SHOE 5.0

2022-1-PT01-KA220-VET-000088122

Task 2.2

Key profiles for the future footwear industry's workforce related to Industry 5.0

Co-funded by the European Union

Content

Aim of the Task

The EU footwear industry is a traditional and innovative manufacturing industry producing high-quality products that enjoy global recognition. The success of this sector comes from the workers' ability to merge craftsmanship, creativity and innovation with the support of the latest technologies, resulting in a product that is unique in terms of quality, design and safety standards.

Thanks to the research and analysis done in other projects, it emerged that the drivers of change which most impact the TCLF industries are Regulations and governance, Environmental change, Economics and globalization, Technological change, Demographic and population change, Values and identities, A new consumer.

With this list of drivers, Shoe 5.0 project started to focus its attention on some specific needs, namely: Digital competencies, Environmental and Climate Change Competencies, Sustainability Competencies, Market Analysis Competencies and Technological change.

These were the main competencies identified as future training needs, and these are the needs that Shoe 5.0 will tackle and help trainees gain relevant competencies in order to facilitate the introduction of Industry 5.0 concepts in the footwear industry.

The project expects to provide relevant training contents that can help footwear workers, managers and key-people in SMEs to become more competent in the various fields connected to Industry 5.0 topics.

The aim is to provide knowledge to workers so that they can interconnect the implementation of new technologies, processes, and systems for reaching maximum performance of their companies, and, doing so, giving a step further towards sustainability and efficiency, excelling human experiences while working.

Knowing that there are different levels of knowledge among the potential users of the Shoe 5.0 project, the partnership will design educational contents that are generic in the base conception, but tailor made in terms of training needs applied to each user.

To fully achieve the goals and objectives of the Shoe 5.0 project and to ensure its successful implementation, the partnership focused immediately on the first active WP, namely WP2 - Industry 5.0 and Needed Key Competences, which is fundamental to set basis for the overall achievement of the project.

In this WP the goal is to make the analysis of the current integration of the Industry 4.0 in the Footwear sector, the study of the current and future footwear workforce and the match with the footwear professional profiles, in Portugal, Spain, Italy, Belgium and Romania.

In a single report, there will be aggregated all the major findings from the desk and field research related to Industry 5.0 applied in Footwear, with an oriented focus on training needs and definition of the future profiles needed from this industry.

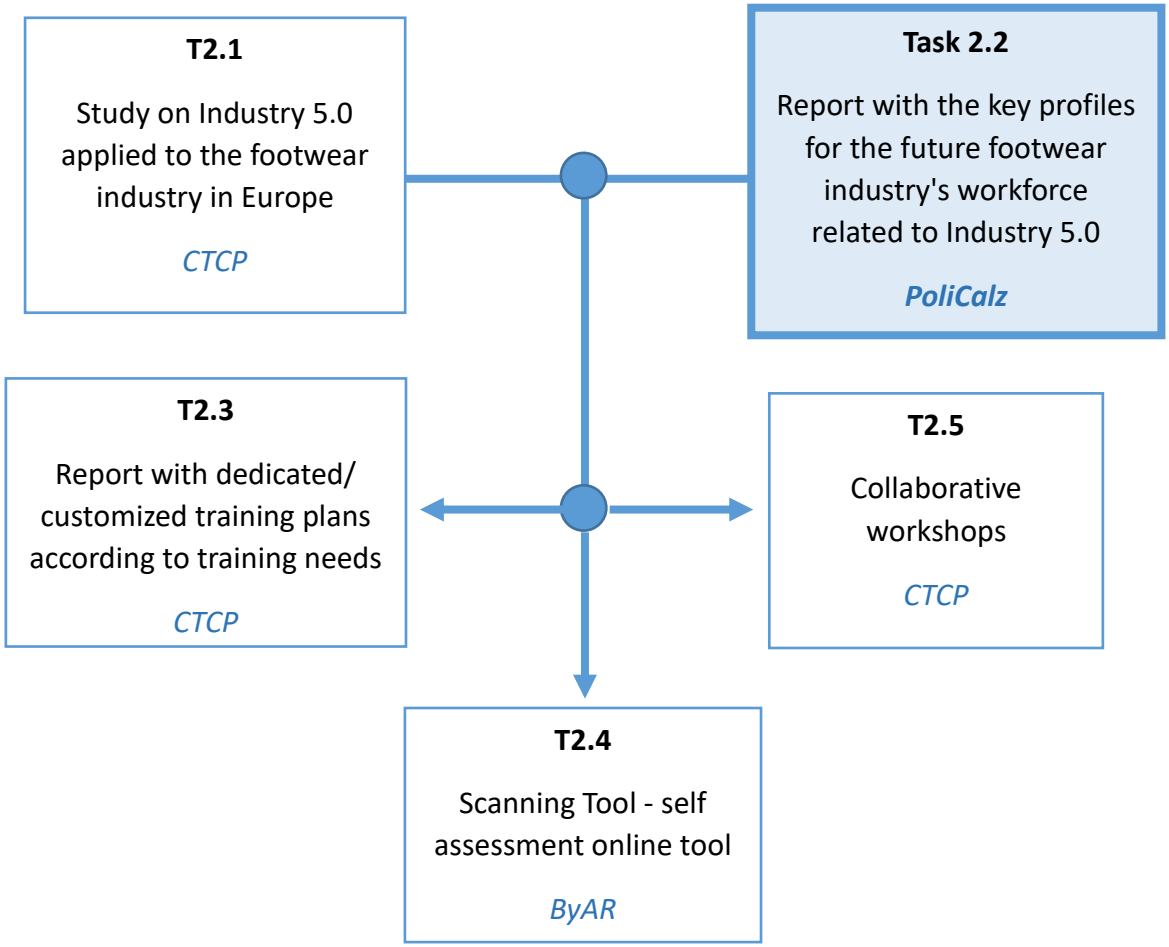
The final result of the Work package will be customized training plans according to training needs, that will fade in an online tool (training needs scanning tool) that will help users to understand their needs and in a personalized way.

This report focuses on Task 2 - Definition of the key profiles for the future footwear industry's workforce, which aim is to define the needed key skills/profiles for the future footwear industry's workforce related to Industry 5.0, based on the A2.1 achievements (Focus groups, Desk research and Questionnaires).

In this field, task 2.2 will set up the specific key profiles needed in the footwear industry to help the transition towards the implementation of Industry 5.0, which expects to evolve from the "intelligent factory" concept and to add a new layer related to the interaction between man and machine, focusing the model on the human resources factor.

The results of task 2.1 and of - this - task 2.2 will be duly merged and reworked, in order to provide adequate inputs for the subsequent tasks:

- Task 2.3 - definition of customized training plans, then transformed into an online digital tool in Task 2.4
- Task 2.5 - discussion of results with external experts through collaborative methods



Description of the activities

The aim of the task 2.2 is to identify the specific key profiles that are needed in the footwear industry to help the transition towards the implementation of Industry 5.0.

This mean that the partnership is looking for the profiles requested and needed between what the industry requires and that are not available in the market - with competences and skills not yet existing and/or developed.

In order to reach the selection of profiles focused on specific skills that support the necessary transition to I5.0, the partnership has structured an organized path that is divided into these different phases.

1. *Actual framework of qualification in each country*

   The first step is the analysis of the updated State of the Art of qualification existing in each country of the partnership, with a big focus on the profiles and qualification related to Footwear sector (and main connected with our target).
   This permits to have a general overview of available profiles on which work for the final selection.

2. *Key profiles based on current practices/literature*

   The second step acts in parallel with the first one, as in this case the research is based on the topics analysed during the Desk research in Task 2.1. With this activity, the partnership wants to open the research to other profiles not yet recognised/qualified in the different countries, but of big interest for the project's topics.
   Topics such as sustainability, enabling technologies such as AR, VR, robots, AI, traceability, production management etc.

3. *Aggregation of results from task 2.1*

   In task 2.1, the partnership worked on the study on Industry 5.0 applied to the footwear sector in Europe, bringing out information and data of interest.
   The inputs coming from Task 2.1, mainly on integration of Industry 5.0 and the footwear workforce, can support the definition of key profiles, providing trajectories and level indications to make an even more informed choice and in line with the current state of the context/sector.

4. *Selection of key profiles related to Industry 5.0*

   This is a strategic step of the task in which the partnership selects the profiles that will be the object of work during the entire development of the project.
   From the previous steps, both the complete and defined framework of the profiles - both the qualifications in the different countries, and the other possible profiles of interest - and the data from the research carried out in Task 2.1 are available: this therefore allows the partners to select punctual and precise the 3 - 5 profiles that will be the target for the development of contents and training packages.

5. *Description of profiles (unit of competence)*

The profiles will be the existing ones, but with new skills/competencies/attitudes coming from the results of the research on Industry 5.0.

The result of task 2.2 is formalized with the selection and identification of the key profiles for Industry 5.0 - described in this report - which will be the direct input for:

- Task 2.3 - Training Paths to support the upskill programme, needed for the specific profiles here defined.
- Task 2.5 - Collaborative Workshops, organized in all 5 partners' countries, involving at least 10 experts each, seeking feedback on the results contributing for finetuning the project results at early stage.

Research of key profiles

The first two phases of the task 2.2 aim to collect, in an organized way, detailed information related to the existing profiles - with or without qualifications - which may be of interest for the purpose of the project.

With the complete overview of the existing profiles available, which will then be combined with the evidence that has emerged in the field of Industry 5.0, the partnership will be able to make an informed choice in line with the current state of the sector and the related enabling technologies.

For gathering the data in an organized and simplified way, the task leader structured a collection table in which each partner - apart from the technological partner ByAR - filled in a sheet with the data relating to their own country.

During the project meeting, the partnership started - in a group activity - to draw up a list of the different footwear profiles existing in the different countries, based on their knowledge as industry experts.

The table was subsequently shared among the partners and integrated with details such as the EQF level of the profile and the date of the last official update, as well as expanded with any other unrecognized but interesting profiles.

In particular, we collected information from Italy, Portugal, Spain, Romania and Germany (in this last case through the work of CEC).

This made it possible to immediately identify the distribution of the different profiles in the various countries, highlighting those with the greatest presence and therefore of hypothetical greatest interest.

