



# **Integrating Companies in a Sustainable Apprenticeship System**

Project 2017-1-DE02-KA202-004174

## **Output Intelectual 2**

# **National validated WBL curriculum Romania**

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## Introduction

The curriculum design for VET is a process regulated by national legislation and related set of methodologies approved by Ministry of National Education Order (OMEN). The National Curriculum is developed based on/and only for a specific Standard for Professional Qualification (SPP). The national legislation for this activity is described by the following norms:

- Standards for Professional Qualifications - OMENCS 4121 / 13.06.2016
- Educational plans and curriculum - OMENCS 4457 / 05.07.2016
- Methodologies guidelines on designing the Local Developed Curriculum (LDC) required by OMEN 3914 / 18.05.2017. ANNEX no.1.2 for the 9th and 10th grades, the lower cycle of the VET school, the technological branch and the vocational education

The hereby WBL curriculum is designed within the framework of the ICSAS project in order to comply with ALL national regulations. The project Advisory Board (RO) have checked this requirement.

According with national register of qualifications (COR), the Romanian VET schools could provide study programs of EQF level 3 addressing to the footwear sector for following occupations:

753602 – Operator for leather products ( industrial shoemaker )

815603 – Cutting operator

815604 - Pre-stitching operator

815605 – Stitching operator

815606 – Lasting operator

815607 – Soling operator

815608 – Finishing operator

Over the last years many schools have closed their footwear programs, especially due with the reduced number of qualified teachers for footwear related subjects. Thus, the footwear companies face a huge gap in terms of recruiting qualified operators in the field, especially young graduates of VET schools. The ICSAS project proposes a solution for this situation by implementing a Work Based Learning (WBL) program based on Locally Developed Curriculum (LDC) those learning outcomes are designed for the footwear manufacturing. This way, the pool of textile and clothing VET schools over the country could provide necessary qualified operators for footwear companies. LDC is the curricular provision specific to each vocational and technical education establishment and it is delivered in partnership with the economic operators. This curricular provision ensures the necessary framework for adapting students' training to the demands of the local labour market. The design and evaluation of the Locally Developed Curriculum involves the engagement of social partners (economic operators, local employer and/or employee associations/ organisations) in the process concerned with the identification of specific competences for the local labour market and of the learning



situations offered to students. The Locally Developed Curriculum is approved by the board of the County School Inspectorate.

### Identification data:

1. Educational institution: "ION HOLBAN" TECHNICAL COLLEGE OF IASI
2. The name of the economic operator / public institution: Angela International (Papucei) and "Gheorghe Asachi" Technical University of Iasi
3. Curriculum name: "**Footwear manufacturing technologies**"
4. Curriculum type: Local Developed Curriculum (LCD)
5. Profile / Field: TECHNICAL/TEXTILE AND LEATHER INDUSTRY
6. Professional qualification: TEXTILE-LEATHER OPERATOR
7. Grade: 10th
8. Number of hours:  $9 \text{ weeks} \times 5 \text{ days} \times 6 \text{ hours} = 270 \text{ hours/year}$   
 $32 \text{ weeks} \times 2 \text{ days} \times 6 \text{ hours} = 384 \text{ hours/year}$   
Total 654 hours/year

### 9. Autorii:

- Educational institution: Ion Holban" Technical College of Iasi
- Economic operator: SC Angela International (Papucei)
- Public institution (consultant): "Gheorghe Asachi" Technical University of Iasi

### 1. PRESENTATION NOTE

The module **Footwear manufacturing technologies** is a component of the educational (curriculum) proposal for vocational qualifications in the Textile and Leather Industry, which is part of the specialized culture and practical training related to the 10th grade, state-owned vocational education last 3 years.

The module focuses on learning outcomes and aims at acquiring the knowledge, attitudes and competences necessary to engage in the labour market in one of the occupations specified in the professional training standards corresponding to the third level of professional qualifications in the Textile and Leather Industry training or continuing training in a higher-level qualification. It aims to meet the local needs and students' interests in order to diversify and customize the 10th grade training courses for professional qualification: „**Textile-leather operator**”.

