EUROPASS SUPPLEMENT TO THE CERTIFICATE OF THE HIGHER DEGREE SPECIALIZATION COURSE

NAME OF THE SPECIALIZATION COURSE

Specialization Course of Higher Vocational Training in Intelligent Manufacturing

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DESCRIPTION OF THE SPECIALIZATION COURSE

The holder has acquired the general competence relating to:
Develop and manage production process adaptation projects, identifying production objectives, taking into account key performance indicators (KPIs), and applying advanced production control technologies and quality and safety requirements.

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

"Intelligent productive processes".
The titleholder:
– Characterizes intelligent manufacturing systems by determining the principles of production engineering and advanced technologies that optimize production processes.
– Establishes safety parameters in the design of the intelligent production process, applying the principles developed in the different European standards and national regulations.
– Establishes efficiency and sustainability parameters in the design of the intelligent production process by applying the principles of the circular economy.
– Characterizes production control systems and digital management systems of the organization, proposing the optimal level of integration of the same.
– Ensures compliance with operating specifications by participating in multidisciplinary teams for the integration of the digital production control system with the company's intelligent management systems.
– Ensures product life cycle sustainability by designing product management programs according to circular economy principles.

"Metrology and intelligent instrumentation".
The titleholder:
– Determines capture and measurement requirements at each stage of the process applying optimization and efficiency criteria.
– Specifies connectivity requirements of intelligent field elements by analyzing implemented communication technologies.
– Integrates field elements with the control system determining its autonomous operation.
– Determines the usefulness of machine vision, laser and structured light systems by integrating them into the process.

"Networked environments and the Internet of Things".
The titleholder:
– Stores data of the production process applying the established security and accessibility requirements.
– Implements advanced communications solutions applying encryption, signature and authentication of information.
– Integrates data warehousing systems in intelligent environments by applying them throughout the value chain.
– Generates safe working environments by analyzing potential threats at the workstation, plant/process and network levels.

"Virtualization of machines and production processes".

The titleholder:

- Determines the virtual model of a production process and/or machine by applying the information obtained from field elements.
- Specifies the requirements of the virtual model of a production process and/or machine by planning the different stages of the process.
- Validates virtual models by verifying their performance through the execution of simulation models.
- Tests the operating efficiency of production processes by executing virtual models prior to the actual production launch.
- Optimizes the start-up processes of the machine or production process by running virtual models.

"Workplace training".

The titleholder:

- Identifies the structure and organization of the company, relating them to the production and marketing of the products obtained.
- Applies ethical and work habits in the development of his/her professional activity in accordance with the characteristics of the job position and with the procedures established in the company.
- Identifies the needs of the productive sector of the company, relating them to the type of projects that can satisfy them.
- Designs projects of interest to the company in the field of intelligent manufacturing, determining and developing the phases that compose it.
- Plans the execution of the project, in coordination with the company, specifying the intervention plan and associated documentation.
- Defines the procedures for monitoring and control in the execution of the project according to the specifications provided, justifying the selection of variables and instruments used.

JOBS THAT CAN BE PERFORMED WITH THIS SPECIALIZATION COURSE

The most relevant occupations and jobs are as follows:

- Expert in intelligent manufacturing systems.

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 Intelligent Manufacturing it is necessary to be in possession of 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 Mechanical Manufacturing Design, established by the Royal Decree1630/2009, of October 30, 2009, which establishes the degree of Higher Technician in Design in Mechanical Manufacture and its minimum teaching requirements are established.

c) Degree of Higher Technician in Electrotechnical and Automated Systems, established by the Royal Decree1127/2010, of September 10, 2010, which establishes the title of Higher Technician in Systems and Automation and establishes its minimum teaching requirements.

d) Degree of Higher Technician in Industrial Mechatronics, established by Royal Decree 1576/2011, of November 4, which establishes the Title of Higher Technician in Industrial Mechatronics and sets its minimum teachings.

e) Degree of Senior Technician in Electronic Maintenance, established by Royal Decree 1578/2011, of November 4, which establishes the Degree of Higher Technician in Electronic Maintenance and sets its minimum teaching requirements.

f) Degree of Higher Technician in Automation and Industrial Robotics, established by the Royal Decree1581/2011, of November 4, which establishes the Degree of Higher Technician in Automation and Industrial Robotics and sets its minimum teachings.

Legal Basis. The applicable regulation is Royal Decree 481/2020, of April 7, which establishes the Specialization Course in Intelligent Manufacturing and establishes the basic aspects of the curriculum, and amends Royal Decree 93/2019, of March 1, establishing two specialization coursesand 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 T H E HIGHER GRADE SPECIALIZATION COURSE	ECTS CREDITS
Intelligent productive processes	12
Metrology and intelligent instrumentation	6
Networked environments and the Internet of Things	6
Virtualization of machines and production processes	6
Workplace training	6
	TOTAL CREDITS
	36
OFFICIAL DURATION OF THE SPECIALIZATION COURSE CERTIFICATE (HOURS)	*330*

* The minimum teaching requirements for the specialization course reflected in the table above, 50%, are 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

Early Childhood Education

Elementary education

Music and dance elementary education

Highschool education

Professional music and dance education

6 courses

Professional degree

Higher education

Higher artistic education

Degree in higher artistic education	Master's degree
Music	Master in Artistic E.E.
Dance	
Dramatic art	
Conservation and restoration of cultural property	
Plastic arts	
Design	

First cycle for 2 year old infants	Second cycle for 3-6 years old
1°	1°
2°	2°
3°	3°

Elementary 6-12 years

First cycle	1°
	2°
Second cycle	3°
	4° (Diagnostic evaluation of acquired competences)
Third cycle	5°
	6°

ESO 12-16 years old

1°
2° (Diagnostic evaluation of acquired competencies)
3°
4°

ESO graduate degree

Highschool

1°	2°

Arts

Science and technology

Humanities and CCSS

General

Highschool degree

University education

University degree

Undergraduate studies

Master's degree

Master's studies

Doctor's degree

Doctoral studies

Basic technician degree

Basic Vocational Training Cycles.

1°
2°

AP and D technician degree

Intermediate Level Training Cycles in Plastic Arts and Design

Sports technician degree

Intermediate level sports education

Technical degree

Intermediate vocational training cycles of vocational training

Specialty title of the professional profile

Specialization course of intermediate level of VET

AP and D superior technician degree

Higher level training courses in plastic arts and design

Degree of superior sports technician

Higher level sports education

Higher technical degree

Vocational training cycles of higher grade of VET

Master's degree VET

Specialization course for higher vocational training

Language training

Basic Level A1	Basic level A2	Intermediate level B1	Intermediate level B2	Advanced level C1	Advanced level C2

Adult education