On the next page, the table.

Having identified the profiles of interest, the sectoral partners - i.e., CTCP, CTCR, Politecnico Calzaturiero and TUIASI - focused on characterizing them, describing them in detail according to the characteristics highlighted by their own country.

In particular, data was collected on:

- EQF Level
- Recognized (or not)
- Acknowledgement body, if the profile is recognised
- Units of competence
- Skills
- Knowledge
- Activities

An information collection sheet was created for each nation, which was then processed and harmonized to arrive at a single general indication of the different profiles.

In Annex 1 it is possible to view the Excel document with all the data collected.

Profile	ITALY	PORTUGAL	SPAIN	ROMANIA	*GERMANY*
	Last Update: 2020	**Now being updated**	**Last Update: 2021***	**Last Update: 2016*, 2020**, 2021***	
Footwear Designer	EQF 5	EQF 5	EQF 6 - 7	EQF 6 - 7	-
Footwear Technical Manager	-	now EQF4 but in few months EQF 5 (production manager)	-	EQF 6 - 7	-
Footwear Technician	-	3 different technicians (footwear, leather goods and components)	EQF 4	EQF 4	-
Fashion Shoes Coordinator	Not recognized – EQF 5	-	EQF 5	-	-
Footwear pattern maker/ Footwear designer technician	EQF 4	EQF 4	EQF 5	EQF 4	-
Prototypist	EQF 4	-	-	-	-
Leather cutting operator	EQF 3	-	EQF 3	EQF 3	-
Stitching operator	EQF 3	-	EQF 3	EQF 3	-
Lasting-Assembling operator	-	-	EQF 3	EQF 3	-
Leather goods manufacturing operator	EQF 3	EQF 2	-	-	-

Footwear manufacturing operator (Industrial shoemaker)	EQF 3	EQF 2 (operator! Shoemaker is technician level 4)	EQF 3	EQF 3	*EQF 4 Industrieller Schuhfertiger (BIBB 2017)*
Maintanance technician	-	EQF 4	EQF 4	-	-
Entry training "Production of Shoes"	-	-	-	-	*EQF 2 Einstiegsqualifizierung „Herstellung von Schuhen“* (IHK 2019)*
Assistant for leather processing	-	-	-	-	*EQF 3 Fachkraft Lederverarbeitung (BIBB 2011)*
Footwear responsible - FOREMAN	-	-	-	EQF 5	-
			The changes in the law, did not change the EQF levels, but a change of methodology appeared, which is called FP Dual, which consists of doing approx. 35-40% of the content directly in the company, giving it a much more practical aspect.	**Last Update 2016 for profiles with EQF 3, 4, 5 **Last Update 2020 for Footwear Technical Manager ***Last Update 2021 for Footwear Designer*	

Selection of the Profiles

Thanks to the research carried out in each country, and the detailed data collected, the partnership had a complete and precise overview of the existing profiles, their characteristics, and their presence in the target countries.

By combining this information with the data from the research in Task 2.1, the partners identified the pros and cons of each profile in relation to the future development related to Industry 5.0.

Highlighting the potential and criticalities of each profile facilitated the choice made by the partners, who selected:

- 4 existing profiles, mostly present in all countries involved.
- 1 non-existent profile, but to be developed. In this case, the partnership, based on the inputs received from field research, has deemed it appropriate to identify a new profile strictly focused on Industry 5.0, with general skills on the topics and on Footwear sector.

The profiles are:

1. Footwear Technical Manager
2. Footwear Manufacturing Operator
3. Footwear Designer/Pattern Maker
4. Maintenance Technician
5. 5.0 Footwear Architect – *the new one*

On the following page, the table summarizing the profiles analysed, the relative pros and cons, and the evidence of the selected profiles.

After the table, a detailed focus on each identified profile.

Profile	EQF Level	Recognized	PROS	CONS
*Footwear Designer**	5 - ITA/PORT 6/7 - SP/ROM	Yes	- It's recognized in all project countries - One of the main processes in the footwear sector	- Less technologies involved, only compared to other profiles
Footwear Technical Manager	4 - PORT 6/7 - ROM	Yes	- Connected to the use of technologies - Optional UC from Portugal - Interesting coming from Focus Group	- Defined in few countries
Footwear Technician	4 - SP/ROM	Yes	- Connected to the use of technologies - Interesting to be analysed	- Defined in few countries
Fashion Shoes Coordinator	5 - ITA/SP	No (ITA)	- New profile	- Not interesting in all countries
Footwear Pattern maker + Footwear Designer inputs*	4 - ITA/PORT/ROM 5 - SP	Yes	- It's recognized in all project countries - Good connection with technologies - Profile connected with different processes - Optional UC from Portugal	- Or this or Designer
Prototypist	4 - ITA	Yes		- Similar to manufacturing operator - Identified only in 1 country
Leather cutting operator	3 - ITA/SP/ROM	Yes	- Connected to the use of technologies - Good focus on a process	

Stitching operator	3 - ITA/SP/ROM	Yes	- Connected to the use of technologies - Good focus on a process	
Lasting-Assembling operator	3 - SP/ROM	Yes	- Connected to the use of technologies - Good focus on a process	
Leather goods manufacturing operator	3 - ITA 2 - PORT	Yes	- Connected to the use of technologies	- Not on mainly footwear sector
Footwear manufacturing operator (Industrial shoemaker)	3 - ITA/SP/ROM 2 - PORT *4 - GERM*	Yes	- It's recognized in all project countries, plus Germany - Perfect connection to the use of technologies	- Merge of different processes (cutting, stitching, assembling, finishing)
Maintenance technician	4 - PORT/SP *4 - ITA (general)*	Yes	- Directly linked to the I5.0 topic (technologies) - Interesting to be analysed - Optional UC from Portugal	- Only in 2 countries is connected to the sector
Footwear Responsible - FOREMAN	5 - ROM			- Only in 1 country
5.0 (Footwear) Architect ***New profile - General profile on I5.0 knowledge***	5	No		

Footwear Technical Manager

The Footwear Technical Manager is a professional that is responsible for the management of the technical information for the Footwear development process. He/she is responsible to create and collaborate technical information with all departments, in order to provide an effective transition of footwear designs into prototypes all the way through Commercialization.

In the following table it is possible to view the characteristics of the profile according to the different qualifications in the various countries analysed.

	Italy	Portugal	Romania	Spain
EQF Level	-	now EQF4, in few months EQF 5 (production manager)	EQF 6 - 7	-
Recognized	-	14.05.2008, last update: 22.07.2020 1250 hours - for full qualification	Yes	-
Acknowledgment body	-	ANQEP - Portuguese National Agency for the Qualification and Professional Education	Ministry of National Education	-

Units of competence	-	Footwear models, materials and applied materials /Structuring technical elements of footwear/Raw material cutting for footwear/Pre-sewing operations/sewing operations/ prefabricated operations/shoe assembly/finishing operations/Basic shoe modeling Leather goods manufacturing processes/Basic modeling of leather goods/Company - structures and functions in the area of footwear and leather goods/Company strategic and action plan/Integrated human resource management/Production management - footwear and leather goods/Statistics applied to management/Production information system/materials management/Implementation of a quality management system/Production system in the company/Environment, Safety, Hygiene and Health at Work - basic concepts/Logistics in the company/Team leadership and motivation/Interpersonal Communication and Assertiveness Labor law/Project footwear production management/ Production management of leather goods in project Optional UC: Shipment management /Operational and competitive strategy/Management models and control systems/Production planning - footwear and leather goods/Integrated production management/Methods and times in company management/work methods/work measurement/Production and productivity/factory layout/Design of methods and times in footwear/Design of methods and times in leather goods/Entrepreneur profile and potential - diagnosis/development/Business ideas and opportunities/Business plan – micro business	1. Product Innovation in the Footwear Industry 2. Advanced in Footwear Design and Technology 3. Advanced in Footwear Design and Product Development 4. Footwear Comfort 5. Advanced in Sole Design 6. Advanced in Leather Goods Design 7. Footwear Branding 8. Quality Auditing and Legislation 9. CAD for Footwear and Leather Goods 10. Product Life Cycle 11. Sustainability in Footwear Manufacturing 12. Upholstery	*There is no specific qualification or recognition, the most similar is the Footwear Technician. This professional profile is usually carried out by workers with enough professional experience in the same position or there is also the possibility that it is carried out by cross-trained personnel, through the completion of small enabling training courses, such as dispatch management or purchasing training.*

		creation/Business plan – creation of small and medium businesses/Personal development and job search techniques/Assertive communication and job search techniques/Entrepreneurial skills and job search techniques/Family budget planning and management/Basic financial products/Savings – basic concepts/Credit and debt/Operation of the financial system/Savings and its applications/Safety and Health at Work - epidemic,pandemic situations/telework		
Skills	-	Skills: Use planning and work organization techniques./Identify the various phases of work to be carried out and the activities inherent to them./Identify the human resources, equipment and raw materials necessary for the development of the work./Adapt sequences and work methods according to orders, human resources, raw materials, equipment and technical specifications of the product./Optimize human resources and available equipment./ Technically guide the work./Interpret sketches, technical drawings and other representations relating to footwear and leather goods./Identify and recognize the properties and behaviour of raw materials./Identify and characterize the cutting, sewing, assembly and finishing processes of footwear and leather goods./Identify and use the different types of machines and tools involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods./ Identify and define the programming parameters of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and	• Solving complex tasks, specific to Industrial Engineering field, using advanced knowledge of engineering sciences. • Mathematical and experimental modelling and optimization of the lasts and moulds design for footwear and leather goods. • The use of integrated software applications for solving complex problems specific to footwear and leather products. • Conceptual and detail design of manufacturing technologies and complex industrial systems, optimized, innovative, applied to footwear and leather goods. • Project management and strategies for marketing and data processing applied to footwear and leather goods • Design and development of innovative products, as well as quality auditing systems for footwear and leather goods.	-

		leather goods./Detect defects in products, anomalies in processes and deviations from the production schedule./ Detect anomalies and malfunctions in the equipment used./Identify maintenance needs of machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods./Analyse and select technical information to be included in production reports. Apply the appropriate quality standards and procedures for the manufacture of footwear and leather goods./Apply the environmental, safety, hygiene and health standards required in the professional activity. Attitudes: Adapt to different organizational contexts and different work teams./Adapt to new technologies and raw materials./Demonstrate initiative within the scope of its activities, namely by suggesting corrective actions./Demonstrate responsibility for quality (of products, service, …) and production objectives./Act in accordance with the guidelines and specifications of the production programs./Act in accordance with the rules of safety, hygiene and health at work./Communicate with different interlocutors.	

