



LEARN2WORK PROJECT



Educational Resources and Curricula

ÍNDICE

- 1. WORKSTATION: Leather hand cutting (and machine cutting) 12
 - 1.1 Description of the performance 12
 - 1.2 Activities within each workstation that should be completed after the training 12
 - 1.3 Learning Outcomes envisaged 13
 - 1.3.1 Knowledge 13
 - 1.3.3 Competences 15
 - 1.4 Structure of the Training Path 16
 - 1.5 Duration 17
 - 1.6 ECVET 19
 - 1.7 Learning activities and strategies to adopt regarding the target group 19
 - 1.8 Training material (manuals, videos, etc.) to be used/adapted to the target-group 21
 - 1.9 Learning Assessment 22
- 2. WORKSTATION: Preparation and Stitching 23
 - 2.1 Description of the performance 23
 - 2.2 Activities within each workstation that should be completed after the training 23
 - 2.3 Learning Outcomes envisaged 24
 - 2.3.1 Knowledge 24
 - 2.3.2 Skills 25
 - 2.3.3 Competences 26
 - 2.4 Structure of the Training Path 27
 - 2.5 Duration 29
 - 2.6 ECVET 30
 - 2.7 Learning activities and strategies to adopt regarding the target group 30
 - 2.8 Training material (manuals, videos, etc.) to be used/adapted to the target-group 34
 - 2.9 Learning Assessment 34
- 3. WORKSTATION: Pre- lasting and hand lasting 35
 - 3.1 Description of the performance 35
 - 3.2 Activities within each workstation that should be completed after the training 35
 - 3.3 Learning Outcomes envisaged 36
 - 3.3.1 Knowledge and Skills 36
 - 3.4 Structure of the Training Path 37

3.5 Duration	38
3.6 ECVET	39
3.7 Learning activities and strategies to adopt regarding the target group	40
A Workshop on footwear production, materials, leather and basics on product engineering	40
B Workshop on preparation of tools and materials.....	40
C Workshop on upper conditioning	40
D Workshop on upper lasting	41
E Workshop on occupational health and safety	41
F Other activities.....	41
G Final assessment	42
3.8 Training material (manuals, videos, etc.) to be used/adapted to the target-group	42
3.9 Learning Assessment	42
4. WORKSTATION: Roughing and Cementing	43
4.1 Description of the performance	43
4.2 Activities within each workstation that should be completed after the training.....	43
4.3 Learning Outcomes envisaged.....	43
4.3.1 Knowledge and Skills.....	43
4.3.2 Competences.....	44
4.4 Structure of the Training Path	45
4.5 Duration.....	46
4.6 ECVET	47
4.7 Learning activities and strategies to adopt regarding the target group.....	47
A Workshop on footwear production, materials, leather and basics on product engineering	47
B Workshop on shoe bottom preparation	48
C Workshop on cementing	48
D Workshop on attach and polish shoes.....	48
E Workshop on occupational health and safety	49
F Other activities.....	49
G Final assessment	49
4.8 Training material (manuals, videos, etc.) to be used/adapted to the target-group.....	49
4.9 Learning Assessment	50
5.1 Description of the performance	51
5.2 Activities within each workstation that should be completed after the training.....	51
5.3 Learning Outcomes envisaged.....	51

5.3.1 Knowledge	51
5.3.2 Skills	52
5.3.3 Competences	53
5.4 Structure of the Training Path	53
5.5 Duration	55
5.6 ECVET	57
5.7 Learning activities and strategies to adopt regarding the target group	57
5.8 Training material (manuals, videos, etc.) to be used/adapted to the target-group	59
5.9 Learning Assessment	59

INTRODUCTION

The objective of the Learn2Work project is to increase the employment opportunities of the growing number of young people who are Not in Education, Employment, or Training (NEET) in the footwear industry in Europe by adapting and using the Production School model, successfully implemented in Denmark, to develop an educational path based on learning by practicing in the footwear industry.

Project partners analysed the actual training needs of the footwear workforce, taking into account the future trends of the industry and other internal and external factors. The research determined what were the most demanded job occupations in the Footwear sector, and acknowledged 5 workstations that were suitable for the implementation of the Production School Model

This document illustrates the learning frameworks of the 5 workstations identified, which are the following:

- 1- Leather hand cutting (and machine cutting) operator
- 2- Pre-stitching and Stitching operator
- 3- (Hand) lasting operator
- 4- Roughing and cementing operator
- 5- Finishing operator

The developed training frameworks addresses in particular the characteristics and needs of the European footwear industry in terms of workforce, as well as those of the NEET group in order to identify synergies and elaborate an innovative learning method that brings them together.

For each workstation, the following topics were addressed:

- Description of the performance: a brief summary of the workstation, i.e., a brief scope of the activities to perform.
- Activities within each workstation that should be completed after the training: A description of the activities included in each workstation which should be completed by the students after the programme will be provided. They are related to the learning objectives.
- Learning outcomes envisaged: a list of what a learner knows, understands and is able to do upon the completion of the training path.

- Knowledge: a list of the cognitive acquisitions to support the development of skills.
- Skills: a list of the abilities required to perform different operations involved in a workstation.
- Competences: a list of the proven abilities to perform sets of activities/tasks according to standards.
- Structure of the training path: It represents the programme, the curriculum for each workstation defined. The training path should cover all necessary skills and competences concerning the different workstations. This involves key and soft skills.
- Duration: the total time load of the training, which is also distributed through the different workshops and other activities, as well as per week taking 30 training hours a week as a basis.
- ECVETs points (European Credit System for Vocational Education and Training): numerical representation of the overall weight of learning outcomes in a qualification, and of the relative weight of units in relation to the qualification. In the framework of this project, the bridge to ECVET points is made in the spirit of matching the set of learning outcomes for each of the 5 described workstations to a possible curriculum.
- Learning activities and strategies to adopt regarding the target group: For each workstation, a set of learning activities will be pointed and detailed. The learning activities will be according to the learning strategies defined in the methodological issues section that will describe how the training unit will be delivered.
- Training material to be used: description of the training material to be used in each workstation (manuals, videos, exercises...)
- Learning assessment: As any other learning activity, this workstation's learning processes approach should contemplate an assessment to be designed according to the Production Schools' methodology.

Methodological framework

There are few relevant issues to underline in this project, regarding its nature, its embedded innovation and its target-group:

- The workstations approach
- The learning strategies and common learning activities
- The trainer/tutor role
- Learning Outcomes and ECVETs
- Assessment

Workstation approach:

The most relevant characteristic of the Production Schools' learning strategy is to be based on "learning by doing". In practice and generally speaking, the youngster will be prepared to perform a specific set of activities and tasks, circumspect within a workstation with a projection to the whole organisation where he/she is or will be integrated, as well as the whole community. Although both key and soft skills development will be catalysed, the framework of the training delivery should stick to the workstation.

According to the definition, a workstation is an area that has the equipment and resources needed for one person to do a particular job – this should not be understood as the project workstation involves the same resources to perform many manufacturing operations that altogether comprehend a manufacturing phase or a step of the footwear production.

The approach to the workstation when describing all training framework should draw our attention to the learning that takes place in the workstation, which encompasses a set of hands-on learning activities.

Learning strategies and common learning activities:

In this project, the learning strategies assume a special importance, as they incorporate the Production Schools' spirit into a more traditional teaching method used until now in the footwear industry.

Production Schools are also an example of non-formal learning. Although one of the objectives of this project is to outstand its value as an alternative pathway within a VET itinerary, it still has its basis on non-formal learning framework. The youngsters acquire the skills that they need to work and live in community within a non-formal way. It is supported by innovative learning strategies, which remove obstacles, encourage conversation, trial-and-error, stimulate observation, strengthen relationships, increase bandwidth comparing to traditional VET, put seeds, grow networks. It is a natural way to learn and grow.

Non-formal learning is another way of learning to do our jobs, in this case based on the "learning by doing".

The learning strategies to adopt during the training delivery should correspond with the presuppositions of the Production Schools.

The common learning strategy to all workshops is based on learning by doing. They should be very intuitive rather than expositive, although some items could have a certain level of

demonstration/exposition (in videos, PPTs, rather than in texts). Special attention should be given to the support materials which should also be directive, interactive, attractive, displayed in a way that the target-group is identified with.

Here are some options that correspond to the referred framework: discussions, fieldwork, hands-on activities, lectures, lessons, work placement, presentations, project, role-play, seminar/workshops, tutorials., etc.

The training class facilities should provide the possibility of constantly combine practical exercises with some theory.

