TRANSLATED TITLE OF THE DIPLOMA (EN)⁽¹⁾

Higher Technician in Energy Efficiency and Solar Thermal Energy

1) This translation has no legal status.

DIPLOMA DESCRIPTION

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

Assessing efficiency of energy and water installations in buildings, supporting the assessment process and energy certification in buildings technically, and configuring solar thermal installations, managing their fitting and maintenance under conditions of safety, quality and environmental protection.

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

“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 techniques of machining and shaping, 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 thermal and fluids installations watertightness 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.

“Installations Energy Efficiency”

The holder:

- Assesses the energy efficiency of heat generators relating the variation of their characteristic parameters with their performance.
- Assesses the energy efficiency of cold generators for air conditioning relating the variation of their characteristic parameters with their performance.
- Assesses the energy efficiency of thermal distribution systems relating the variation of their characteristic parameters with their performance.
- Quantifies energy savings of the energy recovery systems analysing how they work.
- Assesses energy savings derived from thermal installation control systems in buildings analysing how they are regulated.
- Assesses electrical installations that supply power to energy equipment analysing their components.
- Calculates energy efficiency of lighting installations in buildings, determining their energy consumption.
- Prepares proposals in order to improve energy efficiency in installations justifying energy savings achieved.

“Energy Certification of Buildings”

The holder:

- Assesses the insulation provided by buildings siding, relating the properties of their components with hygrothermal behaviour.
- Determines energy demand limitations in building envelopes verifying that their constituting elements comply with stated regulations.
- Calculates the necessary energy demand in order to guarantee building habitability, verifying that the same complies with the limitations stated by applicable regulations.
- Describes buildings according to the amount of energy, identifying their envelope, characterising involved installations and calculating thermal balance through the officially approved procedure.
- Documents energy certification processes of buildings specifying the technical information required by current legislation.

“Water Use Efficiency in Construction”

The holder:

- Measures characteristic parameters of water supply networks and sanitation in construction, relating measuring results with the typology and characteristics of installations.
- Assesses the efficiency of devices that receive hydraulic installations in buildings, relating control systems with the proposed saving measures.
- Configures hydraulic installations in buildings justifying the calculation of demand and network design according to number of users and their behaviour.
- Prepares plans for the maintenance of hydraulic installations in buildings, specifying the resources for preventive and corrective intervention.
- Assesses the efficiency of hydraulic installations in construction, justifying the technical feasibility and profitability of the best proposals.

“Configuration of Solar Thermal Installations”

The holder:

- Assesses the solar potential of an area relating the possibilities of solar installations implementation with energy needs.
- Prepares preliminary drafts of solar thermal installations analysing their feasibility and determining the general characteristics of equipment and elements.
- Configures solar thermal installations identifying and measuring equipment and elements.
- Prepares complementary technical documentation of projects on solar thermal installations justifying the chosen solutions.
- Represents solar thermal installations drawing schemes, detailed plans and isometrics through computer-aided design applications.
- Prepares estimates of solar thermal installations describing, measuring and assessing the corresponding items.
- Prepares studies on safety of solar thermal installations fitting, relating associated risks with preventive measures.

“Management of Solar Thermal Installations Fitting and Maintenance”

The holder:

- Plans solar thermal installations fittings specifying their stages and determining the expected resources.
- Applies fitting techniques of solar thermal installations justifying the sequence of operations and describing control procedures.
- Determines procedures for the commissioning of solar thermal installations describing regulatory tests and criteria for acceptance or refusal.
- Plans the maintenance of solar thermal installations, relating measures to optimise their efficiency with the energy objective established.
- Determines procedures for the preventive and corrective maintenance of solar thermal installations, interpreting plans and describing strategies aimed at diagnosing failures.

“Energy and Water Use Efficiency Promotion”

The holder:

- Documents the promotion of products and energy services, relating possible commercial actions with marketing techniques.
- Organises informative actions on energy and water use efficiency, relating the designed activities with the identified target customers.
- Assesses informative actions on energy and water use efficiency, justifying the selected assessment parameters.

“Project on Energy Efficiency and Solar Thermal Energy”

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 Energy Efficiency and Solar Thermal Energy.

“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 with the type of service provided.
- 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.
- Assesses energy efficiency of thermal and lighting installations and their components determining their energy efficiency and proposing actions to improve.
- Supports the assessment process and energy certification in buildings technically making simulations and calculations of their energy behaviour.
- Drafts proposals for the improvement in efficiency and savings of water installations within buildings.
- Draws up solar thermal installations projects responding to legal requirements and customers' energy needs.
- Manages the fitting and maintenance of solar thermal installations responding to legal requirements and customers' energy needs.
- Promotes energy and water use efficiency organising and carrying out informative actions on products and efficient installations.

RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE DIPLOMA

The Higher Technician in Energy Efficiency and Solar Thermal Energy works in the energy sector, in organisations competent in energy auditing, inspection and certification and in companies focused on carrying out studies on feasibility, promotion, implementation and maintenance of solar energy installation in buildings.

The most relevant occupations or jobs are the following:

- Buildings energy efficiency technician
- Buildings energy certification processes assistant
- Solar installations commercial agent
- Solar thermal installations fitting manager
- Solar thermal installations maintenance manager
- Energy manager
- Energy efficiency programmes promoter

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 (EQF5).

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 1177/2008, of 11 July, according to which the diploma of Higher Technician in Energy Efficiency and Solar Thermal Energy 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
Thermal Equipment and Installations.	14
Installations Fitting Processes	13
Graphical Representation of Installations.	7
Installations Energy Efficiency.	12
Energy Certification of Buildings.	14
Water Use Efficiency in Construction.	4
Configuration of Solar Thermal Installations.	6
Management of Solar Thermal Installations Fitting and Maintenance.	9
Energy and Water Use Efficiency Promotion.	5
Project on Energy Efficiency and Solar Thermal Energy.	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

