

# EUROPASS DIPLOMA SUPPLEMENT

## TITLE OF THE DIPLOMA (ES)

*Técnico Superior en Administración de Sistemas Informáticos en Red*

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

*Higher Technician in Computer Network Systems Management*

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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:**

Configuring, administrating and maintaining computer systems, guaranteeing system functionality, integrity of resources and services, with the required quality and complying with the current legislation.

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

### “Operating Systems Implementation”

The holder:

- Installs operating systems, analysing their characteristics and interpreting technical documentation.
- Configures standard software, analysing the operation needs of the computer system.
- Secures the system information, describing procedures and using backups and systems resistant to failures.
- Gathers information in servers managing domain structures and analysing their advantages.
- Manages access to domains analysing and respecting security requirements.
- Detects throughput problems, monitoring the system with the appropriate tools and documenting the procedure.
- Analyses the use and access to resources, identifying and respecting the system security requirements.
- Implements specific software with the structure client/server responding to functional requirements.

### “Network Planning and Management”

The holder:

- Recognises the structure of data networks identifying their elements and operation principles.
- Integrates computers and peripherals within wired and wireless networks, assessing their functionality and features.
- Manages network switches establishing configuration options for their integration into the network.
- Manages the basic functions of a “router” establishing configuration options for their integration into the network.
- Configures virtual local networks identifying their range of application.
- Carries out advanced network management tasks, analysing and using dynamic routing protocols.
- Connects private networks to public networks identifying and applying different technologies.

### “Hardware Fundamentals”

The holder:

- Configures microcomputer equipment, components and peripherals, analysing their characteristics and relationship with the group as a whole.
- Installs general-purpose software assessing their characteristics and application environments.
- Carries out procedures in order to retrieve the standard software in a computer, analysing the same and using stored images in an external memory.
- Installs specific hardware in data centres, analysing their characteristics and applications.

### “Database Management”

The holder:

- Recognises the elements of databases analysing their functions and assessing the usefulness of management systems.
- Designs normalised logic models interpreting entity/relationship diagrams.
- Carries out the physical design of databases using wizards, graphic tools and data definition language.
- Checks the stored information using wizards, graphic tools and data definition language.
- Changes the stored information using wizards, graphic tools and data definition language.
- Carries out tasks of information assurance, analysing them and applying protection and transfer mechanisms.

### **“Markup Language and Information Management Systems”**

The holder:

- Recognises the characteristics of the markup language analysing and interpreting code fragments.
- Uses markup languages for the transmission of information through the web analysing the structure of documents and identifying their elements.
- Creates content channels analysing and using syndication technologies.
- Establishes validation mechanisms for XML documents using methods to define their syntax and structure.
- Carries out conversions of XML documents using processing techniques and tools.
- Manages information in XML format analysing and using storage technologies and query languages.
- Works with business information management systems carrying out tasks of import, integration, assurance and extraction of information.

### **“Operating Systems Management”**

The holder:

- Administers the directory service interpreting specifications and integrating the same into a network.
- Administers system processes describing them and applying security criteria and efficiency.
- Manages the system tasks automation, applying efficiency criteria and using commands and graphics tools.
- Administers network operating systems remotely, assessing its importance and applying security criteria.
- Administers printing services describing their functions and integrating them into a network.
- Integrates free and proprietary operating systems, justifying and guaranteeing their interoperability.
- Uses script languages in operating systems, describing their application and managing services of the operating system.

### **“Network Services and Internet”**

The holder:

- Administers name resolution services, analysing them and guaranteeing the security of the service.
- Administers automatic configuration services, identifying them and verifying the correct correspondence of parameters.
- Administers web servers applying configuration criteria and ensuring service operation.
- Administers file transfer services ensuring and limiting access to information.
- Administers email servers, applying configuration criteria and guaranteeing the security of the service.
- Administers instant messaging services, newsletters and distribution lists, verifying and ensuring users' access.
- Administers audio services identifying distribution needs and adapting formats.
- Administers video services identifying distribution needs and adapting formats.

### **“Web Applications Implementation”**

The holder:

- Prepares the development environment and web application servers installing and integrating the necessary functionalities.
- Implements content managers selecting them and establishing their parameters configuration.
- Administers content managers adapting them to requirements and guaranteeing information integrity.
- Manages web office automation applications integrating functionalities and ensuring access to information.
- Creates web documents using server script languages.
- Creates web documents with access to databases using server script languages.
- Makes changes to content managers adapting their layout and functionalities.

### **“Database Management Systems Administration”**

The holder:

- Installs database management systems analysing their characteristics and adapting the same to the requirements of the system.
- Configures database management systems interpreting technical specifications and operation requirements.
- Implements access control methods using wizards, graphic tools and command language of the management system.
- Automates administration tasks of the management system describing them and using script statements.
- Optimises the system throughput applying monitoring techniques and making adaptations.
- Applies availability criteria analysing them and adapting the management system configuration.

### **“Safety and High Availability”**

The holder:

- Adopts guidelines and practices for a secure treatment of information, recognising the vulnerabilities of a computer system and the need to secure the same.
- Implements active security mechanisms, selecting and using countermeasures in case of threats of attacks on the system.
- Implements secure techniques in order to have remote access to a computer system, interpreting and applying the security plan.

- Implements firewalls in order to secure a computer system, analysing their features and controlling internal network traffic.
- Implements “proxy” servers, applying configuration criteria guaranteeing the secure operation of the service.
- Implements high availability solutions using virtualization techniques and configuring test environments.
- Recognises the legislation and regulations on data security and protection assessing their importance.

#### **“Project on Computer Network Systems Management”**

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 protection action of the Spanish Health Service in view of the different eventualities covered, 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 Computer Network Systems 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 organization relating them 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.
- Organises the work procedure that s/he must carry out, interpreting specific documentation.
- Determines the technical characteristics of the installation from the established functionalities and needs.
- Participates in the design, implementation and maintenance of local network services installations and internet, documenting the carried out intervention.
- Helps customers solving problems related to the running of the system, according to rules and times.

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

The Higher Technician in Computer Network Systems Management works in the area of computer science within companies that have data management systems and network infrastructures (intranet, internet and/or extranet).

The most relevant occupations or jobs are the following:

- Systems management technician
- Person in charge of computer science
- Internet services technician
- Electronic messaging services technician
- Help and technical support staff

- Remote assistance technician
- Database management technician
- Network technician
- Systems supervisor
- Telecommunication services technician
- Web environments 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 (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 1629/2009, of 30 October, according to which the diploma of Higher Technician in Computer Network Systems 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
<b>Operating Systems Implementation.</b>	15
<b>Network Planning and Management.</b>	12
<b>Hardware Fundamentals.</b>	6
<b>Database Management.</b>	11
<b>Markup Language and Information Management Systems.</b>	7
<b>Operating Systems Management.</b>	8
<b>Network Services and Internet.</b>	8
<b>Web Applications Implementation.</b>	6
<b>Database Management Systems Administration.</b>	5
<b>Safety and High Availability.</b>	6
<b>Project on Computer Network Systems Management.</b>	5
<b>Vocational Training and Guidance.</b>	5
<b>Business and Entrepreneurial Initiative.</b>	4
<b>On the Job Training.</b>	22
	TOTAL CREDITS
	<b>120</b>
OFFICIAL DURATION (HOURS)	<b>2000</b>

\* 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