For each workstation described, a set of learning activities are pointed and detailed. However, a set of common activities should be prepared by the trainers and performed along the duration of the training delivery, as follows:

- The trainer will daily welcome and hold sum-up meetings with all pupils to organise the day's activities, solve common problems and highlight micro-objectives achieved;
 - One-minute assessment with open or close questions, where the trainee is asked about motivation, acquired knowledge, doubts, future training, etc. It is essential that the learner feels that his/her answers are considered.
- Whenever possible, the pupil or group of pupils (in this case, ideally one of the pupils has a higher level of knowledge to promote peer-to-peer learning) will voluntarily choose a very specific task or will be assigned one. In this way, the more experienced pupil can explore his/her leadership and the less experienced will feel more integrated;
- Instructions by trainers will be minimal so that the pupils can experiment, but they will be 100% availability. More than regular monitoring, learners are encouraged to proactively demand further instructions if needed and trainers will use these moments to informally monitor the progress;
- The student will regularly collect evidences such as videos, photos, notes for further analysis and to identify with the trainer their strengths and weaknesses in order to improve → portfolio
- When the task is finished, trainer and learner will meet to talk about the task development and result and determine further steps.

The trainer/tutor's role:

Firstly, the terminology regarding the trainer/tutor – normally the person who delivers the training – should be analysed and agreed. A Trainer can often refer to a person who trains athletes both, from a technical and pedagogical perspective –, but within an education training framework, the term can above all be used to who, within an organisation, trains and develops staff' skills, knowledge and competencies. In a Vocational Education & Training context, the vocational trainer is the teacher possessing appropriate vocational qualifications to deliver training.

A Tutor is an instructor addressing a single staff or a very small group. It can refer to a trainer, but usually refers to hands-on skills such as those targeted by this project. Tutoring can provide youngsters with a competitive advantage in a training set-up.

A Coach is another term used for someone accompanying people in a learning processes, based on stated objectives and the level of accomplishment. The coach should assign all needed strategies to motivate and encourage the recipient to accomplish tasks and achieve personal and organisational results.

The most appropriate term in this project should be “trainer”, although the other figures can have place in this non-formal training introduced in this project.

The most important is to understand and retain the difference from a “trainer” within the Production Schools framework and a normal VET trainer. A Production Schools' trainer should be given a special preparation in order to act and adopt also particular learning strategies. Each trainer should have the necessary preparation to become a Production School trainer, i.e., to be skilled technically but also to be able to use the Production School methodology and to facilitate the youngsters' engagement to the programme. Some parts of the programme should be specifically delivered in workshops, which will differ from workstation to workstation.

The trainer, prepared by the project within the "Production Schools" spirit, should be able to deliver the programme related to each of the 5 working stations and not only a specific part or activity. He/she will accompany all the students/youngsters from the start till the end, and prepare them to acquire the indicated competences needed to find a future job in the footwear industry. Moreover, he will also teach them to grow and become a citizen, an integral and active part of the society.

In addition, some trainers could be assigned to specific moment of the training delivery.

Learning Outcomes and ECVETs

Production Schools is a non-formal education.

The use of European standards such as the European Qualification Framework (EQF) may not be relevant here. However, there could be a potential interest in integrating it within an education/training pathway even as an alternative.

With such perspective, a potential bridge to European standards and presuppositions could be useful in a near future.

The idea of using the Learning Outcomes (LO) as a common European reference is to make the learning objectives more readable and understandable across different EU countries and stakeholders, and to provide a basis for future recognition in the different education training systems in Europe.

A LO is defined as a statement of what a learner knows, understands and is able to do on completion of a learning process. The actual European system to describe qualifications (the European Qualification Framework – EQF) emphasises results of learning rather than inputs such as length of study or learning activities among others. Learning outcomes are specified in three categories – knowledge, skills and competence. This approach indicates that qualifications – in different combinations – capture a broad scope of learning outcomes, including theoretical knowledge, practical and technical skills, and social competences, where the ability to work with others will be crucial. In the context of this project and in practice, it describes what the learner is able to perform after the delivery of the training if successfully completed.

LO description is supported by the KSC methodology – Knowledge, Skills, and Competences - as follows:

'Knowledge': means the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study. In the context of the EQF, knowledge is described as theoretical and/or factual. "knowledge" can have different levels: notions of, fundamental knowledge and deep knowledge.

'Skills': means the ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the EQF, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).

'Competences': means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. In the context of the EQF, a competence is described in terms of responsibility and autonomy.

The structure of the training path for each workstation has been designed with a reference to the European Credit System for Vocational Education and Training (ECVET), keeping the criteria of 30 hours for 1 ECVET point. Students can accomplish certain ECVET points depending on the complexity and relevance of the themes worked out and the skills developed. In some cases, several adjustments were necessary in order to weight the importance of various units in the general framework of the training programme.

Assessment

Assessment is a part of the training, it is a critical dimension of the learning process.

It determines whether the learning objectives have been met – if the trainee knows or is able to do what is supposed to know and to do by the time the training delivery is completed. It serves to measure the students' progress and it can be a *mean* to engage students with the learning process.

In this project, assessment is designed in order for trainees to understand their progress towards learning objectives and modify their behaviour with a view to reach those goals. Therefore, assessment should be an ongoing process, and regular assessment is critical, and should be accompanied with the necessary feedback from the trainer in order that the trainee has a true representation of his/her effort and understanding.

11

For each workstation, the procedures and criteria based on the acquisition of learning outcomes (LO), should be defined according to the envisaged acquired competences and the Production Schools' methodology:

The assessment includes two concepts:

- Technical content: of the tasks to perform in the 5 workstations.
- Soft and life skills (punctuality, assiduity, teamwork, initiative, problem-solving, etc.)

Means of assessment: Trainers will use an assessment grid of competences, info regarding punctuality, assiduity, quality of presentations, reports, portfolio.

All the assessment tools and related explanation and instructions for use will be available in the trainer's manual

Therefore, this item will not be detailed here for each of the Workstations.

1. WORKSTATION: Leather hand cutting (and machine cutting)

1.1 Description of the performance

To cut the different pieces of the footwear model according to the technical information, using adequate equipment and applying adequate techniques, according to the quality and productivity standards.

This activity includes the following tasks:

- to analyse the materials (leather, synthetics, textiles, reinforcements) according the use and the quality requirements;
- to manual cut the first prototypes;
- to manual cut complex or precious raw materials;
- to perform the cutting with clicking machines and automatic cutting systems for production.

Contributes to:

- definition of cutting standards;
- calculation of material consumption;

The job role interacts with: raw materials warehouse workers, pattern-making department, prototyping department, and technical coordinators (consumption, timing and working methods).

1.2 Activities within each workstation that should be completed after the training

The work includes the following steps:

1. To analyse the raw-materials, identify the defaults and surface defects and classify them, and decide which parts should be used to cut certain pieces of the shoe;
2. To determine the best match between the parts of the model and the characteristics of the available raw material (e.g. elasticity/textures for textiles and shape/dimensions/quality of leathers);
3. To check cutting dies for the model to cut and select the adequate ones for each order, according to the cutting technology to be applied;

4. To do the nesting – positioning the moulds /cutting devices or even images of the pieces on the raw-material's surface, taking into account:
 - the defaults previously detected and signaled;
 - the characteristics of the materials (elasticity/textures/areas etc.)
 to optimize the raw-material, the quality of the output and to reduce the consumption;
5. To cut the pieces using a knife, the clicking machine or automatic cutting system;
6. To organise the cut pieces according to the order;
7. To check cut pieces against specifications and quality requirements;
8. To check actual consumption compared to the forecasted.

1.3 Learning Outcomes envisaged

1.3.1 Knowledge

1. Deep knowledge on raw materials: characteristics and behaviours, defaults and their classification;
2. Deep knowledge on leather, synthetics, textiles and reinforcement, in order to perform the cutting technique in the most efficient way according to requirements;
3. Basic knowledge of the pattern making and on the construction of the model;
4. Knowledge of the specific sheets to be able to understand the operations to be performed on the model;
5. General knowledge on processes and technology in Footwear manufacturing to be able to optimise the nesting and the quality of the cut pieces for the model to be produced;
6. Deep knowledge on cutting processes: manual, mechanic and automatic cutting system;
7. Basic notion on the tools, equipment and their basic maintenance, including to set up and fine tune the equipment according to the orders and the materials to cut;
8. Knowledge on Quality control procedures and standards;
9. Notions on the specific workstation organisation;
10. Notions on environment and Hygiene and Safety at Work (HSW) good practices in Footwear Industry;

11. Notions on ergonomic postures required in the specific workstation;
12. ICT at user level;
13. Teamwork;
14. Communication, time management.

