

EUROPASS SUPPLEMENT TO THE CERTIFICATE OF THE HIGHER DEGREE SPECIALIZATION COURSE

NAME OF THE SPECIALIZATION COURSE

Specialization course of Higher Vocational Training in Composite Materials in the aerospace industry.

DESCRIPTION OF THE SPECIALIZATION COURSE

The holder has acquired the general competence relating to:

Manufacture parts and elements of aerospace structures, manually or in production lines, as well as control the processes involved, verify the results obtained, perform advanced maintenance, preparation and tuning of the installation, machinery and tooling according to the protocols of action, complying with the criteria and quality standards, the company's occupational and environmental risk prevention plans and the current applicable regulations.

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

"Manufacture of aerospace elements from composite materials by hand molding".

The titleholder:

- Determines resources for the manufacture and supervision of composite materials, following manufacturing instructions.
- Prepares materials and tools in the manual fabrication of aerospace elements following the instructions of the technical manufacturing documentation.
- Cuts patterns manually taking into account the technical manufacturing documentation.
- Manually laminates patterns following the applicable technical documentation.
- Performs compacting and curing vacuum bags, following established manufacturing documentation and work techniques.

"Automatic manufacturing in composite materials".

The titleholder:

- Sets up the operation of numerical control machines for the cutting of raw material for manufacturing in prepreg composites.
- Shapes flat parts by means of hot forming machines, relating it to its function and application in manufacturing processes.
- Configures the operation of machines for ATL (automatic tape lay-up, automatic tape lamination positioning on flat surfaces or with very wide radii), relating it to its function and application in manufacturing processes.
- Configures the operation of machines for FP tape positioning (fiber placement, automatic lamination of tape on surfaces with reduced radii), relating it to its function and application in manufacturing processes.

"Polymerization and machining of composite aerospace parts".

The titleholder:

- Load parts from the clean room (layup) into the autoclave according to the loading diagram.
- Configures and starts the autoclave taking into account the set operating cycle.
- Disconnect the vacuum and thermocouple connections, proceeding to unload the autoclave.
- Demolding of polymerized elements in the autoclave, taking into account the process orders.
- Cleans tools and applies release agents preparing them for subsequent laminations.
- Checking and machining the parts obtained, verifying that they comply with the specifications indicated in the technical documentation and adjusting them if necessary.

"Verification of composite material elements".

The titleholder:

- Reviews the completion of the manufacturing operations of the parts in accordance with the applicable regulations.
- Verifies parts and completes verification instructions according to established procedures.
- Performs laboratory tests on raw material and cycle specimens verifying product quality.
- Performs nondestructive tests on cycle specimens coming from the autoclave verifying the quality of the product.
- They perform the control of measuring devices and verification instruments according to the applicable regulations.

JOBS THAT CAN BE PERFORMED WITH THIS SPECIALIZATION COURSE

The most relevant occupations and jobs are as follows:

- Operator/Organizer of fabric and laminate cutting machine for the construction of aerospace elements.
- Operator/Organizer of taping machine for the construction of aerospace elements.
- Plasto chemical manual laminator for the construction of aerospace elements.
- Operator/Organizer of autoclave and oven for polymerization of composite materials for aerospace elements.
- Operator/Organizer for machining composite parts for aerospace elements.
- Verifier of aerospace elements of composite materials.
- Organizer of human and material resources implementing continuous process improvements through digitalization and LEAN philosophy.

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: 600 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 (EQF5C).

Access requirements:

To access the Specialization Course in Composite Materials in the aerospace industry 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.
- b) Degree of Higher Technician in Electrotechnical and Automated Systems, established by the Royal Decree of the Ministry of Economy and Finance, established by the Royal Decree of the Ministry of Economy and Finance. Decree 1127/2010, of September 10.
- c) Degree of Higher Technician in Production Programming in Molding of Metals and Polymers, established by Royal Decree 882/2011, of June 24.
- d) Degree of Higher Technician in Industrial Mechatronics, established by Royal Decree 1576/2011, of November 4.
- e) Degree of Higher Technician in Automation and Industrial Robotics, established by the Royal Decree 1581/2011, of November 4.

Legal Basis. Regulations establishing the specialization course on Composite Materials in the aerospace industry: Minimum teaching requirements established by the State: Royal Decree 1153/2021, of December 28, establishing the specialization course in Composite Materials in the aerospace industry and setting 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
Manufacture of aerospace elements from composite materials by hand molding	11
Automatic manufacturing in composite materials	11
Polymerization and machining of composite aerospace parts	9
Verification of composite material elements	5
	TOTAL CREDITS
	36
OFFICIAL DURATION OF THE SPECIALIZATION COURSE CERTIFICATE (HOURS)	600

* 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