In determining the types of applications, it will be considered to correlate them with the students' general education field, so that workload solving will be done either through individual applications or through group activities, favouring teamwork and responsibility for the received task.

This curriculum is being studied during a school year and goes through a total of 654 hours (9 weeks x 5 days x 6 hours = 270 hours / year and 32 weeks x 2 days x 6 hours = 384 hours / year) at the economic operator during practical training sessions.

**Footwear manufacturing technologies** module has been developed in a partnership between school and community, taking into account the following:

- the professional training standards imposed by OMENCS 4121 / 13.06.2016;
- educational plans and curriculum imposed by OMENCS 4457 / 05.07.2016;
- the need to provide adequate responses to social requirements;
- methodological benchmarks for LDC design required by OMEN 3914 / 18.05.2017
- the new structure of the education system in Romania.

The option for such a component of the curriculum integrates with the decentralization strategy, according to which local public authorities should play an important role in vocational and technical education due to their responsibility and commitment to the requirements of the local labour market.

The purpose of the Local Developed Curriculum (LDC) can be synthesized into the following:

- the acquisition by the graduates of the necessary professional skills for adaptation to the
- present and especially future requirements of a rapidly changing labour market;
- widening the occupational field, but also deepening key competences: communication, teamwork, assuming responsibilities;
- the acquisition by graduates of transferable key skills required for social integration, as well as fast and successful integration into the labour market;
- acquiring the knowledge and skills of developing an own business starting from training in a qualification;



The Local Developed Curriculum (LDC) offers the following benefits / advantages:

- facilitates students' transition from school to active life by adapting students' professional training to local labour market needs;
- contributes to the increase of the social and professional insertion rate;
- provides opportunities for sustainable development at local community level through the active contribution of social partners to develop human resources at local level;
- contributes to greater receptivity of schools to the needs of the local community;
- creates opportunities for formalizing the relationships between the school and the local labour market.



## 2. Table of correlation between learning outcomes and learning content

Further learning outcomes / Proposed learning outcomes to deepen / expand			Learning content	Learning situations
Knowledge	Abilities	Attitudes		
<p>Knowledge of the concepts, methods and activities specific for the production process in the Cutting department.</p>	<ul style="list-style-type: none"> <li>analysing and understanding the order according to the technological data sheets;</li> <li>making nesting on different types of materials;</li> <li>setting and adjusting the work parameters of the specific machines from cutting department;</li> <li>performing cutting operations according to the technological process specification;</li> <li>checking the parts; identifying and fixing defects.</li> </ul>	<ul style="list-style-type: none"> <li>accountability and compliance with internal procedures and rules regarding the company's quality standards;</li> <li>compliance with the health and safety legislation at work (HSE) in carrying out the operations (code 5.3.6. from <i>SPP Annex nr.2 OMENCs 4121/13.06.2016</i>);</li> <li>compliance with fire safety legislation and environmental protection;</li> <li>collaboration with team members to accomplish tasks at work (code 5.3.8. <i>SPP Annex</i></li> </ul>	<p><b>1. Cutting</b></p> <ul style="list-style-type: none"> <li>Cutting rules on leather                             <ul style="list-style-type: none"> <li>Quality zones</li> <li>Stretch direction</li> <li>Nesting the shoe parts</li> </ul> </li> <li>Cutting the textile materials</li> <li>Cutting the leather substitutes</li> <li>Cutting the bottom materials</li> <li>Cutting machines and tools</li> <li>Cutting knives</li> <li>Cutting machines with clicking dies</li> <li>Clicking dies and cutting boards</li> <li>Automat cutting machines – CAM</li> <li>The process of cutting in the company</li> </ul>	<p>Practical exercises specific for cutting manufacturing process.</p>
<p>Knowledge of the concepts, methods and activities specific to the production process in the Pre-stitching department.</p>	<ul style="list-style-type: none"> <li>analysing and understanding the order according to the technological data sheets;</li> <li>setting and adjusting the work parameters of the specific machines from pre-stitching department;</li> </ul>	<ul style="list-style-type: none"> <li>collaboration with team members to accomplish tasks at work (code 5.3.8. <i>SPP Annex</i></li> </ul>	<p><b>2. Pre-stitching</b></p> <ul style="list-style-type: none"> <li>Skiving</li> <li>Splitting</li> <li>Punching</li> <li>Marking</li> <li>Dyeing</li> <li>Folding</li> <li>Parts reinforcement</li> </ul>	<p>Practical exercises specific for pre-stitching manufacturing process.</p>