1.3.2 Skills

1. To be able to analyse the raw-material, identifying the defaults and surface defects and choose the correct material to be used (depending on the parts of the model, and being first prototype, final prototype, production);
2. To be able to analyse and interpret information included in the specification sheet for each model;
3. To be able to determine the operation to be performed based on the pattern, the technical specification sheet and preliminary instruction on model and construction;
4. To be able to check moulds or dies for the model to cut manually or with mechanic cutting technology;
5. To be able to do the nesting - positioning the cutting devices (mould or dies or the projected images) on the raw-material's surface (directly or through the screen in case of the automatic cutting system), taking into account the characteristics of the materials (defaults previously detected and signaled, textures, areas, etc.) in order to optimize the raw-material quality of the output and the consumption of the material;
6. To be able to cut the pieces using a knife or clicking machine or to give the order to cut in case of the automatic cutting system;
7. To be able to organise the cut pieces;
8. To be able to check cut pieces against specifications and quality requirements and coordinate with material warehouse and pattern making department;
9. To be able to develop cutting programs in the automatic machine with the correct parameters for the specific model;
10. To be able to develop the cutting programs for the different sizes;
11. To be able to check actual consumption compared to the forecasted;
12. To be able to adopt adequate ergonomic postures;

13. To be able to organise his/her own workplace;
14. To be able to adopt good environmental practices and HSW;
15. To be able to apply maintenance preventive measures;
16. To have computer skills;
17. To be able to analyse information;
18. To be able to act with autonomy, responsibility and dynamism in the completion of the tasks;
19. To be able to adapt own behaviour to circumstances in solving problems during the completion of the tasks;
20. To be able to display an ability to learn, i.e. a set of skills, namely curiosity, initiative, critical spirit;
21. To be able to act with perseverance;
22. To be able to act with responsibility;
23. To be able to work in teams and cooperate;
24. To be able to be attentive and show overview of a task;
25. To be able to understand and respect rules;
26. To be able to manage time.

1.3.3 Competences

1. Hand cutting: To demonstrate the ability to cut (and marking) manually the different pieces of footwear according to the technical information, using a knife and applying adequate techniques, according to the quality and productivity standards;
2. Mechanic: To demonstrate the ability to cut the different pieces of footwear according to the technical information, using mechanic equipment (clicking machine) and applying adequate techniques, according to the quality and productivity standards;
3. Automatic: To demonstrate the ability to use automatic cutting systems to cut the different pieces models of footwear models according to the technical information, applying adequate techniques regarding the positioning of the material, the nesting, the organisation of the cut pieces, according to the quality and productivity standards.

1.4 Structure of the Training Path

1. Footwear Industry in Europe and in the world - facts and figures;
2. Evolution of the footwear and footwear Industry - general concept;
3. General organisation of a footwear factory - functional organigram;
4. Introduction to footwear development process (design, engineering and production);
5. Footwear manufacturing process from raw-materials to packing: cutting, pre-stitching, stitching, pre-assembling, assembling, finishing, packing - equipment, processes, operations;
6. Different types of construction vs. functionality: Cemented, Goodyear, Blake, Moccasin, Injection, Stitch and Turn, among others;
7. Weight of the material (leather and others) in the total cost of the final product (very basic notions on the product budgeting);
8. Basics of pattern making and size grading;
9. Footwear models and materials technology;
10. Different footwear models: function and position within the shoe;
11. Different materials used in footwear manufacturing and their behaviour facing the different process variables (temperature, humidity, press, stress, colour, textures, tension and distension, thickness etc.) - Leather, textiles, soles, synthetics, accessories and components, nanomaterials (properties that can be explored under nanotechnology, in the different materials used in footwear) and others - and relationship between the materials and footwear functionality;
12. General overview of the materials and components and their properties used in footwear manufacturing;
13. Watching of some quality control laboratory tests in order to better understand the characteristics of the different materials upon different process variables and usage: temperature, humidity, pressure, distention, results and conclusions;
14. Defaults of the material and their classification;
15. Different shoe size systems and correspondent conversion.
16. Footwear cutting processes and techniques: hand cutting (more focus on precious materials), clicking and automatic cutting system;

17. Tools for the specific cutting technology: moulds and stitching/assembling marking, cutting dies (engineering, use, storage, etc.);
18. Basic notion on the equipment: clicking technology and waterjet technology, knife technology, etc.;
19. Basics of 2D CAD;
20. Organisation of the workstation: 5Ss methodology;
21. Effective nesting and economy of materials;
22. Interpretation of technical information and materials consumption information, focusing on the information for cutting room;
23. Set up tools - basic notions on maintenance;
24. Quality control techniques;
25. General knowledge of visual quality inspection procedures (external appearance of the pieces);
26. Production and productivity;
27. Health and Security at work - general concepts, mains risks and good practices;
28. Good practices on environment level - reuse and recycle measures - focusing on the practices to be implemented in the cutting room;
29. ICT at user level;
30. Team work;
31. Communication, time management;
32. Emotional intelligence.

1.5 Duration

120H

Distribution per hours

Workshop	% of time	No. of hours
Workshop on materials	10%	12

Workshop on leather	15%	18
Workshop on footwear production and basics on product engineering	25%	30
Workshop on equipment and tools, and related security matters	40%	48
Other activities	10%	12
TOTAL	100%	120

Distribution per week

Where a teaching week=30 hours

Week no.	Workshop and hours
Week 1	Materials: 6h Leather: 9h Footwear production and basics on product engineering: 12h Other activities: 3h
Week 2	Materials: 6h Leather: 9h Footwear production and basics on product engineering: 9h Equipment and tools, and related security matters: 3h Other activities: 3h
Week 3	Footwear production and basics on product engineering: 9h Equipment and tools, and related security matters: 18h

	Other activities: 3h
Week 4	Equipment and tools, and related security matters: 27h Other activities: 3h

1.6 ECVET

4 ECVET points.

1.7 Learning activities and strategies to adopt regarding the target group

Strategies to adopt in the delivery of the "cutting" programme:

- Start with the analysis of different materials, components, final products, while introducing all concepts and notions on materials and process technology - use all 6 senses

A. Workshop on materials

- Disassemble or break shoes to understand and appreciate each of the components;
- Watching of some quality control laboratory tests that illustrate better the characteristics of the different materials upon different process variables and usage: temperature, humidity, pressure, distention, etc. Results and conclusions.

B. Workshop on leather

- The students will be asked to develop a “catalogue” of different types of leather, in groups. The way they present their own catalogue will be evaluated considering the development of teamwork, creativity, certain skills, etc.
- Field trip to a company to see the leather warehouse (see and understand how they store the different types of leather, how they catalogue them, etc. (take pictures and do a brief summary of the visit and what impressed them the most, etc.)

C. Workshop on footwear production and basics on product engineering (experimentation of a model pullover)

- Watching video on the complete footwear manufacturing
www.youtube.com/watch?v=4mnUEsPwv84
www.youtube.com/watch?v=bmlrQTQlAPI
www.youtube.com/watch?v=pvcgSjA86lk
- Visits to companies to understand their organisation and watch different lay-outs and equipment, taking photos if allowed;
- Analysis of the equipment and tools for cutting;
- Development in the Mine Craft video game a footwear production lay-out.

D. Workshop on equipment and tools, and related security matters

- To watch videos and other resources on cutting – demonstrative
www.youtube.com/watch?v=87H0Rvp1ZFA
- First trials with second choice materials, and all kind of operations related to the workstation under the supervision of the trainer, namely:
 - analysis of the raw-material, identification of defaults and surface defects, and selection of the correct material to be used;
 - to check moulds or dies for the model to cut in case of the manual or mechanic cutting technology;
 - to position the cutting devices (mould or dies or the projected images) on the raw-material's surface (directly or through the screen in case of the automatic cutting system) taking into account the characteristics of the materials (defaults previously detected and signalised, textures, areas, etc.) in order to optimise the raw-material quality of the output and the use of the material;
 - to cut the pieces using a knife or clicking machine or to give the order to cut in case of the automatic cutting system;
 - to organise the cut pieces;
 - to check cut pieces against specifications and quality requirements and coordinate with material warehouse and pattern making department;

- to check actual consumption compared to the forecasted. During these first trials, the student will collect evidences such as videos, photos, notes for further analysis and to identify with the trainer the strengths and weaknesses in order to improve.

The idea is that students observe their own actions and other students' actions, and make and collect images to analyse them all together and decide the best practices among them. In this way, they can correct them together with the support of other students and trainers (benefits of the adoption of this methodology: development of teamwork skills, observation and analysis capacity, critical spirit, overcome obstacles, autonomy, etc.)