Knowledge	-	Notions of: General computing from the user's perspective. Modeling. Knowledge of: Portuguese language. Technical English. Mathematics. Information and communication technologies. Quality management. Production methods and times. Industrial costing. Stock management. Labor law. Environment, safety and hygiene at work. In-depth knowledge of: Properties and behavior of raw materials. Cutting, sewing, assembly and finishing processes for footwear and leather goods. Typology, operation, programming and conservation of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Planning and organization of work. Production management. Leadership techniques and team management.	*See Skills*	-
Activities	-	Plan, distribute and coordinate the activities of the different stages of manufacturing footwear and leather goods, with a view to optimizing the quality and quantity of production. **Activities:** Carry out the production schedule, depending on the production objectives and the company's resources, with the aim of optimizing the manufacturing process. Define the human resources, equipment and raw materials to be allocated to the different manufacturing areas, taking into account orders and available resources; Collaborate in the definition of work sequences and methods, depending on orders, human resources, raw materials, equipment and technical specifications of the product. Distribute,	• The application of the values and ethics of the profession of engineering and carrying out professional tasks in terms of autonomy and independence; promoting logical reasoning, convergent and divergent, the practical applicability of evaluation and self-evaluation in decision-making. (Carrying out complex professional tasks). • Completing activities with assuming specific roles in teamworking on various hierarchical levels and leadership; to promote the spirit of dialogue, cooperation, initiative,	-

		guide and control the execution of work in the areas of cutting, sewing, assembly and finishing, in terms of quality, production costs, deadlines and compliance with environmental, safety and hygiene standards, taking into account the production scheduling and proposing alternative measures based on detected deviations. Control production with regard to product quality, production costs and compliance with quality, safety, hygiene and health at work standards. Collaborate in drawing up maintenance plans for machines in the cutting, sewing, assembly and finishing areas, depending on any anomalies that occur, identifying, in particular, intervention needs and their timing. Ensuring the supply of raw materials, checking their quality and quantity and directing their distribution to the different production areas. Draw up production reports, recording various information relating to production, namely production times, number of products manufactured, quality problems, process anomalies and equipment malfunctions, and proposing measures to correct them.	positive attitude and respect towards others, diversity and multiculturalism, and the continuous improvement of its own activities. (Communication, teamwork and acting as leader). • Self-evaluation and objective diagnosis of the need for continuing vocational training with the aim of insertion on the labour market and adaptation to the dynamics of its requirements and for personal and professional development. Self-control of learning and effective use of language skills and knowledge of information technology and communication. (Manager of continuino education and training of its own).	

From the analysis and the integration of the different input, a new comprehensive profile has been designed as follows:

Profile	Footwear Technical Manager
EQF Level	5-6-7
Units of competence	• **Product Innovation in the Footwear Industry** • **Advanced in Footwear Design, Technology and Product Development** (Footwear models, materials and applied materials /Structuring technical elements of footwear/Raw material cutting for footwear/Pre-sewing operations/sewing operations/prefabricated operations/shoe assembly /finishing operations/Basic shoe modeling) • **Footwear Comfort** • **Advanced in Sole Design** • **Advanced in Leather Goods Design** (Leather goods manufacturing processes/Basic modeling of leather goods/Company - structures and functions in the area of footwear and leather goods) • **Footwear Management and Product Life Cycle** (Company strategic and action plan/Integrated human resource management/Production management - footwear and leather goods/Statistics applied to management/Production information system/materials management/Implementation of a quality management system/Production system in the company) • **Sustainability and Logistic in Footwear Manufacturing** (Environment, Safety, Hygiene and Health at Work - basic concepts/Logistics in the company/Team leadership and motivation/Interpersonal Communication and Assertiveness) • **Footwear Branding** • **Quality Auditing and Legislation** (Labor law/Project footwear production management/ Production management of leather goods in project) • **CAD for Footwear and Leather Goods** • **Upholstery**

Skills	• **Management and organization of the production chain** Use planning and work organization techniques/Identify the various phases of work to be carried out and the activities inherent to them/Identify the human resources, equipment and raw materials necessary for the development of the work/Adapt sequences and work methods according to orders, human resources, raw materials, equipment and technical specifications of the product/Optimize human resources and available equipment/ Project management and strategies for marketing and data processing applied to footwear and leather goods. • **Use of mathematics and technology in footwear and leather products** Mathematical and experimental modelling and optimization of the lasts and moulds design for footwear and leather goods/The use of integrated software applications for solving complex problems specific to footwear and leather products/ Solving complex tasks, specific to Industrial Engineering field, using advanced knowledge of engineering sciences. • **Conceptual and detail design of manufacturing technologies and complex industrial systems, optimized, innovative, applied to footwear and leather goods.** Technically guide the work/Interpret sketches, technical drawings and other representations relating to footwear and leather goods/Identify and recognize the properties and behaviour of raw materials/Identify and characterize the cutting, sewing, assembly and finishing processes of footwear and leather goods/Identify and use the different types of machines and tools involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. • **Design and development of innovative products, as well as quality auditing systems for footwear and leather goods** Apply the appropriate quality standards and procedures for the manufacture of footwear and leather goods/Apply the environmental, safety, hygiene and health standards required in the professional activity. • **Use of the appropriate technologies in footwear and leather production** Identify and define the programming parameters of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods/Detect defects in products, anomalies in processes and deviations from the production schedule/ Detect anomalies and malfunctions in the equipment used./Identify maintenance needs of machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods/Analyze and select technical information to be included in production reports. **Attitudes:** Adapt to different organizational contexts and different work teams./Adapt to new technologies and raw materials./Demonstrate initiative within the scope of its activities, namely by suggesting corrective actions./Demonstrate responsibility for quality (of products, service, …) and production objectives./Act in accordance with the guidelines and specifications of the production programs./Act in accordance with the rules of safety, hygiene and health at work./Communicate with different interlocutors."

Knowledge	**Notions of:** General computing from the user's perspective. Modeling. **Knowledge of:** Technical English. Mathematics. Information and communication technologies. Quality management. Production methods and times. Industrial costing. Stock management. Labor law. Environment, safety and hygiene at work. **In-depth knowledge of:** Properties and behavior of raw materials. Cutting, sewing, assembly and finishing processes for footwear and leather goods. Typology, operation, programming and conservation of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Planning and organization of work. Production management. Leadership techniques and team management.

Activities	**Work management and distribution** Carry out the production schedule, depending on the production objectives and the company's resources, with the aim of optimizing the manufacturing process. Define the human resources, equipment and raw materials to be allocated to the different manufacturing areas, taking into account orders and available resources. Collaborate in the definition of work sequences and methods, depending on orders, human resources, raw materials, equipment and technical specifications of the product. Control production with regard to product quality, production costs and compliance with quality, safety, hygiene and health at work standards. **Workforce and staff management** Completing activities with assuming specific roles in teamworking on various hierarchical levels and leadership; to promote the spirit of dialogue, cooperation, initiative, positive attitude and respect towards others, diversity and multiculturalism, and the continuous improvement of its own activities. (Communication, teamwork and acting as leader). Distribute, guide and control the execution of work in the areas of cutting, sewing, assembly and finishing, in terms of quality, production costs, deadlines and compliance with environmental, safety and hygiene standards, taking into account the production scheduling and proposing alternative measures based on detected deviations. **Technology and production supervision** Collaborate in drawing up maintenance plans for machines in the cutting, sewing, assembly and finishing areas, depending on any anomalies that occur, identifying, in particular, intervention needs and their timing. Ensuring the supply of raw materials, checking their quality and quantity and directing their distribution to the different production areas. **Reporting Activity** Draw up production reports, recording various information relating to production, namely production times, number of products manufactured, quality problems, process anomalies and equipment malfunctions, and proposing measures to correct them. **Autonomy and independence** The application of the values and ethics of the profession of engineering and carrying out professional tasks in terms of autonomy and independence; promoting logical reasoning, convergent and divergent, the practical applicability of evaluation and self-evaluation in decision-making. (Carrying out complex professional tasks). Self-evaluation and objective diagnosis of the need for continuing vocational training with the aim of insertion on the labour market and adaptation to the dynamics of its requirements and for personal and professional development. Self-control of learning and effective use of language skills and knowledge of information technology and communication. (Manager of continuing education and training of its own).

Footwear Manufacturing Operator

The Footwear Manufacturing Operator is in charge of production equipment before, during, and after manufacturing. As a manufacturing operator, his/her duties are to implement cut, stitch, assembly, finish, test and inspect for issues, operate during the production process, and ensure all safety procedures are followed.

In the following table it is possible to view the characteristics of the profile according to the different qualifications in the various countries analysed.

