

EUROPASS SUPPLEMENT TO THE CERTIFICATE OF THE HIGHER DEGREE SPECIALIZATION COURSE

NAME OF THE SPECIALIZATION COURSE

Specialization course of Higher Vocational Training in Digitalization of industrial maintenance

DESCRIPTION OF THE SPECIALIZATION COURSE

The holder has acquired the general competence relating to:

To implement and manage maintenance digitalization projects in industrial environments, applying state-of-the-art technologies and complying with quality, safety and environmental requirements.

Within this framework, each PROFESSIONAL MODULE includes the following LEARNING OUTCOMES acquired by the holder.

"Metrology and intelligent instrumentation".

The titleholder:

- Determines the data collection requirements and their measurement at each stage of the process by applying optimization and efficiency criteria.
- Specifies the connectivity requirements of intelligent field elements by analyzing the communications technologies implemented.
- Integrates field elements with the control system determining their autonomous operation or their contribution to the system.
- Determine the application of machine vision, laser and structured light systems by integrating them into the maintenance process.

"Industrial maintenance strategies".

The titleholder:

- Characterizes the types, levels and procedures of industrial maintenance, referencing them to current regulations and relating them to the profiles and qualifications of maintenance personnel.
- Evaluates the attributes and maintainability indicators of industrial devices, relating them to maintenance levels and establishing performance indicators.
- Implements methodologies and strategies for industrial maintenance management by analyzing its specific characteristics and applying digital technologies.
- Designs the maintenance plan of the organization determining the types and levels of maintenance to be applied according to the needs of production and optimization of resources.
- Plans and follows up on the recovery maintenance and/or refurbishment activities on the installation, anticipating human and material resources.

"Safety in industrial maintenance".

The titleholder:

- Determines the safety strategy in digitized industrial maintenance activities by applying the regulations in use in the sector.
- Optimizes safety in the organization's maintenance operations in digitized environments integrating accident and risk avoidance methods.
- Optimizes safety in maintenance activities and procedures in digitized environments by identifying risks inherent to each type of industry.
- Relates inspections, reviews and other types of activities ensuring compliance maintenance operations.
- Configures maintenance support systems and networks to minimize potential cybersecurity risk scenarios.

"Monitoring of machinery, systems and equipment".

The titleholder:

- Determines the information storage technology, taking into account security and accessibility requirements.
- Ensures secure transmissions by applying advanced communications solutions that enable encryption, signature and authentication of OPC UA information (industrial communication technology multiplatform, open, service oriented).
- Integrates advanced communications and data storage systems in intelligent environments and along the value chain, applying appropriate formats.
- Optimizes the monitoring and operating status of the existing machinery in the installation analyzing and proposing solutions for technological upgrading of equipment (retrofitting).
- Applies Smart Data techniques (Smart Data: collects and analyzes large volumes of data) to the analysis of stored data, optimizing maintenance processes.

"Advanced maintenance support systems".

The titleholder:

- Implements Computer Aided Maintenance Management (CMMS) applications, meeting the needs of the organization.
- Optimizes maintenance processes and operations by applying augmented reality and/or virtual reality techniques.
- Optimizes the operating condition of equipment by applying predictive maintenance techniques of measurement and analysis of vibrations in machines.
- Optimizes the operating condition of equipment by applying predictive maintenance techniques of oil and particle analysis.
- Optimizes the operating condition of the equipment by applying predictive maintenance techniques of infrared and ultrasound thermography.

JOBS THAT CAN BE PERFORMED WITH THIS SPECIALIZATION COURSE

The most relevant occupations and jobs are as follows:

- Expert in digitization of industrial maintenance.
- Expert in industrial automation and digitalization.
- Responsible for industrial digitalization.

CERTIFICATE ISSUANCE, ACCREDITATION AND LEVEL

Body issuing the certificate of the higher degree specialization course on behalf of the King: Ministry of Education and Vocational Training or the autonomous communities within the scope of their own competences. The certificate has academic and professional effects valid throughout the State.

Official course duration: 330 hours.

Certificate level (national or international).