- Second trials to implement improvements;
- To make their own portfolio with the support of the trainer (teamwork, ICT skills, writing skills, image treatment skills, etc.)

E. Other Activities

- Apart from activities where technical competences are key (see description of the workshops), activities will be organised to enhance social and personal skills and competences:
 - Name-Cotton Reels game. strengthening concentration and cooperation, getting to know names using a workshop representative material
 - The hidden figure: discuss and identify barriers that arise in the communication process using a description of a figure
 - Humour as an icebreaker: using humour as an icebreaker is a good way to start and end a class, task or explanation
 - Geese flight method: practical workshop to analyse behavioural styles for effective and appropriate communication within working environments.

1.8 Training material (manuals, videos, etc.) to be used/adapted to the target-group

The training material should be interactive and the most possible prepared by the students

- Learn2work brochure
- Life skills brochure
- Videos

- www.youtube.com/watch?v=87H0Rvp1ZF8
 - www.youtube.com/watch?v=2W_LS2SAC9A
 - www.youtube.com/watch?v=E-lcyDp3S1U
- PPTs
 - Samples for disassembling
 - Materials for trials
 - Equipment / tools
 - Adapted individual course plan
 - Extremely basic RKA tool
 - Portfolio
 - Competence board
 - Exercises

1.9 Learning Assessment

Procedures and criteria based on the acquisition of learning outcomes (LO), to be defined according to the envisaged acquired competences and the PS methodology, and to be presented in the teacher's manual.

2. WORKSTATION: Preparation and Stitching

2.1 Description of the performance

To perform operations for the preparation of the cut pieces that will be stitched. The pre-stitching operations include: splitting, skiving, punching in the uppers, folding, reinforcing, as specified in the instructions of the technical sheet. It can also include gluing the pieces to be sewn.

To assemble the pieces that have been cut and prepared, in leather and in other materials, together with other accessories to make the final upper (and lining). The different operations can be performed by hand or with the use of machines.

2.2 Activities within each workstation that should be completed after the training

This workstation involves:

1. splitting: to optimise the thickness of the leather according to the model and the construction;
2. skiving: to remove material from the edges of upper, lining and reinforcement pieces to prepare them for the gluing;
3. to glue the pieces to be assembled before stitching;
4. to apply taping and reinforcing;
5. to work the edges with different finishing;
6. to stitch with flat, (half) column and zig-zag machines the pieces of the upper and then the lining to the upper;
7. to check and handle needles, threads, pliers and scissors to perform the stitching operations in the footwear;
8. to set-up/programme the equipment according to the material and the operation's technical description;
9. to select the machine accessories, putting them in the right place and adjust them to the machine;
10. to put accurately the pieces to stitch on the machine, and to guide all the stitching operation to work with column, flat or front arm stitching machines;
11. to use automatic stitching machines if available and adequate to the model in case;

12. optional: hand stitching and other application techniques necessary to fix hardware and leather accessories on top of the uppers before and after the lasting process;
13. Optional: stitching with Strobel machine.

2.3 Learning Outcomes envisaged

2.3.1 Knowledge

1. General processes and technology in Footwear manufacturing;
2. Knowledge of the specific sheets to be able to understand the operations to be performed on the model;
3. Maintenance and cleaning of the machines for safety and effective use;
4. Deep knowledge on raw materials: characteristics and behaviours, defaults and their classification;
5. Knowledge on how to programme machines (splitting and skiving);
6. Subsidiaries products technology (glue, etc.);
7. Basic knowledge on subsidiaries products technology (glue, etc.);
8. Fundamental knowledge on types of glue, and attacking/cementing technology;
9. Deep knowledge on threads, needles and other tools;
10. Basic notion on the tools, equipment and their maintenance, including their set up and fine tuning according to the parameters presented in the orders and the materials to be sewn;
11. Notion on work studies;
12. Knowledge of the different edge workings;
13. Knowledge of different kind of threads and needles;
14. Manual footwear stitching techniques;
15. Footwear stitching techniques;
16. Knowledge on Quality control procedures and standards;
17. Notions on workstation's organisation;
18. Notions on ergonomic postures required in the workstation in cause.
19. Notions on environment and HSW good practices in Footwear Industry;

20. ICT at user level;
21. Teamwork;
22. Communication, time management.

2.3.2 Skills

1. To be able to perform splitting and skiving, folding and reinforcing;
2. To be able to program, set-up, and perform basic maintenance (e.g. cleaning, blade sharpening) on splitting and skiving machines and other pre-stitching equipment;
3. To be able to perform gluing of the pieces to be assembled (manual or with gluing machine);
4. To be able to understand marks and guidelines indicated by the footwear pattern maker and cutter in the shell in order to place the footwear pieces correctly;
5. To be able to perform stitching techniques, with machinery, applying the adequate materials and equipment;
6. To be able to hand stitch in order to fix hardware and leather parts;
7. To be able to check and handle needles, threads, pliers and scissors to perform the stitching operations in the footwear;
8. To be able to join accurately the pieces to stitch, and do all the stitching operation;
9. To be able to apply taping and reinforce it by hand or with the use of machines;
10. To be able to perform stitching techniques applying the adequate materials and equipment;
11. To be able to operate with column, flat, zig-zag, stitching machines;
12. To be able to set-up/programme the equipment according to the material and the operation technical description;
13. To be able to select the machine accessories, putting them in the right place and adjust them to the machine;
14. To be able to put accurately the pieces to stitch on the machine, and to guide all the stitching operation to operate with column, flat or front arm stitching machines;
15. To be able to use automatic stitching machines, if available, and adequate to the model in case;
16. To be able to check the pieces stitched against specifications and quality requirements;
17. To be able to apply other components (e.g. studs, buckles, etc.) to the upper;

18. To be able to adopt adequate ergonomic postures;
19. To be able to organise his/her own workplace;
20. To be able to adopt good environmental practices and HSW;
21. To be able to apply maintenance preventive measures;
22. To have computer skills;
23. To be able to analyse information;
24. To be able to act with autonomy, responsibility and dynamism in the completion of the tasks;
25. To be able to adapt own behaviour to circumstances in solving problems during the completion of the tasks;
26. To be able to display an ability to learn, i.e. a set of skills, namely curiosity, initiative, critical spirit;
27. To be able to act with perseverance;
28. To be able to act with responsibility;
29. To be able to work in teams and cooperate;
30. To be able to be attentive and show overview of a task;
31. To be able to understand and respect rules;
32. To be able to manage time.

2.3.3 Competences

1. To demonstrate the ability to skive and split the cut pieces using adequate equipment;
2. To demonstrate the ability to insert reinforcements in the cut pieces and to fold according to the parameters stated in the technical information;
3. To demonstrate ability to assemble the parts of a shoe, from the pieces supplied by the cutter and taking into account the indications of the footwear pattern maker in the shell of the footwear and in the technical sheet;
4. Hand: To demonstrate the ability to perform manually stitching operations according to the quality and productivity standards;
5. Mechanic: To demonstrate the ability to perform mechanically all stitching operations according to the quality and productivity standards.

2.4 Structure of the Training Path

1. Footwear Industry in Europe and in the world - facts and figures;
2. Evolution of the footwear and footwear Industry - general concept;
3. General organisation of a footwear factory - functional organigramme;
4. Introduction to the footwear development process (design, engineering and production);
5. Footwear manufacturing process from raw-materials to packing: cutting, pre-stitching, stitching, pre-assembling, assembling, finishing, packing - equipment, processes, operations;
6. Different types of construction vs. functionality: Cemented, Goodyear, Blake, Moccasin, Injection, Stitch and Turn, among others;
7. Weight of the labour content within the stitching phase in the total cost of the final product (very brief notions on the product cost);
8. Basics of pattern making;
9. Different footwear models: function and position of pieces within the shoe;
10. Different materials used in footwear manufacturing and their behaviour facing the different process variables (temperature, humidity, press, stress, colour, textures, tension and distension, thickness, etc.) - Leather, textiles, soles, synthetics, accessories and components, nanomaterials (properties that can be explored under nanotechnology, in the different materials used in footwear) and others - and relationship between the materials and the footwear functionality;
11. General overview of the materials and components used in footwear manufacturing and their properties;
12. Watching of some quality control laboratory tests that illustrate better the characteristics of the different materials upon different process variables and usage: temperature, humidity, pressure, distention, results and conclusions focusing on the stitching aspects namely tests on uppers (tear strength, resistance to damage on lasting, seam strength, flex resistance, adhesion of finish, among others);
13. Very brief notions on defaults of the material and their classification;
14. Different shoe size systems and correspondent conversion
15. Use of splitting and skiving machines
16. Maintenance and set up of splitting and skiving machines

17. Different types of stitching
18. Needed resources for stitching: material, threads, needles, other equipment
19. Link between the use of material, needle and threads envisaging a good quality stitching
20. Glue technology and other bonding technology (attacking/cementing technology)
21. Set up equipment, fine tune of the equipment and maintenance, security measures to apply to the equipment
22. Stitching process and techniques, considering different types of stitching, materials and the use of different equipment
23. Technique to joint or overlap pieces, through different types of stitching
24. Edge finishing
25. Organisation of the workstation: 5Ss methodology
26. Interpretation of technical information and materials consumption information, focusing on the information for stitching room, namely stitching routings with indicative time.
27. Brief notion on work studies
28. Set-up tools - basic notions on maintenance
29. Quality control techniques
30. General knowledge of visual quality inspection procedures (external appearance of the upper).
31. Production and productivity
32. Health and Security at work - general concepts, mains risks and good practices
33. Good practices on environment level - reuse and recycle measures - focusing on the practices to be implemented in the stitching room
34. ICT at user level
35. Communication, time management;
36. Emotional intelligence.