	Italy	Portugal	Romania	Spain
EQF Level	EQF 3	EQF 2	EQF 3	EQF 3
Recognized	Yes	08.08.2013	Yes	Yes
Acknowledgment body	Veneto Region, Marche Region, Campania Region	ANQEP - Portuguese National Agency for the Qualification and Professional Education	Ministry of National Education	Professional certification granted by SEPE (Servicio Publico Empleo Estatal) recognition

Units of competence	Carry out the preparation of the footwear components. Make the hemming of the shoes. Carry out the assembly of the shoes. Carry out the finishing and packaging of the shoes.	Carry out the cutting of different models of footwear. Cutting different shoe models. Perform seam preparation of different models of footwear. Sewing preparation of different models of footwear. Sew different models of shoes. Sewing different models of shoes. Apply and shape shoe assembly reinforcements. Application and molding of shoe assembly reinforcements. Carry out the assembly of the toecap, the toecaps and the heel of the shoe. Assembling the toecap, the wedges and the heel of the shoe. Prepare the surfaces of soles and cuts. Preparation of the surfaces of soles and cuts. Attach soles to shoe cutouts. Attaching soles to shoe cutouts. Carry out the assembly of different models of footwear. Assembly of different models of footwear. Perform shoe finishing. shoe finishing Perform quality control and footwear packaging. Quality control and packaging of footwear	1. Use of graphic and technical language in textile and leather industry 2. Identify and select materials for textile and leather industry 3. Healthy and Work Security legislation 4. Design elements for textile and leather industry 5. Manufacturing operations for textile and leather products 6. Planning the own activities 7. Footwear repairing 8. Pattern making for customised footwear 9. Manufacturing of uppers for customised footwear 10. Customised footwear - manufacturing the final product	Assembling and finishing of leather articles Assembling footwear by injection and vulcanising Assemble footwear using different systems and finishes. Recognising raw materials and products for clothing, footwear and leather goods

Skills	Read and interpret the technical documentation (bill/order, preparation sheets); Apply techniques for the preparation and finishing of the footwear components – marking, skiving, heat treatments, sanding, shearing, etc.; Define types of processing of footwear components and related technologies - insertion, reinforcements, etc.; Read the physical and commodity characteristics of leathers and other materials and predict their behavior in the different types of processing and handling; Carry out small routine maintenance interventions on tools and equipment for hemming; Use leather processing tools – knife, crescent, stitch markers; Operate the preparation of the components in compliance with the safety regulations at work. Read and interpret the technical reference documentation; Apply techniques for the creation of the stitching of the added upper, for the stitching of any decorative accessories, of the lining; Carry out the masticating and gluing operations; Read the physical and commodity characteristics of the hides and predict their behavior in hemming operations; Carry out small routine maintenance interventions on tools and equipment for hemming; Use tools and equipment for hemming; Hem the footwear in compliance with workplace safety regulations. Apply assembly techniques according to procedures and requirements; Identify the shape and structure of the footwear product for preparing the pieces for assembly; Establish procedures and requirements for the complete assembly of the footwear; Evaluate the correctness and efficiency of the assembly	Notions of: General computing from the user's perspective. Environment, safety and hygiene at work. Maintenance. Quality. Knowledge of: Properties, behaviors and applications of raw materials. Constituent parts of the models. Characterization of footwear cutting processes. Characterization of footwear sewing processes. Characterization of footwear assembly and finishing processes. Technologies of equipment used in the manufacture of footwear. In-depth knowledge of: Cutting techniques. Sewing preparation techniques Sewing techniques. Assembly techniques. Finishing techniques.	• analysing and understanding the order according to the client's requirements; • choosing of machines and tools for performing repairing operation • setting and adjusting the work parameters of the specific machines; • performing repairing operations; • checking the components; • identifying and fixing defects. • measuring the foot; • choosing the last; • reshape the last according to the client's requirements; • making the patterns; • checking and fixing defects. • analysing and understanding the order according to the technological data sheets; • making nesting on different types of materials; • setting and adjusting the work parameters of the specific machines from cutting department; • performing cutting operations according to the technological process specification; • checking the parts; identifying and fixing defects. • analysing and understanding the order according to the technological data sheets; • setting and adjusting the work parameters of the specific machines from pre-stitching department; • performing pre-stitching operations according to the technological process specification; • checking the components; identifying and fixing defects. • analysing and understanding the order according to the technological data sheets; • setting and adjusting the work parameters of the specific machines from stitching department; • performing repairing operation; • identifying and fixing defects. • analysing and understanding the order according to the technological data sheets; • setting and adjusting the work parameters of the specific machines from lasting department; • performing lasting operation according to the	He carries out his professional activity in large, medium-sized and small companies, both as an employee and as a freelancer, involved in the production of footwear and leather goods in textiles. as well as on a self-employed basis, engaged in the production of footwear and leather goods in leather goods in textile and/or leather

	of the footwear, identifying any defects and applying the appropriate adjustment techniques; Operate the assembly of the shoe in compliance with the safety regulations at work. Read and interpret the technical documentation relating to the finish; Apply upper and sole finishing techniques according to established procedures and requirements; Identify and correct any imperfections; Apply the packaging accessories; Carry out cleaning and polishing; Identify and report any non-compliance; Apply footwear protection materials; Apply canning procedures; Carry out the finishing in compliance with workplace safety regulations.		technological process specification; • checking the components; identifying and fixing defects. • analysing and understanding the order according to the technological data sheets; • setting and adjusting the work parameters of the specific machines from assembly department; • performing assembly operations according to the technological process specification; • checking the components; identifying and fixing defects. • analysing and understanding the order according to the technological data sheets; • setting and adjusting the work parameters of the specific machines; • performing finishing operations according to the technological process specification; • checking the footwear products; identifying and fixing defects.	
Knowledge	The shoe manufacturing process; Parts and components of the main footwear models; Chemical characteristics of the materials for the preparation of the components (mastics, buttresses, nails, etc.); Behaviors and reactions of leathers and other materials related to the manufacturing and treatment procedures used in the preparation of the footwear components; Characteristics and functionality of tools and equipment for preparing footwear components; Routine maintenance procedures of tools and equipment for component preparation; Main regulatory references relating to safety as regards the preparation of footwear components. Behaviors and reactions of leathers and other materials related to stitching and hemming procedures; Type and characteristics of the yarns to perform the seams; Chemical characteristics of the materials for making the	Skills Analyze the technical data sheets of the models to be produced. Interpret technical information from models and manufacturing. Identify and characterize the component parts of different models of footwear and types of construction. Select the materials, considering the technical specifications of the models, quality indexes and the lowest consumption. Identify different systems and units of measurement applied to footwear and materials. Apply raw materials and other materials, considering their properties and behavior. Using cutting equipment and tools, sewing preparation, sewing, assembly and finishing of footwear. Apply cutting techniques to parts of different models of footwear. Apply sewing preparation techniques to parts of different models of footwear. Apply sewing techniques to different models of footwear. Apply	Knowledge of the concepts, methods and activities specific to the footwear repairing. Knowledge of the concepts, methods and activities specific for the pattern making for customised footwear. Knowledge of the concepts, methods and activities specific for the production process in the cutting department. Knowledge of the concepts, methods and activities specific to the production process in the pre-stitching department. Knowledge of the concepts, methods and activities specific to the production process in the stitching department. Knowledge of the concepts, methods and activities specific to the production process in the lasting department. Knowledge of the concepts, methods and activities specific to the production process in the assembly department. Knowledge of the concepts, methods and	Shoe sole vulcanising machine operator Shoe sole injection moulding machine operator Assembling, Harnessing and Other Machines Operator Shoe finishing machine operator Leather Goods Manufacturing Machine Operator

	hem; Stitching procedures and techniques; Gluing procedures and techniques; Characteristics and functionality of the machines, tools and equipment for hemming; Routine maintenance procedures for hemming tools and equipment; Main regulatory references relating to safety as regards the creation of the hemming of footwear. Elements of technical, geometric and artistic drawing; Behaviors and reactions of leathers/fabrics related to assembly procedures; Procedures and techniques for assembling footwear; Characteristics and functionality of tools and equipment for shoe assembly; Routine maintenance procedures for tools and equipment for fitting footwear; Main regulatory references relating to safety as regards the assembly of footwear. Behaviors and reactions of leathers and other materials related to finishing and polishing procedures; Characteristics and methods of use of equipment for finishing operations; Application techniques of the finish on the upper; Type of treatments to soften the leather; Criteria for reading and interpreting the finishing sheets; Canning and packaging procedures; Routine maintenance procedures for finishing equipment and tools; Main regulatory references relating to safety as regards the finishing of footwear.	assembly techniques to different models of footwear. Apply finishing techniques to different models of footwear. Identify and correct any anomalies in manufactured products. Apply norms and measures of environment, safety and hygiene at work inherent to the professional activity. Apply preventive maintenance measures to the equipment used. Apply the appropriate quality standards and procedures for the manufacture of footwear. Attitudes: Demonstrate autonomy, dynamism and ability to perform in a timely manner. Communicate and interact with others and the environment. Adapt to different organizational contexts. Adapting to new technologies, new technical elements and raw materials. Teamwork and cooperation towards common goals. Demonstrate responsibility for quality and production objectives. Act in accordance with the rules of safety, hygiene and health at work.	activities specific to the production process in the finishing department.	

Activities	Splitting of the leather to reduce its thickness with the splitting machine. Thinning of the entire edge of the upper (called skiving) using skiving machines. Application of the canvas on the upper with the aid of machinery to make it more resistant and suitable in relation to the type of shoe being manufactured. Delivery note/order analysis and joining preparation sheet. Control, marking and stamping of cut pieces. Crimping of particular types of models of boots or footwear mounted on the instep of the shoe Analysis of the delivery note/order, of the model drawing and of the joining technical data sheet. Application of functional and decorative accessories. Sewing of the different pieces of the lining. Stitching of the upper parts. Composition and stitching of the upper and lining. Application of reinforcements on the upper. Bonding of the upper and lining. Analysis of delivery notes/orders and sheets with assembly technical information. Loading the handle with upper and components. Positioning of the upper on the last by fixing the height of the heel and the lining by hand or with the aid of machinery. Preparation of the bottom of the upper for gluing the sole by hand or with the aid of machinery. Assembly of the front part of the upper on the insole manually or with the aid of machinery. Fixing of the insole on the bottom of the last. Preparation of the upper by inserting toe caps and counters. Assembly of the sides and the back of the upper on the insole by hand or with the aid of machinery. Assembly of the upper and sole by hand or with the aid of machinery. Application of the heel by hand or with the aid of machinery. Insertion of the	Carry out cutting operations, sewing preparation, sewing, assembly and finishing of footwear, using different materials, equipment and execution techniques, in accordance with quality, maintenance and safety, hygiene and health at work procedures. Activities: Carry out the cutting of the various component parts of different models Execute model sewing preparation operations: Equalization of materials and/or parts; bend uppers; facing pieces; edge pieces; apply reinforcements to model parts; Pointed parts; leak parts; apply eyelets. Sewing different models of footwear taking into account the different types of sewing. Carry out the assembly preparation operations: apply and shape reinforcements: buttress, fascia; fix mounting insole to form. Carry out the assembly operations for different models after identifying the type of assembly: toe cap assembly; assembling the hammocks and heels; surface preparation of soles and cuts; application of glue to the surfaces of soles and cuts; gluing the soles to the cuts; unmold the shoe; fix heels; sewing of soles, welts; mounting insoles; sole milling. Carry out finishing operations on footwear: application of finishing insoles or heel pads; cleaning and washing; repair and retouching of defects; application of final leather care products and brushing; shoe polishing; introduction of laces/laces in footwear; filling introduction; consumer information application Control product quality during and at the end	• accountability and compliance with internal procedures and rules regarding the company's quality standards; • compliance with the health and safety legislation at work (HSE) in carrying out the operations (code 5.3.6. from SPP Annex nr.2 OMENCS 4121/13.06.2016); • compliance with fire safety legislation and environmental protection; • collaboration with team members to accomplish tasks at work (code 5.3.8.SPP Annex nr.2 OMENCS 4121/13.06.2016); • taking over from the workplace team responsibilities for the received tasks (code 5.3.9. SPP Annex nr.2 OMENCS 4121/13.06.2016); • independent selection and use of equipment and tools related to the specific operations; • appropriate performance of the specific operations; • assumption of the quality/non-quality of the operations.	Assembling and finishing footwear and leather goods in textile and/or leather, with autonomy and responsibility, applying techniques and procedures and responsibility, applying the necessary techniques and procedures to achieve the required quantity and quality, in the required quality, under the established conditions of safety, respect for the environment and deadlines.