	<ul style="list-style-type: none"> <li>performing pre-stitching operations according to the technological process specification;</li> <li>checking the components; identifying and fixing defects.</li> </ul>	<i>nr.2 OMENCS 4121/13.06.2016</i> ); <ul style="list-style-type: none"> <li>taking over from the workplace team responsibilities for the received tasks (code 5.3.9. <i>SPP Annex nr.2 OMENCS 4121/13.06.2016</i>).</li> </ul>	<ul style="list-style-type: none"> <li>Introducing reinforcement tape</li> <li>Smoothing the stitch</li> </ul>	
Knowledge of the concepts, methods and activities specific to the production process in the Stitching department.	<ul style="list-style-type: none"> <li>analysing and understanding the order according to the technological data sheets;</li> <li>setting and adjusting the work parameters of the specific machines from stitching department;</li> <li>performing stitching operation according to the technological process specification;</li> <li>checking the components; identifying and fixing defects.</li> </ul>		<b>3. Stitching</b> <ul style="list-style-type: none"> <li>Sewing rules <ul style="list-style-type: none"> <li>Types of stitches and seams</li> <li>Needles and threads</li> <li>Parameters of stitch</li> <li>Calculating the seam allowances</li> </ul> </li> <li>Sewing machines for uppers</li> <li>Stitch and seam defects</li> <li>Sequential process of stitching operations for a Derby shoes</li> </ul>	Practical exercises specific for stitching manufacturing process.
Knowledge of the concepts, methods and activities specific to the production process in the Pre-lasting department.	<ul style="list-style-type: none"> <li>analysing and understanding the order according to the technological data sheets;</li> <li>preparation of lasts, semi-finished products and components;</li> <li>setting and adjusting the work parameters of</li> </ul>		<b>4. Pre-lasting</b> <ul style="list-style-type: none"> <li>Applying the toe puff</li> <li>Applying the stiffener</li> <li>Back-part pre-moulding</li> <li>Dressing the insole</li> <li>Preparation of the lasts</li> <li>Conditioning the uppers</li> <li>Applying the insole to the last</li> </ul>	Practical exercises specific for pre-lasting manufacturing process.

	<p>thespecific machines from pre-lasting department;</p> <ul style="list-style-type: none"> <li>performing pre-lasting operations according to the technological process specification;</li> <li>checking the components; identifying and fixing defects.</li> </ul>		<ul style="list-style-type: none"> <li>Forepart pre-moulding</li> </ul>	
<p>Knowledge of the concepts, methods and activities specific to the production process in the Lasting department.</p>	<ul style="list-style-type: none"> <li>analysing and understanding the order according to the technological data sheets;</li> <li>setting and adjusting the work parameters of thespecific machines from lasting department;</li> <li>performing lasting operation according to the technological process specification;</li> <li>checking the components; identifying and fixing defects.</li> </ul>		<p><b>5. Lasting</b></p> <ul style="list-style-type: none"> <li>Footwear construction systems: Cement/flat lasting</li> <li>The last</li> <li>Attaching the insole to the last</li> <li>The glue / adhesives</li> <li>Toe puff moulding / uppers' forepart moulding</li> <li>Forepart lasting</li> <li>Side and seat lasting</li> <li>Conditioning units / heat setting</li> <li>The process of lasting in the company</li> </ul>	<p>Practical exercises specific for lasting manufacturing process.</p>
<p>Knowledge of the concepts, methods and activities specific to the production process in the Assembly department.</p>	<ul style="list-style-type: none"> <li>analysing and understanding the order according to the technological data sheets;</li> <li>setting and adjusting the work parameters of</li> </ul>		<p><b>6. Assembly</b></p> <ul style="list-style-type: none"> <li>Roughing</li> <li>Cementing</li> <li>Preparing a covered heel</li> <li>Preparing an insole with a bound edge</li> </ul>	<p>Practical exercises specific for assembly manufacturing process.</p>