2.5 Duration

150 hours

Distribution per hours

Workshop	% of time	No. of hours
Workshop on footwear production and basics on product engineering	10%	15
Workshop on assembling materials	15%	22
Workshop on preparation basic tasks	20%	30
Workshop on stitching basic tasks	40%	60
Workshop on occupational health and safety	5%	8
Other activities	10%	15
TOTAL	100%	150

29

Distribution per week

Where a teaching week=30 hours

Week no.	Workshop and hours
Week 1	Footwear production and basics on product engineering: 15h Assembling materials: 10h Occupational health and safety: 2h Other activities: 3h
Week 2	Assembling materials: 12h Preparation basic tasks: 12h Occupational health and safety: 3h

	Other activities: 3h
Week 3	Preparation basic tasks: 18h Stitching basic tasks: 7h Occupational health and safety: 2h Other activities: 3h
Week 4	Stitching basic tasks: 26h Occupational health and safety: 1h Other activities: 3h
Week 5	Stitching basic tasks: 27h Other activities: 3h

2.6 ECVET

5 ECVET points

2.7 Learning activities and strategies to adopt regarding the target group

A. Workshop on footwear production and basics on product engineering

- To watch videos on the complete footwear manufacturing
- To visit companies to understand their organisation and watch different lay-outs and equipment. These visits should be organised throughout the course because the learners view will evolve as he/she has a deeper knowledge on the topic.
- To analyse equipment and tools needed for footwear production (specific ones for preparation and stitching will be seen at other workshops)
- To develop using a Minecraft videogame a footwear production lay-out
- Motivation circles. Learners divide themselves in 3 concentric circles. The first is made up of those learners whose motivation to attend the course is solely extrinsic; the second, by those with professional aspirations and the third, by those with personal motivations. A dialogue will be established over the different motivations

B. Workshop on assembling materials

- To disassemble or break shoes to understand/watch all their components
- To watch and take part in some quality control laboratory tests that illustrate better the characteristics of the different materials used in stitching
- To identify the different types of threads
- To link threads and materials to assemble
- To identify needles according to standards
- To link needles with threads and materials
- To identify leather types on the basis of their surface
- To identify fabric types on the basis of their structure
- To identify problems in assembling by stitching
- To identify different types of adhesives with all 6 senses
- To link adhesive types with materials
- To identify problems in assembling by gluing
- To place stays to different leathers using different techniques and checking results in terms of texture, rigidity and stability
- All taught materials are part of the workshop's inventory which learners should be responsible for not only in terms of tidiness but also in terms of registering what goes in and out. With the latter basic maths are trained as on a rotating basis all learners.
- Assembling materials recognition contest. Learner will collect different types of fabrics, threads, leathers and needles throughout the course labelling them and keeping them in a box. Regularly there will be a team contest to recognize them. It's a matter not only of overcoming the technical challenge but of doing it in a team with a representative. Developing identity cards can also be useful.

C. Workshop on preparation basic tasks

- To identify the various types of preparation techniques in different types of materials and footwear
- To prepare dyes of different tonalities and colours for its hand and machine application

- To ink piece edges by hand
- To ink piece edges by spray
- To stick leather and other materials and pieces by hand and machine
- To attach buckrams, ornaments, etc.
- To stick linings by hand and machine
- To attach linings
- To assemble overlapping pieces
- To use and prepare the punching machine
- To visually make quality control
- To clean and maintain machines and tools
- To recycle preparation inputs and waste
- To meet an experienced stitcher who works in an important factory and likes training people as a motivation on what they will be able to achieve in the future. Interaction is promoted by the joint preparation of simple sewing exercises and sharing of tips for perfect stitching
- To set the workspace for preparation

D. Workshop on stitching basic tasks

- To identify the different types of stitching techniques in different types of materials and footwear
- To prepare machines and equipment to carry out the different tasks
- To attach different pieces in different materials and following different techniques
- To stitch pipings
- To make straps
- To make tabs
- To extract threads, glue and burn
- To visually make quality control
- To clean and maintain machines and tools

- To recycle stitching inputs and waste
- To organise a VET school day where the learners sell what they have produced investing the money obtained in a common activity for the whole class eg. common trip or lunch)
- Speed exercise at the machine: make a long, long, rope to see who can sew more pieces one behind another without breaking the thread. The result can be hang from side to side of the classroom.
- Sew the curves of the mountain road! Contest among the students to see who is faster when sewing a piece of fabric or felt or leather, on a cloth. The piece of cloth, felt or leather is extremely curved and narrow, like a mountain road. Time and quality are monitored: low quality is penalised with extra time.
- Follow-up on the motivation circles. Repeat the initial exercise for the learners to self-assess a potential change in their motivations.
- To set the workspace for stitching

E. Workshop on occupational health and safety

- To use Personal Protection Equipment (PPE)
- To carry out a fire and evacuation drill
- To carry out a first aid simulation in case of an accident
- To use and handle firefighting systems

F. Other Activities

- Apart from activities where technical competences are key (see description of the workshops), activities will be organised to enhance social and personal skills and competences:
 - Name-Cotton Reels game. strengthening concentration and cooperation, getting to know names using a workshop representative material
 - The hidden figure: discuss and identify barriers that arise in the communication process using a description of a figure
 - Humour as an icebreaker: using humour as an icebreaker is a good way to start and end a class, task or explanation

- Geese flight method: practical workshop to analyse behavioural styles for effective and appropriate communication within working environments

2.8 Training material (manuals, videos, etc.) to be used/adapted to the target-group

The training material should be interactive and the most possible prepared by the students

- Learn2work brochure
- Life skills brochure
- Videos
- PPTs
- Samples for disassembling
- Materials for trials
- Equipment / tools
- Adapted individual course plan
- Extremely basic RKA tool
- Portfolio
- Competence board
- Exercises

2.9 Learning Assessment

Procedures and criteria based on the acquisition of learning outcomes (LO), to be defined according to the envisaged acquired competences and the PS methodology, and to be presented in the teacher's manual.

3. WORKSTATION: Pre- lasting and hand lasting

3.1 Description of the performance

To perform all the pre-lasting operations, namely placing stiffener and toe puff, operating the adequate equipment and tools.

To perform all the lasting operations within cementing technology, namely lasting the toes, sides and back parts of the footwear, handing tools and/or equipment for sole sticking, according to a given production order and quality and productivity standards.

3.2 Activities within each workstation that should be completed after the training

1. Fixing the insole to the last
2. Preparation of the uppers with the insertion of toe box and back stiffener
3. Analysing the upper and lining materials according to the characteristic of the lasting required
4. Fixing the upper
5. Apply humidity and heat to the upper
6. Preparation of the upper with softener when necessary, to make more workable the uppers
7. Preparation of the top line, when necessary, in order to have better control during the side and back lasting
8. Closing of the sides
9. Closing of the back part using adequate machinery or manually
10. If manually, it involves to pull and secure linings and uppers over last to form leather shoes of designated size, to pull the lining tightly and smoothly over last, to trim away excess material with knife, eventually using temporary tacks to secure upper which will be kept into insoles until the upper and soles are cemented and the welt it stitched (lasting tacks could be driven permanently through upper, lining, insole, and against steel bottom of last to clinch tacks into insole and permanently secure upper to insole).

If mechanically, it involves adequate equipment (lasting machines) which presses and shapes toe or heel sections of upper on last. The upper is placed upon the last in steamer to soften leather, removes upper from steamer and stretches edges of the upper over the last, using the lasting machine tool/device. Controls are moved to close the fronts, sides and backs of the upper upon the

last and to press the upper edges against the insole.