	insole and/or cleaning heel. Final quality control of the manufactured shoes. Preparation of materials for finishing operations. Shoe finishing with starch. Carrying out the retouching and ironing of the upper and the visible parts of the shoe. Bubble/order analysis. Analysis of the bubble and of the cards with the technical information of canning. Preparation of materials necessary for canning. Insertion of shoe protection materials (e.g. cardboard, paper, shoe stretchers, etc.). Placing the footwear in the boxes. Verification of the conformity of the finished footwear product with respect to the samples. Label application or stamping of the box with indication of the type of article, leather, size, etc.	of the footwear production cycle. Carry out shoe packing operations.		

From the analysis and the integration of the different input, a new comprehensive profile has been designed as follows:

Profile	Footwear Manufacturing Operator
EQF Level	2-3
Units of competence	**Carry out the preparation of the footwear components**. (Identify and select materials, Carry out the cutting of different models of footwear. Cutting different shoe models. Perform seam preparation of different models of footwear. Sewing preparation of different models of footwear. Sew different models of shoes. Sewing different models of shoes. Prepare the surfaces of soles and cuts. Preparation of the surfaces of soles and cuts. Attach soles to shoe cutouts. Attaching soles to shoe cutouts) **Make the hemming of the shoes.** **Carry out the assembly of the shoes.** (Apply and shape shoe assembly reinforcements. Application and molding of shoe assembly reinforcements. Carry out the assembly of the toecap, the toecaps and the heel of the shoe. Assembling the toecap, the wedges and the heel of the shoe) **Carry out the finishing and packaging of the shoes** (Perform quality control and footwear packaging. Quality control and packaging of footwear) **Healthy and Work Security legislation**

Skills	**Interpretation and analysis of documents and information** Read and interpret the technical documentation (bill/order, preparation sheets); Analyse the technical data sheets of the models to be produced. Interpret technical information from models and manufacturing. **Materials and preparation of the footwear components** Identify and characterize the component parts of different models of footwear and types of construction; apply techniques for the preparation and finishing of the footwear components – marking, skiving, heat treatments, sanding, shearing, etc.; Define types of processing of footwear components and related technologies - insertion, reinforcements, etc.; Read the physical and commodity characteristics of leathers and other materials and predict their behaviour in the different types of processing and handling; Carry out small routine maintenance interventions on tools and equipment for hemming; Use leather processing tools – knife, crescent, stitch markers; Operate the preparation of the components in compliance with the safety regulations at work. Read and interpret the technical reference documentation; Apply techniques for the creation of the stitching of the added upper, for the stitching of any decorative accessories, of the lining; Carry out the masticating and gluing operations; Read the physical and commodity characteristics of the hides and predict their behaviour in hemming operations. **Finishing and assembly techniques** Establish procedures and requirements for the complete assembly of the footwear; Evaluate the correctness and efficiency of the assembly of the footwear, identifying any defects and applying the appropriate adjustment techniques; Operate the assembly of the shoe in compliance with the safety regulations at work. Read and interpret the technical documentation relating to the finish; Apply upper and sole finishing techniques according to established procedures and requirements; Identify and correct any imperfections; Apply the packaging accessories; Carry out cleaning and polishing; Identify and report any non-compliance; Apply footwear protection materials; Apply canning procedures. **Maintenance and security** Carry out small routine maintenance interventions on tools and equipment for hemming; Use tools and equipment for hemming; Hem the footwear in compliance with workplace safety regulations; Carry out the finishing in compliance with workplace safety regulation sand apply the preventive maintenance measures to the equipment used. **Attitudes** Demonstrate autonomy, dynamism and ability to perform in a timely manner. Communicate and interact with others and the environment. Adapt to different organizational contexts. Adapting to new technologies, new technical elements and raw materials. Teamwork and cooperation towards common goals. Demonstrate responsibility for quality and production objectives. Act in accordance with the rules of safety, hygiene and health at work.

Co-funded by the European Union

Knowledge	**Notions of:** General computing from the user's perspective. Environment, safety and hygiene at work. Maintenance. Quality. **Knowledge of:** The shoe manufacturing process and raw materials (The shoe manufacturing process; Parts and components of the main footwear models; Chemical characteristics of the materials for the preparation of the components (mastics, buttresses, nails, etc.); Behaviours and reactions of leathers and other materials related to the manufacturing and treatment procedures used in the preparation of the footwear components; Characteristics and functionality of tools and equipment for preparing footwear components; Routine maintenance procedures of tools and equipment for component preparation; Main regulatory references relating to safety as regards the preparation of footwear components) Constituent parts of the models. Characterization of footwear cutting processes. Characterization of footwear sewing processes. Characterization of footwear assembly and finishing processes. (Behaviours and reactions of leathers/fabrics related to assembly procedures; Procedures and techniques for assembling footwear; Characteristics and functionality of tools and equipment for shoe assembly; Routine maintenance procedures for tools and equipment for fitting footwear; Main regulatory references relating to safety as regards the assembly of footwear; Application techniques of the finish on the upper; Type of treatments to soften the leather; Criteria for reading and interpreting the finishing sheets; Canning and packaging procedures; Routine maintenance procedures for finishing equipment and tools; Main regulatory references relating to safety as regards the finishing of footwear) Technologies of equipment used in the manufacture of footwear. (Characteristics and functionality of the machines, tools and equipment for hemming; Routine maintenance procedures for hemming tools and equipment; Main regulatory references relating to safety as regards the creation of the hemming of footwear) **In-depth knowledge of:** Cutting techniques. Sewing preparation techniques Sewing techniques. Assembly techniques. Finishing techniques

Activities	**Carrying out production activities** Carry out the cutting of the various component parts of different models Execute model sewing preparation operations: Equalization of materials and/or parts; bend uppers; facing pieces; edge pieces; apply reinforcements to model parts; Pointed parts; leak parts; apply eyelets. Sewing different models of footwear taking into account the different types of sewing. Carry out the assembly preparation operations: apply and shape reinforcements: buttress, fascia; fix mounting insole to form. Analysis of the delivery note/order, of the model drawing and of the joining technical data sheet. Application of functional and decorative accessories. Sewing of the different pieces of the lining. Stitching of the upper parts. Composition and stitching of the upper and lining. Application of reinforcements on the upper. Bonding of the upper and lining.) **Carrying out assembly and finishing operations** (Analysis of delivery notes/orders and sheets with assembly technical information. Loading the handle with upper and components. Positioning of the upper on the last by fixing the height of the heel and the lining by hand or with the aid of machinery. Preparation of the bottom of the upper for gluing the sole by hand or with the aid of machinery. Assembly of the front part of the upper on the insole manually or with the aid of machinery. Fixing of the insole on the bottom of the last. Preparation of the upper by inserting toe caps and counters. Assembly of the sides and the back of the upper on the insole by hand or with the aid of machinery. Assembly of the upper and sole by hand or with the aid of machinery. Application of the heel by hand or with the aid of machinery. Insertion of the insole and/or cleaning heel. Final quality control of the manufactured shoes. Preparation of materials for finishing operations. Shoe finishing with starch. Carrying out the retouching and ironing of the upper and the visible parts of the shoe. Bubble/order analysis. Analysis of the bubble and of the cards with the technical information of canning. Preparation of materials necessary for canning. Insertion of shoe protection materials (e.g. cardboard, paper, shoe stretchers, etc.). Placing the footwear in the boxes. Verification of the conformity of the finished footwear product with respect to the samples. Label application or stamping of the box with indication of the type of article, leather, size, etc) **Working autonomy and collaboration with other members** (collaboration with team members to accomplish tasks at work; taking over from the workplace team responsibilities for the received tasks; independent selection and use of equipment and tools related to the specific operations) **Compliance environmental protection** (applying techniques and procedures and responsibility, applying the necessary techniques and procedures to achieve the required quantity and quality, under the established conditions of safety, respect for the environment and deadlines)

Footwear Designer/Pattern Maker

The Footwear Designer/Pattern Maker is responsible for all aspects of the shoe's design. The designer must consider the styling, materials, colours, customers, price, trends, and product performance. The pattern maker, moreover, is responsible for creating the proportioned pattern that fits tight to the last, following the indication set up by the designer.

In the following table it is possible to view the characteristics of the profile according to the different qualifications in the various countries analysed.

	Italy	Portugal	Romania	Spain
EQF Level	EQF 4	EQF 4	EQF 4	EQF 5
Recognized	Yes	08.08.2013 updated on 08.05.2014 1200 hours for full qualification	Yes	Yes
Acknowledgment body	Veneto Region, Lombardia Region, Toscana Region, Marche Region, Campania Region, Puglia Region	ANQEP - Portuguese National Agency for the Qualification and Professional Education	Ministry of National Education	Official qualification of the Ministry of Education and Vocational Training.

