

EUROPASS DIPLOMA SUPPLEMENT

TITLE OF THE DIPLOMA (ES)

Técnico Superior en Construcciones Metálicas

TRANSLATED TITLE OF THE DIPLOMA (EN)⁽¹⁾

Higher Technician in Metallic Constructions

(1) This translation has no legal status.

DIPLOMA DESCRIPTION

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

Designing boilermaking products, metallic structures and industrial piping installations, planning, scheduling and monitoring their production, starting from the process documentation and the specifications of the products to be manufactured, ensuring quality on the management and products, as well as the supervision of the labour risk prevention and environmental protection systems.

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

“Graphical Representation in Mechanical Manufacture”

The holder:

- Designs mechanically manufactured products applying graphical representation rules.
- Selects the type of dimension taking into account the function of the product and its manufacturing process.
- Represents pneumatic, hydraulic and electric systems, applying representation rules and specifying the basic information of equipment and elements.
- Prepares graphical documentation for the manufacture of mechanical products using computer-aided design applications.

“Metallic Constructions Design”

The holder:

- Designs construction solutions for the elements of metallic structures analysing stress demands.
- Designs construction solutions for boilermaking products analysing stress demands.
- Designs construction solutions for the elements of industrial pipes analysing stress demands.
- Determines the materials necessary for the manufacture and assembly of metallic constructions products, relating their characteristics with the specifications of the product to be obtained.
- Measures elements of metallic structures, relating their characteristics with the specifications of the product to be obtained.
- Prepares the technical documentation of the product, justifying the collected information.

“Definition of Metallic Constructions Processes”

The holder:

- Establishes machining, cutting and shaping processes, justifying their sequence and control variables in each stage.
- Establishes the processes of joining and assembly, defining the specifications and variables of the process.
- Determines the costs of machining, shaping and assembly analysing the costs of the different manufacture solutions.
- Organises the allocation of resources in the production area relating their physical position with the manufacturing process.
- Defines the test plan with the aim of checking the level of reliability and quality of the product.

“Mechanically Manufactured Automatic Systems Programming”

The holder:

- Identifies the components of an automated mechanical manufacture installation, analysing how it works and its position in the systems of production.
- Prepares the programs for the components of an automated system analysing and applying the different types of programming.
- Organises and prepares the components of an automated installation selecting and applying the required techniques or procedures.
- Controls and supervises automated systems analysing the process, and adjusting the parameters of the system variables.

“Production Scheduling”

The holder:

- Prepares manufacture schedules analysing the productive capacities of facilities, their possible adaptations and stock needs.
- Prepares the maintenance plan and defines their control parameters, relating the requirements of means and needs of production.
- Manages the documentation used in the production schedule defining and applying an organisation plan and information processing.
- Controls production relating control techniques with the requirements of production.
- Determines the procurement plan of necessary raw materials and components analysing procurement models.
- Manages stock relating storage needs in keeping with the requirements of production with storage, handling and internal distribution processes.

“Machining, Cutting and Shaping Processes in Metallic Constructions”

The holder:

- Organises the way manufacture processes are carried out, interpreting the specifications of the product and process sheets.
- Prepares automatic machinery, equipment and systems, for the machining, cutting and shaping, analysing the conditions of the process and the characteristics of the final product.
- Operates the automatic machinery, equipment and systems that intervene in the machining, cutting and shaping process, relating how they work with the conditions of the process and the characteristics of the final product.
- Carries out the first-level maintenance of machinery and tools, justifying their implications in the process.
- Complies with the rules on labour risk prevention and environmental protection, identifying associated risks and measures and equipment to prevent them.

“Joining and Assembly Processes in Metallic Constructions”

The holder:

- Organises the way joining and assembly processes in metallic constructions are carried out, interpreting the specifications of the product and process sheets.
- Prepares automatic machinery, equipment and systems that intervene in the joining and assembly process, analysing the conditions of the process and the characteristics of the final product.
- Operates the automatic machinery, equipment and systems that intervene in the joining and assembly process, relating how they work with the conditions of the process and the characteristics of the final product.
- Carries out the first-level maintenance of machinery and tools, justifying their implications in the process.
- Complies with the rules on labour risk prevention and environmental protection, identifying associated risks and measures and equipment to prevent them.

“Quality Management, Labour Risk Prevention and Environmental Protection”

The holder:

- Defines actions to make the implementation and maintenance of quality assurance systems easier, interpreting their basic concept and factors.
- Defines actions to make the implementation and maintenance of business excellence models easier, interpreting their basic concept and factors.
- Defines actions to make the implementation and maintenance of labour risk prevention systems easier, interpreting their basic concept and factors.
- Defines actions to make the implementation and maintenance of environmental management systems easier, interpreting their basic concept and factors.
- Recognises the main pollution sources that could arise from the activity of mechanical manufacturing companies describing the effects of the polluting agents on the environment.

“Project on Metallic Constructions”

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 Metallic Constructions.

“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 them to the production and marketing of the manufactured products.
- 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.
- Develops elements or products of metallic constructions and industrial piping installations from engineering specifications and established rules.
- Determines machining processes establishing the sequence and variables of the process from the requirements of the product to be manufactured.

RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE DIPLOMA

The Higher Technician in Metallic Constructions works in companies focused on the manufacture of large tanks, boilermaking products, industrial pipes, machine shops, bodyworks, tows and dumper trucks, ship building and repair, petrochemical facilities, transport materials, assembly and repair of metallic constructions in the area of metallic constructions within the industrial sector.

The most relevant occupations or jobs are the following:

- Mechanical construction technician
- Metallic constructions manufacture manager
- Metallic constructions assemblers manager
- Boilermaking products and metallic structures design draughtsperson
- Computer-aided design (CAD), boilermaking and metallic structures technician
- Technical designer of boilermaking products and structures
- Mechanically manufactured automated systems programmer
- Person in charge of organising mechanical manufacture production
- Pipes development technician
- Machine shop manager

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 174/2008, of 8 February, according to which the diploma of Higher Technician in Metallic Constructions and its corresponding minimum education 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
Graphical Representation in Mechanical Manufacture.	9
Metallic Constructions Design.	16
Definition of Metallic Constructions Processes.	10
Mechanically Manufactured Automatic Systems Programming.	9
Production Scheduling.	8
Machining, Cutting and Shaping Processes in Metallic Constructions.	11
Joining and Assembly Processes in Metallic Constructions.	11
Quality Management, Labour Risk Prevention and Environmental Protection.	9
Project on Metallic Constructions.	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