In any case, it involves to apply humidity and heat (through steam) to the upper, select the adequate last and tools (dies/devices or other tools), to iron the upper edges to flatten wiped edges and eventually cut off the excess in the box toe, ides or backs leather and lining, using knife. Sometimes, tacks are used to fix the upper to the insole to facilitate the last shape retention.

3.3 Learning Outcomes envisaged

3.3.1 Knowledge and Skills

1. Footwear factory organisation;
2. Workstation organisation;
3. Process and technology;
4. Machines and Tools;
5. Footwear models;
6. Types of Lasts;
7. Footwear sizes and widths;
8. Materials for uppers and lining;
9. Toe Box and stiffeners;
10. Types of glue (for lasting);
11. Health and Security at work;
12. Quality control procedures;
13. To be able to display an ability to learn;
14. To be able to act with perseverance;
15. To be able to act with responsibility;
16. To be able to work in teams and cooperate;
17. To be able to be attentive and show overview of a task;
18. To be able to understand and respect rules;
19. To be able to manage time.

3.3.2 Competences

Hand: To demonstrate the ability to perform manual lasting operations of last/closing uppers upon lasts, applying adequate techniques according to the quality and productivity standards.

Mechanic: To demonstrate the ability to perform lasting operations of last/close uppers, using adequate equipment (front and sides and backs lasting machines) applying adequate techniques, according to the quality and productivity standards.

3.4 Structure of the Training Path

1. Footwear factory organisation (General organisation of a footwear factory - functional organigramme)
2. Process and technology (Notions on general process and technology in footwear manufacturing from raw-materials to packing: cutting, pre-stitching, stitching, pre-assembling, assembling, finishing, packing - equipment, processes, operations)
3. Footwear models (Different types of construction vs. functionality: Cemented, Goodyear, Blake, Moccasin, Injection, Californian, among others)
4. Systems of footwear sizes
5. Leather and raw materials (Knowledge on characteristics of leathers and other materials used in order to be able to choose the best way to fix toe box and back stiffener
 - (Leather, textiles, soles, synthetics, accessories and components and others - and relationship between the materials and footwear functionality)
 - Different materials used in footwear manufacturing and their behaviour facing the different process variables (temperature, humidity, press, stress...colour, textures, tension and distension, thickness, etc.) -
6. Toe Box and stiffener (Knowledge on the different toe boxes and stiffeners to be able to choose the more appropriate ones)
7. Lasts (Notion on lasts and the variety of lasts against different types of footwear construction)

8. Machines (for toe box and back stiffener (set-up, change of tools and basic maintenance)
9. Types of glue (classification, various types of glue solvent based, composition of the glue (water based, solvent based, polychloroprene, polyurethane, hot-melts). The compatibility of the glue regarding the different materials
10. Tools
11. Quality control procedures and standards along and at the end of the process
12. Quality control of the final products. Notions on workstation organisation both school and factory
13. Health and Security at work - general concepts, mains risks and good practices DPI

3.5 Duration

150 hours

Distribution per hours

Workshop	% of time	No. of hours
Workshop on footwear production, materials, leather and basics on product engineering	20%	30
Workshop on preparation of tools and materials	15%	22
Workshop on upper conditioning	15%	22
Workshop on upper lasting	40%	60
Workshop on occupational health and safety	2%	3
Other activities	6%	10
Final Assessment	2%	3
TOTAL	100%	150

Distribution per week

Where a teaching week=40 hours

Week no.	Workshop and hours
Week 1	Footwear production and basics on product engineering: 30h Preparation of tools/materials: 5h Occupational health and safety: 2h Other activities: 3h
Week 2	Preparation of tools/materials: 15h Upper conditioning: 19h Occupational health and safety: 1h Other activities: 4h Final Assesment:1h
Week 3	Preparation of tools/materials: 2h Upper conditioning: 3h Upper lasting: 33h Other activities: 1h Final Assesment:1h
Week 4 (only 30 hours)	Upper lasting: 27h Other activities: 2h Final Assesment:1h

3.6 ECVET

Criteria of 30 hours for 1 ECVET point

5 ECVET

3.7 Learning activities and strategies to adopt regarding the target group

Strategies to adopt in the delivery of the "lasting" programme:

- Start with analysis of different materials, components, final products, while introducing all concepts and notions on materials and process technology - use all 6 senses

A Workshop on footwear production, materials, leather and basics on product engineering

- Disassemble or break shoes to understand and appreciate each of the components
- The students will be asked to develop a “catalogue” of different types of leather, in groups. The way they present their own catalogue will be evaluated considering the development of teamwork, creativity, certain skills, etc.
- Watch video on the complete footwear manufacturing
- Watch ARSUTORIA elearning programme and discuss together

B Workshop on preparation of tools and materials

- Analysis of the equipment and tools for lasting;
- Analysis of different kind of lasting
- Analysis of the upper and lining materials according to the characteristics of the lasting required
- Watch videos and other resources on lasting – demonstrative (ARSUTORIA Internal video)
- Fix the insole to the last (first trial with second choice materials)
- Prepare the upper with the insertion of the toe box and back stiffener

Second trials to implement improvements;

C Workshop on upper conditioning

- Set the workplace for preparation

First trials with second choice materials, and all kind of operations related to the workstation under the supervision of the trainer, namely:

- Fix the upper

- Apply humidity and heat to the upper
- Prepare the upper with softener, when necessary

Second trials to implement improvements;

D Workshop on upper lasting

First trials with second choice materials, and all kind of operations related to the workstation under the supervision of the trainer, namely:

- Last the upper
- Prepare the top line, when necessary, in order to have better control during the side and back lasting
- Close the sides
- Close the back part using machinery or manually

Second trials to implement improvements;

- Meet an experienced “lasting operator” who have worked in an important factory and likes training people as a motivation of what they will achieve in the future.

E Workshop on occupational health and safety

- Use Personal Protection Equipment (PPE)
- Carry out a first aid simulation in case of an accident
- To carry out a fire and evacuation drill
- To use and handle a firefighting system
- Machinery operating principles, general rules of behaviour in the lab
- Risk management about the use of Chemicals

F Other activities

Apart from the activities where technical competences are key (see description of the workshop), activities will be organized to enhance social and personal skills and competences:

- Preparation of the Competence board
- Make their own portfolio with the support of the trainer (teamwork, ICT skills, writing skills, image treatment skills, etc.)
- Review of the course plan together with the learners at the beginning of the workshop

G Final assessment

- Individual soft and hard skills assessment

3.8 Training material (manuals, videos, etc.) to be used/adapted to the target-group

The training material should be interactive and the most possible prepared by the students

- Learn2work brochure
- Life skills brochure
- Videos
- PPTs
- Material for disassembling
- Materials for trials
- Equipment / tools
- Adapted individual course plan
- Extremely basic RKA tool
- Portfolio
- Competence board

3.9 Learning Assessment

Procedures and criteria based on the acquisition of learning outcomes (LO), to be defined according to the envisaged acquired competences and the PS methodology, and to be presented in the teacher's manual.

4. WORKSTATION: Roughing and Cementing

4.1 Description of the performance

To perform all the preparation of the components (uppers and bottoms) for cementing/bonding (within cementing technology) and to promote the bonding of the bot components, according to a given production order and quality and productivity standards.

4.2 Activities within each workstation that should be completed after the training

1. To pound the bottom edges;
2. To rough the bottom of the upper in preparation of the gluing (chemical and mechanical);
3. To mark the positioning of the outsole along the bottom of the shoe;
4. To spread the glue along the surface previously prepared to bond (on both surfaces: top sole and bottom shoes);
5. To apply the glue;
6. To promote the dry and reactivation of the glue;
7. To attach the bottoms to the uppers;
8. To use the press in adequate process variables to achieve a good adhesion of the upper/bottom;
9. To polish the edge between sole and upper.

4.3 Learning Outcomes envisaged

4.3.1 Knowledge and Skills

1. Footwear factory organisation;
2. Process and technology;
3. Footwear models;
4. Types of footwear sizes;
5. Leather and raw materials;
6. Glue and cementing/bonding technology;

7. Pounding and sanding technology;
8. Pressing technology;
9. Types of glue;
10. Tools;
11. Machines,
12. Health and Security at work;
13. Workstation organisation;
14. Quality control procedures;
15. To be able to display an ability to learn;
16. To be able to act with perseverance;
17. To be able to act with responsibility;
18. To be able to work in teams and cooperate;
19. To be able to be attentive and show overview of a task;
20. To be able to understand and respect rules,
21. To be able to manage time.