Units of competence	Carry out the feasibility study of footwear models Develop the functional components of the shoe Realize the technical design of the shoe Compose the prototype of the footwear item	Footwear – composition and materials; Footwear cutting technology; Footwear stitching, assembling and finishing technology; Technical Drawing; Graphic representation; Footwear last planning; Industrial pattern I; Industrial pattern II; Technical specification in footwear in footwear molds; Pull-over of the footwear models; Techniques of the extraction of the molds; Consumption estimation; Technical information of footwear models; Prototyping; CAD I; CAD II; CAD III; CAD IV; CAD V; Tubular footwear pattern making; California and Strobel footwear pattern making; Boots patter making; Sandals and slippers pattern making; Orthopaedics, healthy and comfortable footwear pattern making; Development of footwear collections; Laboratory quality control tests; Project – wide range of footwear patter making Optional UC: Modeling of diversified men's footwear/ Women's diversified footwear; modeling/Modeling of diversified children's footwear/Modeling of soles/Entrepreneur; profile and potential - diagnosis-development/Business ideas and opportunities/Business plan – micro business creation/Business plan – creation of small and medium businesses/Personal development and job search techniques/Assertive communication and job search techniques/Entrepreneurial skills and job search techniques/Safety and Health at	1. Quality management 2. Professional communication 3. Project management 4. Professional communication in the modern language 5. Applied information and communication technology 6. Basic raw materials and auxiliary materials 7. Technical drawing 9. Footwear manufacturing 10. Leather goods manufacturing 11. Footwear pattern making 12. Leather goods pattern making 13. Leather garments pattern making 14. Computer-aided pattern making 15. Basics of economy and marketing	-

		Work - epidemic-pandemic situations telework		
Skills	Understand the specific and functional characteristics of the footwear model; Read the stylistic input in its various forms and components and understand their meanings and symbology; Translate the designer's creative input into a footwear product model, translating the creative data into values and manufacturing procedures; Detecting critical implementation issues by proposing alternative solutions; Identify solutions that allow to maintain congruence between the stylistic project and the operational project; Define technical solutions aimed at guaranteeing the feasibility of the model; Identify materials and accessories suitable for the project. Defining the position, structure and functionality of the footwear elements – leather, accessories, etc.; Predict fit characteristics of the shoe by defining exact shapes, proportions and size development; Use traditional graphic techniques (sketch, pencil drawing, etc.) and software to develop the two-three dimensional graphic representation of the shoe components; Translate needs and characteristics found into operating logics and anatomical needs; Evaluate the technical and	Skills: Use the processes for gathering technical information. Analyze the feasibility of manufacturing new products, taking into account the production processes and available technologies. Interpret sketches, drawings and other representations relating to footwear products. Identify and characterize elements for the construction/selection of shapes in relation to the footwear models in design. Apply manual and computer-assisted design methods and techniques to different models of footwear. Identify and characterize the different stages of the modeling and manufacturing processes of footwear. Identify and recognize the properties and behaviors of raw materials. Apply the methods and techniques of manual modeling of footwear in obtaining molds. Apply computer-assisted shoe modeling methods and techniques to obtain patterns. Carry out calculation operations in determining the amount of raw material, components and	• identifying and choosing raw materials according to the footwear type and destination; • analysing and understanding the order according to the technological data sheets; • making nesting on different types of materials; • setting and adjusting the work parameters of the specific machines from cutting, pre-stitching, stitching, lasting, assembly and finishing department; • performing manufacturing operations according to the technological process specification; • checking the parts, identifying and fixing defects. • identifying the components of the footwear and leather goods; • choosing of materials, methods, tools and lasts; • making the measurements of the foot; • making the patterns based on foot measurements and leather goods dimensions; • checking and fixing defects. • understanding of the technical aspects of footwear design; • creating 3D models of footwear designs using CAD; • creating 2D patterns of footwear using CAD; • checking and fixing defects.	Industrial manufacture of textile garment parts and accessories, industrial manufacture of articles for industrial, sports and military use, industrial manufacture of leather parts, customised manufacture of parts, production of shaped knitted fabric components or parts, manufacture of fur parts, industrial manufacture of footwear, production of leather goods.

	qualitative conformity standards of the component parts of the shoe in compliance with the prototype production lines; Use foot shape measurement techniques. Define simple and complex construction details of the footwear product in relation to the structure and shapes of the model; Select materials and production technologies consistent with the design specifications; Translate morphological and functional qualities into representation elements on last; Prefiguring the image of footwear in its functional and technical components; Establish the technical and structural requirements of the footwear in compliance with national and international product and process standards. Coordinate and monitor the prototyping phases; Identify any problems, manufacturing criticalities and product anomalies and identify possible technical or processing improvements; Recognize manual cutting, joining, sewing and finishing techniques and/or with machines for the creation of the prototype; Evaluate the technical, aesthetic and structural compliance of the prototype with the design and technical indications; Translate data/information from prototyping into design modifications of the shoe	accessories needed for each model. Determine the quality requirements and technical specifications of footwear products for each of the production stages. Apply the methods and techniques for preparing technical information. Apply the appropriate quality standards and procedures for modeling and manufacturing footwear. Apply the environmental, safety and hygiene standards required in the professional activity. Attitudes: Demonstrate autonomy, dynamism and ability to perform in a timely manner. Communicate and interact with others and the environment. Adapt to different organizational contexts. Adapting to new technologies, new technical elements and raw materials. Demonstrate aesthetic sense in the combination of colours, raw materials, components and accessories. Demonstrate creativity. Teamwork and cooperation towards common goals. Demonstrate responsibility for quality and production objectives. Act in accordance with the rules of safety, hygiene and health at work.		

Knowledge	Fashion collections archives: models and materials; Principles of human foot anatomy and ergonomic aspects of footwear; Sector-specific terminology in English and French; Marketing principles; Merceology of natural and synthetic leathers for the production of footwear; Footwear design and manufacturing process; Model construction and development techniques. Modeling and size development techniques; Morphological and structural characteristics of materials and hides: properties and behavior in processing; Characteristics and functionality of design software and two- and three-dimensional graphic representation; Geometric and graphical representation foundations; Plane and volume drawing techniques; Foot shape measurement techniques; Features and functionality of the accessories. Construction techniques of the last and fit; Morphological, product and physical characteristics of the different types of leather; Behaviors and reactions of hides related to processing and treatment procedures; Chemical characteristics of materials for leather processing (mastics, buttresses, nails, etc.); Main methods of manual or machine processing of footwear products; Main legislative and regulatory references on the construction and maintenance of footwear products. Prototype construction and development techniques; Stages of the manufacturing process: cutting, hemming, assembly of materials, finishing: materials, technologies, equipment and machinery; Type and characteristics of the products used for gluing the footwear; Prototype component	Knowledge: Information and communication technologies. Environment, safety and hygiene at work. work organization Quality and industrial costing. Foot anatomy. Technologies and processes for cutting, sewing, assembling and finishing footwear. Properties, behavior and application of raw materials. In-depth knowledge of: General and technical design. Modeling technologies and processes. Computer aided modelling.	Knowledge of the concepts, methods and activities specific for the basic raw materials and auxiliary materials used in textile and leather industry. Knowledge of the concepts, methods and activities specific for footwear and leather goods manufacturing process. Knowledge of the concepts, methods and activities specific to pattern making for footwear, leather garments and leather goods. Knowledge of the concepts, methods and activities specific to the computer-aided design for footwear and leather-goods.	Analysis of textile and leather designs, prototyping, business and entrepreneurship, training in work centres, vocational training and guidance, quality management, occupational risk prevention and environmental protection, industrialisation and scaling of patterns, materials in textiles, clothing and leather, fashion and trends, organisation of production in industrial clothing, industrial pattern-making in textiles and leather, processes in industrial clothing, pattern-making and fashion projects, clothing techniques.

	preparation techniques; Main regulatory references relating to safety with regard to the creation of footwear garments			

Activities	Realization of the technical feasibility study of the models by analyzing the design on the sheet and on the last. Completion and control of technical and procedural documents. Creation of prototypes for each structure/model and size to verify the conformity of the upper, lining and components. Realization of the development in sizes of all the parts and components of the models. Preparation of the model envelope with information for the realization of the prototype. Development of technical components: buttress and toe cap in a traditional or computerized way. Creation of drawings on the last or cap of all the models (uppers) of the collection in a traditional or computerized way. Development of the pieces of the model in the reference size by hand or with a computerized system. Completion of the graphic project with technical drawings and combinations of structures, models, materials and accessories in a traditional and computerized way. Development of the base of the last on the reference size by hand or with a computerized system. Development of the model base in the reference size by hand or with a computerized system. Preparation of the model envelope with information for the realization of the prototype. Development of technical components: buttress and toe cap in a traditional or computerized way. Development of the pieces of the model in the reference size by hand or with a computerized system. Preparation of the model envelope with information for the realization of the prototype.	Plan and develop molds for different models of footwear, defining technical specifications inherent to the production process, in order to ensure quality, productivity and safety. Activities: Flatten the form; Execute the Industrial Plan of models Design and plan models, defining the parts that constitute them. Carry out the development, grading and extraction of molds from different models: Build the different molds that make up each model, defining production orientation specifications (dashes, notches, increases for overlapping and/or edging margins, …); Carry out the extraction of molds; Scale the molds in order to obtain different sizes for the same model. Monitor the execution of prototypes in their manufacturing stages, verifying their compliance with the technical specifications and defined quality standards and proposing any changes whenever justified. Prepare reports and dossiers related to the products.	• accountability and compliance with internal procedures and rules regarding the company's quality standards; • compliance with the health and safety legislation at work (HSE) in carrying out the operations; • compliance with fire safety legislation and environmental protection; • collaboration with team members to accomplish tasks at work; • taking over from the workplace team responsibilities for the received tasks; • independent selection and use of equipment and tools related to the specific operations; • appropriate performance of the specific operations; • responsible application of procedures.	CAD/CAM technical pattern designer; CAD/CAM technical clothing designer; clothing product development technician; product development technician; technical office manager; fur pattern maker; clothing pattern maker; garment pattern maker; hat and cap pattern maker; Garment pattern maker-scaler; Industrial clothing technician; Leather and fur manufacturing technician; Garment quality control technician; Leather and fur industries quality control technician; Manufacturing manager; Quality manager; Section manager; Team manager.