- NATIONAL: Non-university higher education.
- INTERNATIONAL:
 - Level P-5.5.4 of the International Standard Classification of Education (ISCED P-5.5.4).
 - Level 5C of the European Qualifications Framework (EQF 5C).

Access requirements:

To access the Specialization Course in Digitization of Industrial Maintenance it is necessary to hold one of the following degrees:

- a) Degree of Higher Technician in Production Programming in Mechanical Manufacturing, established by Royal Decree 1687/2007, of December 14, which establishes the degree of Higher Technician in Production Programming in Mechanical Manufacturing and sets its minimum teaching requirements.

- b) Degree of Higher Technician in Industrial Chemistry, established by Royal Decree 175/2008 of February 8, 2008, which establishes the degree of Higher Technician in Industrial Chemistry and sets its minimum teaching requirements.
- c) Degree of Higher Technician in Project Development and Thermal and Fluids Installations, established by Royal Decree 219/2008, of February 15, which establishes the degree of Higher Technician in Project Development of Thermal and Fluids Installations and sets its minimum teaching requirements.
- d) Degree of Higher Technician in Maintenance of Thermal and Fluids Installations, established by Royal Decree 220/2008, of February 15, which establishes the degree of Higher Technician in Maintenance of Thermal and Fluids Installations and sets its minimum teaching requirements.
- e) Degree of Higher Technician in Mechanical Manufacturing Design, established by the Royal Decree 1630/2009, of October 30, 2009, which establishes the degree of Higher Technician in Design in Mechanical Manufacture and its minimum teaching requirements are established.
- f) Degree of Higher Technician in Processes and Quality in the Food Industry, established by the Royal Decree of the Ministry of Industry and Commerce. Decree 451/2010 of April 16, 2010, which establishes the title of Higher Technician in Processes and Quality in the Food Industry and establishes its minimum requirements.
- g) Degree of Higher Technician in Electrotechnical and Automated Systems, established by the Royal Decree 1127/2010, of September 10, 2010, which establishes the title of Higher Technician in Systems and Automation and establishes its minimum teaching requirements.
- h) Degree of Higher Technician in Industrial Mechatronics, established by Royal Decree 1576/2011, of November 4, which establishes the degree of Higher Technician in Industrial Mechatronics and sets its minimum teaching requirements.
- i) Degree of Higher Technician in Electronic Maintenance, established by Royal Decree 1578/2011, of November 4, which establishes the title of Higher Technician in Electronic Maintenance and sets the minimum education requirements.
- j) Degree of Higher Technician in Automation and Industrial Robotics, established by the Royal Decree 1581/2011, of November 4, 2011, which establishes the degree of Higher Technician in Automation and Industrial Robotics and its minimum teaching requirements are established.
- k) Degree of Higher Technician in Manufacture of pharmaceutical, biotechnological and related products, established by Royal Decree 832/2014, of October 3, establishing the title of Technician.
- l) Degree of Higher Technician in Manufacture of pharmaceutical, biotechnological and related products and its minimum teaching requirements are established.

Legal Basis. Regulations establishing the specialization course in Industrial Maintenance Digitalization: Minimum teaching requirements established by the State: Royal Decree 480/2020, of April 7, which establishes the Specialization Course in Industrial Maintenance Digitalization and sets the basic aspects of the curriculum.

Explanatory note: This document is intended as additional information to the title in question, but has no legal validity whatsoever.

TRAINING OF THE OFFICIALLY RECOGNIZED SPECIALIZATION COURSE

PROFESSIONAL MODULES OF THE ROYAL DECREE OF THE HIGHER GRADE SPECIALIZATION COURSE	ECTS CREDITS
Metrology and intelligent instrumentation	6
Industrial maintenance strategies	10
Safety in industrial maintenance	7
Monitoring of machinery, systems and equipment	5
Advanced maintenance support systems	8
	TOTAL CREDITS
	36

OFFICIAL DURATION OF THE SPECIALIZATION COURSE CERTIFICATE (HOURS) 330	
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* The minimum teaching of the specialization course reflected in the table above, 50%, are official and valid throughout the national territory. The remaining 50% belongs to each Autonomous Community and may be reflected in **Annex I** of this supplement.

INFORMATION ABOUT THE EDUCATION SYSTEM