4.3.2 Competences

To demonstrate the ability to perform pounding, roughing and cementing operations in footwear for the cementing/bonding of upper and bottom, and to apply the heel if required, according to the productivity and quality requirements and standards.

These competences can be split in two parts (three if the shoe has a separate heel):

1. To demonstrate the ability to prepare the soles and bottoms through mechanic and/or chemical treatment of the surfaces;
2. To demonstrate the capacity of attaching the sole to the upper with high precision and promote the cementing through pressing;
3. To demonstrate the capacity of attaching the heels to the shoes, after pulling out the last (if necessary).

4.4 Structure of the Training Path

1. Footwear factory organisation (General organisation of a footwear factory - functional organigram);
2. Process and technology (Notions on general process and technology in footwear manufacturing, from raw-materials to packing: cutting, pre-stitching, stitching, pre-assembling, assembling, finishing, packing - equipment, processes, operations);
3. Footwear models (Different types of construction vs. functionality: Cemented, Goodyear, Blake, Moccasin, Injection, Californian, among others);
4. Types of footwear sizes;
5. Leather and raw materials (Knowledge on characteristics of leathers and other materials used in order to choose the best way to fix toe box and back stiffener);
 - (Leather, Textiles, soles, synthetics, accessories and components and others - and relationship between the materials and footwear functionality);
 - Different materials used in footwear manufacturing and their behaviour facing the different process variables (temperature, humidity, press, stress...colour, textures, tension and distension, thickness, etc.);
6. Toe Box and stiffener (Knowledge on the different toe boxes and stiffeners to be able to choose the more appropriate ones);
7. Lasts (Notion on lasts and the variety of last against different types of footwear construction);
8. Machines (for toe box and back stiffener (set-up, change of tools and basic maintenance);
9. Types of glue (classification, various types of glue solvent based, composition of the glue (water based, solvent based, polychloroprene, polyurethane, hot-melts). The compatibility of the glue regarding the different materials;
10. Tools;
11. Quality control procedures and standards along and at the end of the process;
12. Quality control of the final products. Notions on workstation organisation both school and factory;
13. Communication and Teamwork;
14. Health and Security at work - general concepts, mains risks and good practices DPI.

4.5 Duration

90 hours

Distribution per hours:

Workshop	% of time	No. of hours
Workshop on footwear production, materials, leather and basics on product engineering, tools and materials	20%	18
Workshop on shoe bottom preparation	20%	18
Workshop on cementing	20%	18
Workshop on attach and polish shoes	30%	27
Workshop on occupational health and safety	2%	2
Other activities	6%	5
Final Assessment	2%	2
TOTAL	100%	90

46

Distribution per week

Where a teaching week=40 hours

Week no.	Workshop and hours
Week 1	Footwear production and basics on product engineering: 18h Shoe bottom preparation: 18h Occupational health and safety: 1h Other activities: 2h Final Assessment: 1h

Week 2	Cementing: 18h Attach and polish shoes: 20h Occupational health and safety: 1h Other activities: 1h
Week 3	Attach and polish shoes: 7h Other activities: 2h Final Assessment: 1h

4.6 ECVET

Criteria of 30 hours for 1 ECVET point

3 ECVET points

4.7 Learning activities and strategies to adopt regarding the target group

Strategies to adopt in the delivery of the "roughing and cementing" programme:

- Start with analysis of different materials, components, final products, while introducing all concepts and notions on materials and process technology - use all 6 senses

A Workshop on footwear production, materials, leather and basics on product engineering

- Disassemble or break shoes to understand and appreciate each of the components
- The students will be asked to develop a "catalogue" of different types of leather, in groups. The way they present their own catalogue will be evaluated considering the development of teamwork, creativity, certain skills, etc.
- Watch video on the complete footwear manufacturing
- Watch ARSUTORIA elearning programme and discuss together
- Analysis of the equipment and tools for roughing and cementing

B Workshop on shoe bottom preparation

First trials with second choice materials, and all kind of operations related to the workstation under the supervision of the trainer, namely:

- Pound the bottom edges
- Rough the bottom of the upper in preparation of the gluing (chemical and mechanical)

Second trials to implement improvements;

C Workshop on cementing

First trials with second choice materials, and all kind of operations related to the workstation under the supervision of the trainer, namely:

- Mark the positioning of the outsole along the bottom of the shoe;
- Spread the glue along the surface previously prepared to bond (on both surfaces: top sole and bottom shoes);
- Apply the glue;
- Promote the dry and reactivation of the glue;

Second trials to implement improvements;

D Workshop on attach and polish shoes

First trials with second choice materials, and all kind of operations related to the workstation under the supervision of the trainer, namely:

- Attach the bottom to the upper
- Use the press in adequate process variables to achieve a good adhesion of the upper/bottom
- Polish the edge between sole and upper

Second trials to implement improvements;

E Workshop on occupational health and safety

- Use Personal Protection Equipment (PPE)
- Carry out a first aid simulation in case of an accident
- To carry out a fire and evacuation drill
- To use and handle a firefighting system
- Machinery operating principles, general rules of behaviour in the lab
- Risk management about the use of Chemicals

F Other activities

Apart from the activities where technical competences are key (see description of the workshop), activities will be organized to enhance social and personal skills and competences:

- Preparation of the Competence board
- Make their own portfolio with the support of the trainer (teamwork, ICT skills, writing skills, image treatment skills, etc.)
- Review of the course plan together with the learners at the beginning of the workshop

G Final assessment

- Individual soft and hard skills assessment

4.8 Training material (manuals, videos, etc.) to be used/adapted to the target-group

The training material should be interactive and the most possible prepared by the students

- Learn2work brochure
- Life skills brochure
- Videos
- PPTs
- Material for disassembling
- Materials for trials

- Equipment / tools
- Adapted individual course plan
- Extremely basic RKA tool
- Portfolio
- Competence board

4.9 Learning Assessment

Procedures and criteria based on the acquisition of learning outcomes (LO), to be defined according to the envisaged acquired competences and the PS methodology, and to be presented in the teacher's manual.

5. WORKSTATION: Finishing

5.1 Description of the performance

To perform all finishing operations in the footwear, according to the given production orders, quality and productivity standards and, if applicable, all packing operations

5.2 Activities within each workstation that should be completed after the training

This workstation includes:

- To clean, to polish, to wax, to brush, to iron uppers and lining, to paint and treat surfaces, to ink the edges, to insert laces, to inset finishing insole, using the adequate tools and the adequate products
- To control the quality of the work done and proceeding to the necessary adjustments
- To perform the last operations of quality control, ensuring, among other things, appearance, robustness, absence of wrinkles, straight seams, heel and overall aspects such as cleanliness, colour uniformity, compared to the specifications sheet or sample. Anomalies or defects solvable by finishing are corrected under the responsibility of the operator, and major defects communicated quickly to immediate responsible/foreman.
- To perform all operations of packaging, namely to introduce the footwear, pair by pair in the box, in an appropriate and symmetric way using soft paper or soft bags which are relevant for the protection of the pair of shoes.

According to the information received, the operator organises the shoes that is going to finish, the means and materials to be used and the sequence of operations. The operator applies techniques for ironing upper and linings, leather washing, cleaning, polishing, waxing and reviewing for final presentation (paper, fillers, labels, boxes, cords, etc.) are performed according to the data sheet. The quality of finish of the shoe is controlled. Once the pair of shoes is correctly finished the operator introduces the pair in the box accordingly.

5.3 Learning Outcomes envisaged

5.3.1 Knowledge

1. Raw materials' characteristics and behaviours
2. General process and technology in footwear manufacturing
3. Finishing products and subsidiary substances technology

4. Footwear finishing techniques and equipment
5. Equipment, set up, fine tune and preventive maintenance
6. Quality control procedures and standards
7. Packaging procedures
8. Equipment for packing, set up and preventive maintenance
9. Knowledge on Quality control procedures and standards
10. Notions on workstation organisation
11. Notions on ergonomic postures required in the workstation in cause
12. Notions on environment and HSW good practices in Footwear Industry
13. ICT at user level
14. Teamwork
15. Communication, time management.