From the analysis and the integration of the different input, a new comprehensive profile has been designed as follows:

Profile	Footwear Designer/Pattern Maker
EQF Level	4 - 5
Units of competence	**Footwear project making** Carry out the feasibility study of footwear models; Footwear cutting technology; Footwear stitching, assembling and finishing technology; Technical Drawing; Graphic representation; Footwear last planning; Industrial pattern I; Industrial pattern II; Technical specification in footwear in footwear molds; Pull-over of the footwear models; Techniques of the extraction of the molds; Consumption estimation; Technical information of footwear models; Prototyping; CAD I; CAD II; CAD III; CAD IV; CAD V; Tubular footwear pattern making; California and Strobel footwear pattern making; Boots patter making; Sandals and slippers pattern making. Footwear quality control (Orthopaedics, healthy and comfortable footwear pattern making; Development of footwear collections; Laboratory quality control tests). Optional: **Modelling** Modelling of diversified men's footwear/ Women's diversified footwear; modelling/Modelling of diversified children's footwear/Modelling of soles. **Business, management and development** Entrepreneur; profile and potential - diagnosis-development/Business ideas and opportunities/Business plan – micro business creation/Business plan – creation of small and medium businesses/Personal development and job search techniques/Assertive communication and job search techniques/Entrepreneurial skills and job search techniques/Safety and Health at Work - epidemic-pandemic situations telework.

Skills	**Modelling and use of technologies** Understand the specific and functional characteristics of the footwear model; Read the stylistic input in its various forms and components and understand their meanings and symbology; Translate the designer's creative input into a footwear product model, translating the creative data into values and manufacturing procedures; Detecting critical implementation issues by proposing alternative solutions; Identify solutions that allow to maintain congruence between the stylistic project and the operational project; Define technical solutions aimed at guaranteeing the feasibility of the model; Identify materials and accessories suitable for the project. Analyse the feasibility of manufacturing new products, taking into account the production processes and available technologies. Interpret sketches, drawings and other representations relating to footwear products. Apply manual and computer-assisted design methods and techniques to different models of footwear. Identify and characterize the different stages of the modelling and manufacturing processes of footwear. Creating 3D models of footwear designs using CAD; creating 2D patterns of footwear using**.** **Management of materials and accessories** Select materials and production technologies consistent with the design specifications. **Footwear project planning** Predict fit characteristics of the shoe by defining exact shapes, proportions and size development; Use traditional graphic techniques (sketch, pencil drawing, etc.) and software to develop the two-three dimensional graphic representation of the shoe components; Translate needs and characteristics found into operating logics and anatomical needs; Evaluate the technical and qualitative conformity standards of the component parts of the shoe in compliance with the prototype production lines. Apply computer-assisted shoe modelling methods and techniques to obtain patterns. Carry out calculation operations in determining the amount of raw material, components and accessories needed for each model. Determine the quality requirements and technical specifications of footwear products for each of the production stages. Apply the methods and techniques for preparing technical information. Apply the appropriate quality standards and procedures for modelling and manufacturing footwear. Apply the environmental, safety and hygiene standards required in the professional activity. **Prototype definition** Prefiguring the image of footwear in its functional and technical components; Establish the technical and structural requirements of the footwear in compliance with national and international product and process standards. Coordinate and monitor the prototyping phases; Identify any problems, manufacturing criticalities and product anomalies and identify possible technical or processing improvements; Recognize manual cutting, joining, sewing and finishing techniques and/or with machines for the creation of the prototype; Evaluate the technical, aesthetic and structural compliance of the prototype with the design and technical indications; Translate data/information from prototyping into design modifications of the shoe.

Knowledge	**Knowledge of:** Information and communication technologies. Environment, safety and hygiene at work. Quality and industrial costing. Foot anatomy (principles of human foot anatomy and ergonomic aspects of footwear) Technologies and processes for cutting, sewing, assembling and finishing footwear. Properties, behavior and application of raw materials. **In-depth knowledge of:** General and technical design. (Knowledge of the concepts, methods and activities specific for the basic raw materials and auxiliary materials used in textile and leather industry. Knowledge of the concepts, methods and activities specific for footwear and leather goods manufacturing process) Prototype design (Prototype construction and development techniques; Stages of the manufacturing process: cutting, hemming, assembly of materials, finishing: materials, technologies, equipment and machinery; Type and characteristics of the products used for gluing the footwear; Prototype component preparation techniques; Main regulatory references relating to safety with regard to the creation of footwear garments) Modelling technologies and processes. (Footwear design and manufacturing process; Model construction and development techniques. Modelling and size development techniques; Morphological and structural characteristics of materials and hides: properties and behaviour in processing. Main methods of manual or machine processing of footwear products; Main legislative and regulatory references on the construction and maintenance of footwear products) Computer aided modelling (Characteristics and functionality of design software and two- and three-dimensional graphic representation; Geometric and graphical representation foundations; Plane and volume drawing techniques)

Activities	**Design and plan models** (Realization of the technical feasibility study of the models by analyzing the design on the sheet and on the last. Completion and control of technical and procedural documents. Creation of prototypes for each structure/model and size to verify the conformity of the upper, lining and components. Realization of the development in sizes of all the parts and components of the models. Preparation of the model envelope with information for the realization of the prototype. Development of technical components: buttress and toe cap in a traditional or computerized way. Creation of drawings on the last or cap of all the models (uppers) of the collection in a traditional or computerized way. Development of the pieces of the model in the reference size by hand or with a computerized system. Completion of the graphic project with technical drawings and combinations of structures, models, materials and accessories in a traditional and computerized way.) **Prototype preparation** (Preparation of the model envelope with information for the realization of the prototype. Development of technical components: buttress and toe cap in a traditional or computerized way. Development of the pieces of the model in the reference size by hand or with a computerized system. Monitor the execution of prototypes in their manufacturing stages, verifying their compliance with the technical specifications and defined quality standards and proposing any changes whenever justified. Preparation of the model envelope with information for the realization of the prototype). **Design and creation of the molds** Carry out the extraction of molds; Scale the molds in order to obtain different sizes for the same model; Build the different molds that make up each model, defining production orientation specifications (dashes, notches, increases for overlapping and/or edging margins, …)). **Legislation's application and staff collaboration** (Ensure accountability and compliance with internal procedures and rules regarding the company's quality standards; compliance with the health and safety legislation at work (HSE) in carrying out the operations; compliance with fire safety legislation and environmental protection; collaboration with team members to accomplish tasks at work; taking over from the workplace team responsibilities for the received tasks. Prepare reports and dossiers related to the products)

Maintenance Technician

The Maintenance Technician performs routine maintenance of equipment, machinery and manufacturing facilities and helps troubleshoot and repair any mechanical or electrical problems when they arise. He/she performs preventative maintenance and emergency maintenance. In a manufacturing or industrial setting, he/she helps troubleshoot and quickly repair any mechanical, hydraulic, pneumatic or electrical problems should they arise with the manufacturing processes and supporting equipment and systems in the facility.

In the following table it is possible to view the characteristics of the profile according to the different qualifications in the various countries analysed.

	Italy	Portugal	Romania	Spain
EQF Level	EQF 4	EQF 4	-	EQF 4
Recognized	2 profiles in the Region repertoire, but they are general, not sectorial: 1) Mechatronic technician for the installation and maintenance of robotic systems. 2) Maintenance technician of machines, plants and automation systems.	14.05.2008 last update 22.07.2020 1200 for full qualification	-	Yes
Acknowledgment body	Italian regions	ANQEP - Portuguese National Agency for the Qualification and Professional Education	-	Official qualification of the Ministry of Education and Vocational Training.

Units of competence	-	Principles of electrical engineering; direct current circuits; Sinusoidal alternating current circuits; Single-phase and three-phase electrical installations; electrical equipment; Domotics; Measuring systems and instruments; Equipment, tools and lubrication; electrical automation components; Electric machines - basics; Electric automation boards; Production and distribution of compressed air; Pneumatic circuits by the intuitive method; Pneumatic circuits by cascade and step by step methods; electropneumatic circuits; Production and regulation of hydropower; Hydraulic and electrohydraulic circuits; semiconductor devices; Typical analog electronics circuits; discrete digital circuits; Discrete digital circuit testing; Architecture of systems with microprocessors; microprocessor software; electronic design; Context of maintenance in the footwear industry 50; Preventive maintenance project for footwear industry equipment; Optional UC: Maintenance and repair of cutting machines for sewing preparation; Maintenance and repair of gluing machines for sewing preparation; Sewing machine - functions and principles of operation; Mechanical tuning of vertical rotary shuttle sewing machines; Mechanical tuning of horizontal rotary shuttle sewing machines; Diagnosis of faults and adjustment of line cutting systems per blade; Troubleshooting and tuning of scissor thread cutting systems; Operating parameters of machines with programmers; PLC - characterization and applications; Programming and testing of general functions; Programming the starting command for motors and electropneumatic systems; sensors and transducers; Robot features and applications; robot programming; Robot application project; Entrepreneur profile and potential - diagnosis/development; Business ideas and opportunities; Business plan – micro business creation; Business plan – creation of small and medium businesses; Personal development and job search techniques; Assertive communication and job search techniques; Entrepreneurial skills and job search techniques; Family budget planning and management; Basic financial products Savings – basic concepts; Credit and debt; Operation of the financial system; Savings and its applications; Safety and Health at Work - epidemic/pandemic situations; telework	-	-

Skills	-	Notions of: Technical and schematic drawing. General computing from the user's perspective. Properties and behaviour of raw materials. Knowledge of: Portuguese language. Technical English. Mathematics. Information and communication technologies. Mechanics. Electrical engineering. Electronics. Automation. Pneumatic systems. Hydraulic systems. Footwear and leather goods manufacturing processes. Quality management. Environment, safety and hygiene at work. In-depth knowledge of: Typology and functioning of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Programming processes of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Tuning processes for machines involved in cutting, sewing, assembly and finishing of footwear and leather goods. Preventive and corrective maintenance processes for machines involved in cutting, sewing, assembly and finishing of footwear and leather goods. Typology and characteristics of the instruments and tools used in the maintenance of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Preventive maintenance planning.	-	Mechanic; maintenance electrician and electromechanics; industrial assembler; automated line driver in manufacturing industries, textile industry, etc.

Knowledge	-	Skills: Interpret drawings, diagrams and other technical documentation contained in the manuals of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Identify and recognize the properties and behavior of raw materials. Identify and characterize the manufacturing processes of footwear and leather goods. Identify the systems, circuits and constituent components of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods and their respective functions. Identify the operating principles of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Define the frequency, operations, components and other materials to be used in the maintenance of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Define the values of the programming parameters of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Apply the programming techniques of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Apply the tuning techniques of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Apply the appropriate techniques for detecting faults in the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Define priorities in the maintenance of the machines involved in the cutting, sewing, assembly and finishing processes, taking into account safety, quality and productivity criteria. Apply preventive and corrective maintenance techniques to the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Use instruments and tools suitable for the maintenance of machines involved in cutting, sewing, assembly and finishing of footwear and leather goods. Apply the appropriate quality standards and procedures for the manufacture of footwear and leather goods. Apply the environmental, safety and hygiene standards required in the professional activity. Attitudes: Adapt to different organizational contexts and different work teams. Adapt to new technologies and raw materials. Take initiative to find appropriate solutions in solving problems. Demonstrate the ability to communicate and establish interpersonal relationships.	-	Pneumatic and hydraulic automatisms, electricity and electrical automatisms, business and entrepreneurship, workplace training, vocational training and guidance, assembly and maintenance of automated lines, electrical-electronic assembly and maintenance, mechanical assembly and maintenance, manufacturing techniques, joining and assembly techniques.

Activities	-	Install, program, tune and carry out preventive and corrective maintenance of the different types of machines in the areas of cutting, sewing, assembly and finishing involved in the manufacture of footwear and leather goods. Activities Analyze the technical manuals of machines in the areas of cutting, sewing, assembly and finishing, in order to identify, in particular, the constituent parts of the different types of machines involved in the manufacture of footwear and leather goods and their respective functions. Draw up preventive maintenance plans for machines in the cutting, sewing, assembly and finishing areas based on the causal trends of anomalies, defining, in particular, the frequency, operations, components and other materials to be used in their maintenance. Carry out the installation of machines in the cutting, sewing, assembly and finishing areas, using the appropriate techniques and tools, taking into account the machine manuals and the environment, safety and hygiene standards, in order to ensure the conditions of operation and use. Programming the machines in the cutting, sewing, assembly and finishing areas, depending on the technical specifications of the products and the operations to be carried out in the manufacturing process. Carry out the adjustments of machines in the areas of cutting, sewing, assembly and finishing, depending on the operations to be carried out, the raw material and the operator, proceeding with the disassembly and assembly of their constituent parts and using the techniques and suitable tools. Carry out preventive and corrective maintenance of machines in the cutting, sewing, assembly and finishing areas, using the appropriate techniques, tools and measuring instruments, taking into account the machine manuals and the environmental, safety and environmental standards hygiene, in order to ensure its correct functioning. Record technical information regarding the maintenance operations carried out, as well as information regarding the machines existing in the company, their suppliers, their allocation and respective energy consumption. Ensuring the supply of components and other materials to be used in the maintenance of footwear and leather goods machines.	-	Maintenance and assembly of machinery of electromechanical equipment and electronic systems; maintenance of industrial equipment of automated production lines; management of the maintenance workshop.

From the analysis and the integration of the different input, a new comprehensive profile has been designed as follows:

Profile	Maintenance Technician
EQF Level	4
Units of competence	**Knowledge of electrical circuits and domotics** (Principles of electrical engineering; direct current circuits; Sinusoidal alternating current circuits; Single-phase and three-phase electrical installations; electrical equipment; Domotics; Measuring systems and instruments; Equipment, tools and lubrication; electrical automation components; Electric machines - basics; Electric automation boards; Production and distribution of compressed air) **Knowledge of industrial tools** Pneumatic circuits by the intuitive method; Pneumatic circuits by cascade and step by step methods; electropneumatic circuits; Production and regulation of hydropower; Hydraulic and electrohydraulic circuits; semiconductor devices; Typical analog electronics circuits; discrete digital circuits; Discrete digital circuit testing; Architecture of systems with microprocessors; microprocessor software; electronic design; Context of maintenance in the footwear industry 50; Preventive maintenance project for footwear industry equipment; **Optional UC**: Maintenance and repair of cutting machines for sewing preparation; Maintenance and repair of gluing machines for sewing preparation; Sewing machine - functions and principles of operation; Mechanical tuning of vertical rotary shuttle sewing machines; Mechanical tuning of horizontal rotary shuttle sewing machines; Diagnosis of faults and adjustment of line cutting systems per blade; Troubleshooting and tuning of scissor thread cutting systems; Operating parameters of machines with programmers; PLC - characterization and applications; Programming and testing of general functions; Programming the starting command for motors and electropneumatic systems; sensors and transducers; Robot features and applications; robot programming; Robot application project; Entrepreneur profile and potential - diagnosis/development; Business ideas and opportunities; Business plan – micro business creation; Business plan – creation of small and medium businesses; Personal development and job search techniques; Assertive communication and job search techniques; Entrepreneurial skills and job search techniques; Family budget planning and management; Basic financial products Savings – basic concepts; Credit and debt; Operation of the financial system; Savings and its applications; Safety and Health at Work - epidemic/pandemic situations; telework

Skills	**Tools and principles in the manufacturing process** Interpret drawings, diagrams and other technical documentation contained in the manuals of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Identify and recognize the properties and behavior of raw materials. Identify and characterize the manufacturing processes of footwear and leather goods. Identify the systems, circuits and constituent components of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods and their respective functions. Identify the operating principles of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Define the frequency, operations, components and other materials to be used in the maintenance of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. **Programming and managing machines** Define the values of the programming parameters of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Apply the programming techniques of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Apply the tuning techniques of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Apply the appropriate techniques for detecting faults in the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Define priorities in the maintenance of the machines involved in the cutting, sewing, assembly and finishing processes, taking into account safety, quality and productivity criteria. Apply preventive and corrective maintenance techniques to the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Use instruments and tools suitable for the maintenance of machines involved in cutting, sewing, assembly and finishing of footwear and leather goods. Apply the appropriate quality standards and procedures for the manufacture of footwear and leather goods. Apply the environmental, safety and hygiene standards required in the professional activity. **Attitudes** Adapt to different organizational contexts and different work teams. Adapt to new technologies and raw materials. Take initiative to find appropriate solutions in solving problems. Demonstrate the ability to communicate and establish interpersonal relationships.

Knowledge	**Notions of:** Technical and schematic drawing. General computing from the user's perspective. Properties and behavior of raw materials. **Knowledge of**: Technical English. Mathematics. Information and communication technologies. Mechanics. Electrical engineering. Electronics. Automation. Pneumatic systems. Hydraulic systems. Footwear and leather goods manufacturing processes. Quality management. Environment, safety and hygiene at work. **In-depth knowledge of:** Typology and functioning of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Programming processes of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Tuning processes for machines involved in cutting, sewing, assembly and finishing of footwear and leather goods. Preventive and corrective maintenance processes for machines involved in cutting, sewing, assembly and finishing of footwear and leather goods. Typology and characteristics of the instruments and tools used in the maintenance of the machines involved in the cutting, sewing, assembly and finishing processes of footwear and leather goods. Preventive maintenance planning.

Activities	• Analyse the technical manuals of machines in the areas of cutting, sewing, assembly and finishing, in order to identify, in particular, the constituent parts of the different types of machines involved in the manufacture of footwear and leather goods and their respective functions. • Draw up preventive maintenance plans for machines in the cutting, sewing, assembly and finishing areas based on the causal trends of anomalies, defining, in particular, the frequency, operations, components and other materials to be used in their maintenance. • Carry out the installation of machines in the cutting, sewing, assembly and finishing areas, using the appropriate techniques and tools, taking into account the machine manuals and the environment, safety and hygiene standards, in order to ensure the conditions of operation and use. • Programming the machines in the cutting, sewing, assembly and finishing areas, depending on the technical specifications of the products and the operations to be carried out in the manufacturing process. • Carry out the adjustments of machines in the areas of cutting, sewing, assembly and finishing, depending on the operations to be carried out, the raw material and the operator, proceeding with the disassembly and assembly of their constituent parts and using the techniques and suitable tools. • Carry out preventive and corrective maintenance of machines in the cutting, sewing, assembly and finishing areas, using the appropriate techniques, tools and measuring instruments, taking into account the machine manuals and the environmental, safety and environmental standards hygiene, in order to ensure its correct functioning. • Record technical information regarding the maintenance operations carried out, as well as information regarding the machines existing in the company, their suppliers, their allocation and respective energy consumption. Ensuring the supply of components and other materials to be used in the maintenance of footwear and leather goods machines.

Co-funded by the European Union

5.0 Footwear Architect

The 5.0 Footwear Architect is a professional that has skills, knowledge and attitudes linked to Industry 5.0 topics.

It is a newly created profile, which collects the needs of the transformation linked to Industry 5.0, and connects them with the skills and knowledge related to the footwear sector.

He/she works in the Footwear companies, and she/he specializes in the interaction of machines and operators, as well as having expertise in robotics and artificial intelligence.

Co-funded by the European Union

Final Results

Thanks to the operational structure set up, it was possible to identify, in a clear and unambiguous way, the key profiles for the future industry's workforce related to Industry 5.0.

The selection made followed various parameters, among which we highlight:

- the importance of the profile for the footwear sector
- the impact of Industry 5.0 on the profile
- the opportunity to implement new aspects of the profile/develop a new profile
- the degree of diffusion of the profile in the various countries

The key profiles identified will be the primary subjects in the continuation of the project, through the definition of the related training plans, the training tool kits with innovative contents (virtual and augmented reality) and practical exercises focused on the Digital Key Competencies of the profiles.

The profiles are:

1. Footwear Technical Manager
2. Footwear Manufacturing Operator
3. Footwear Designer/Pattern Maker
4. Maintenance Technician
5. 5.0 Footwear Architect – a new profile to be developed, even thanks to the input from Task 2.1

In the following Task 2.3, these results will be combined with the results coming from task 2.1 in order to obtain a report on training paths according to the profiles identified.