5.3.2 Skills

1. To be able to perform all finishing operations in the footwear, namely to clean, to polish, to wax, to brush, to iron uppers and lining, to paint and treat surfaces, to ink the edges, to insert laces, to insert finishing insole, to insert metallic and eyelets, using the adequate tools and the adequate products
2. To be able to control the quality of the work done in order to ensure, among other things, appearance, robustness, absence of wrinkles, straight seams, heel height, and overall aspects such as cleanliness, colour uniformity, compared to the specifications sheet.
3. To be able to decide and proceeded to the necessary adjustments within the finishing techniques.
4. To be able to perform all operation of packaging namely introducing the footwear, pair by pair in the box, in an appropriate and symmetric way using soft paper or soft bags which are relevant for the protection of the pair of shoes.
5. To be able to adopt adequate ergonomic postures in the workstation in cause
6. To be able to organise his/her own workplace
7. To be able to adopt good environmental practices and HSW

8. To be able to apply maintenance preventive measures
9. To have computer skills to be at ease to use equipment with certain content of ICT
10. To be able to analyse information
11. To be able to act with autonomy, responsibility and dynamism in the completion of the tasks
12. To be able to adapt own behaviour to circumstances in solving problems during the completion of the tasks.
13. To be able to display an ability to learn, i.e. a set of skills, namely curiosity, initiative, critical spirit;
14. To be able to act with perseverance
15. To be able to act with responsibility
16. To be able to work in teams and cooperate
17. To be able to be attentive and show overview of a task
18. To be able to understand and respect rules
19. To be able to manage time.

5.3.3 Competences

1. To demonstrate the ability to perform all finishing operations in the footwear according to the given production orders, quality and productivity standards
2. To demonstrate the ability to dully apply all quality control procedure to the final product, respecting the quality standards
3. To demonstrate the ability to perform dully all operation of packaging according to the quality standards and the exigencies of the final clients

5.4 Structure of the Training Path

1. Footwear Industry in Europe and in the world - facts and figures
2. Evolution of the footwear and footwear Industry – general concept
3. General organisation of a footwear factory - functional organigram
4. Introduction to footwear development process (design, engineering and production)

5. Footwear manufacturing process from raw-materials to packing: cutting, pre-stitching, stitching, pre-assembling, assembling, finishing, packing - equipment, processes, operations
6. Different types of construction vs. functionality: Cemented, Goodyear, Blake, Moccasin, Injection, Stitch and Turn, among others
7. Different footwear models: function and position within the shoe
8. Different materials used in footwear manufacturing and their behaviour facing the different process variables (temperature, humidity, press, stress...colour, textures, tension and distension, thickness, etc.) - Leather, textiles, soles, synthetics, accessories and components, nanomaterials (properties that can be explored under nanotechnology, in the different materials used in footwear) and others - and relationship between the materials and footwear functionality
9. Watching of some quality control laboratory tests that illustrate better the characteristics of the different materials upon different process variables and usage: temperature, humidity, pressure, distention, results and conclusions (...)
10. Very brief notions on defaults of the material
11. Different size systems and correspondent conversion
12. Different types of finishing in footwear models: oily, creamy, waxy, glossy, plasticized, etc.
13. Different materials/products and substances used in the footwear finishing operations
14. Footwear finishing techniques
15. Set up equipment, fine tune of the equipment and maintenance, security measures to apply to the equipment
16. Packing techniques and procedures
17. Organisation of the workstation: 5Ss methodology
18. Interpretation of technical information and materials consumption information, focusing on the information for finishing room
19. Set up tools - basic notions on maintenance
20. Quality control techniques
21. Register and analysis of data related to the quality control procedures

22. General knowledge of visual quality inspection procedures - main quality attributes to be inspected: shoe correctly centred, flat stand of the shoe, throat not too loose, absence of wrinkles in upper leather or lining, absence of stains on upper leather or lining, parallel seams and absence of corrected stitch lines, heel seat, heel position, no heel rocking, location of the toe-puff and counter, insock stamping, colocation of decorations, eyelets and labels,...).
23. Production and productivity
24. Health and Security at work - general concepts, mains risks and good practices
25. Good practices on environment level - reuse and recycle measures - focusing on the practices to be implemented in the finishing room
26. ICT at user level
27. Team work
28. Communication, time management
29. Emotional intelligence.

5.5 Duration

90 hours

Distribution per hours

Workshop	% of time	No. of hours
Workshop on materials	15%	13,5
Workshop on footwear production and basics on product engineering	10%	9
Workshop on different types of finishing techniques and products	20%	18
Workshop on equipment and tools for finishing and packing + security	20%	18
Workshop on quality control focused on the visual quality inspection procedures before packing and packing operations	25%	22,5
Other activities	10%	9

TOTAL	100%	90
-------	------	----

Distribution per week

Where a teaching week=30 hours

Week no.	Workshop and hours
Week 1	<p>Materials: 9h</p> <p>Footwear production and basics on product engineering: 9h</p> <p>Different types of finishing techniques and products: 9h</p> <p>Other activities: 3h</p>
Week 2	<p>Materials: 4,5h</p> <p>Different types of finishing techniques and products: 9h</p> <p>Equipment and tools for finishing and packing + security: 9h</p> <p>Quality control focused on the visual quality inspection procedures before packing and packing operations: 4,5h</p> <p>Other activities: 3h</p>
Week 3	<p>Equipment and tools for finishing and packing + security: 9h</p> <p>Quality control focused on the visual quality inspection procedures before packing and packing operations: 18h</p> <p>Other activities: 3h</p>

5.6 ECVET

3 ECVET points

5.7 Learning activities and strategies to adopt regarding the target group

Start with analysis of different materials, components, final products, while introducing all concepts and notions on materials and process technology - use all 6 senses.

A. Workshop on materials

- Disassemble or break shoes to understand/watch all their components
- Watching of some quality control laboratory tests that illustrate better the characteristics of the different materials upon different process variables and usage: temperature, humidity, pressure, distention, etc. Results and conclusions.

B. Workshop on footwear production and basics on product engineering

- Visits to companies to understand their organisation and watch different lay-outs and equipment.
- To watching video on the complete footwear manufacturing.
- Analysis of the equipment and tools in the finishing and packaging room.
- Develop for example a Mine Craft video game with a footwear production lay-out.
- Watching videos and other resources on finishing and packing – demonstrative, ask questions.
- Watching of some quality control laboratory tests to finished footwear that illustrate better the behaviour of different types of finishing and their resistance to the usage in different environments, etc. Results and conclusions.

C. Workshop on different types of finishing techniques and products: oily, creamy, waxy, glossy, plasticised, etc.

- Identification of different types of finishing in different samples of materials and footwear.

D. Workshop on equipment and tools for finishing and packing + security

- First trials with second choice materials/footwear, all kind of operation regarding the workstation – finishing - under the supervision of the trainer, namely: ironing upper and linings, leather washing, cleaning, polishing, waxing and reviewing for final presentation (paper, fillers, labels, boxes, cords, etc.) according to the clients' specifications. During these first trials, the student will collect evidences such as videos, photos, notes for further analysis and to identify with the trainer the strengths and weaknesses in order to improve. The idea is that the students observe their actions and the other students' actions and collect images to analyse them all together and decide the best practices among them. In this way, they can correct themselves their mistakes, with the support of other students and trainers (benefits of the adoption of this methodology: development of teamwork skills, observation and analysis capacity, critical spirit, overcome obstacles, autonomy, etc.)
- Second trials to implement improvements

E. Workshop on quality control focused on the visual quality inspection procedures before packing and packing operations

- Trial of the visual quality inspection procedures of finished footwear upon the given samples. Main quality attributes to be inspected: shoe correctly centred, flat stand of the shoe, throat not too loose, absence of wrinkles in upper leather or lining, absence of stains on upper leather or lining, parallel seams and absence of corrected stitch lines, heel seat, heel position, no heel rocking, location of the toe-puff and counter, in sock stamping, placement of decorations, eyelets and labels, etc.).
- Analyse some examples of client specification on packing requirements. Practice with examples of client specification/instructions.
- To make their own manual with the support of the trainer (teamwork, ICT skills, writing skills, image treatment skills, etc.)

F. Other Activities

- Apart from activities where technical competences are key (see description of the workshops), activities will be organised to enhance social and personal skills and competences:
 - Name-Cotton Reels game. strengthening concentration and cooperation, getting to know names using a workshop representative material

- The hidden figure: discuss and identify barriers that arise in the communication process using a description of a figure
- Humour as an icebreaker: using humour as an icebreaker is a good way to start and end a class, task or explanation
- Geese flight method: practical workshop to analyse behavioural styles for effective and appropriate communication within working environments

5.8 Training material (manuals, videos, etc.) to be used/adapted to the target-group

Video: http://www.youtube.com/watch?v=_7Rx4FgpJS0

5.9 Learning Assessment

Procedures and criteria based on the acquisition of learning outcomes (LO), to be defined according to the envisaged acquired competences and the PS methodology, and to be presented in the teacher's manual.