	<p>thespecific machines from assembly department;</p> <ul style="list-style-type: none"> <li>performing assembly operations according to the technological process specification;</li> <li>checking the components; identifying and fixing defects.</li> </ul>		<ul style="list-style-type: none"> <li>Attaching the sole</li> <li>Remove the last</li> <li>Attaching the heel</li> <li>Attaching the heel tip</li> </ul>	
<p>Knowledge of the concepts, methods and activities specific to the production process in the Finishing department.</p>	<ul style="list-style-type: none"> <li>analysing and understanding the order according to the technological data sheets;</li> <li>setting and adjusting the work parameters of thespecific machines;</li> <li>performing finishing operations according to the technological process specification;</li> <li>checking the footwear products; identifying and fixing defects.</li> </ul>		<p><b>7. Finishing</b></p> <ul style="list-style-type: none"> <li>Types of finishing</li> <li>Operations common to different types of finishing <ul style="list-style-type: none"> <li>Insole fixation</li> <li>Tops dyeing</li> <li>Shoe cleaning</li> </ul> </li> <li>Finishing (particularities) <ul style="list-style-type: none"> <li>Cream application</li> <li>Shoe brushing</li> <li>Shoe painting</li> <li>Shoe ironing</li> </ul> </li> <li>Control, packaging and marking of finished products</li> <li>Shipping procedures</li> </ul>	<p>Practical exercises specific for finishing manufacturing process.</p>
<p>Knowledge of the concepts, methods and activities specific to the Quality assurance, Production planning Design</p>	<ul style="list-style-type: none"> <li>Performing quality assurance tasks, including: Establishing a sampling plan; Inspection of the aesthetic appearance; Control of footwear fit; Preparation</li> </ul>		<ul style="list-style-type: none"> <li>Quality Assurance <ul style="list-style-type: none"> <li>Control of the aesthetic appearance</li> <li>Control of footwear fit</li> <li>Control of technical aspects Quality Standards Manual</li> </ul> </li> </ul>	<p>Practical exercises specific for Quality assurance, Production planning Design and Technical development</p>

and Technical development,	of a quality standards manual <ul style="list-style-type: none"> <li>• Identify main data the production planning operates with: models, materials, clients, orders.</li> <li>• Performing operating tasks in relation with design and technical development</li> </ul>		<ul style="list-style-type: none"> <li>• Production Planning</li> <li>• Design and Technical Development of Shoes <ul style="list-style-type: none"> <li>○ Upper Development / Pattern Making</li> <li>○ Bottom Parts Development</li> <li>○ Upper Coordination</li> </ul> </li> </ul>	
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1. Catalogues and publications;
2. Work and safety legislation;
3. Parts, semi-finished goods and footwear products;
4. Samples of materials: leather, textile and auxiliary;
5. Work tools;
6. Equipment;
7. Raw materials and components;
8. Internet;
9. Specific protective equipment;
10. Manuals, curriculum auxiliaries, worksheets, documentation sheets, teaching boards, specialized journals, technical documentation;
11. Video projector, computer, educational software.



### 3. Methodological suggestions

The contents of the Footwear manufacturing technologies module must be approached in an integrated manner, correlated with the peculiarities and initial level of education of the students.

The number of hours allocated to each subject depends on the difficulty of the units, the level of prior knowledge of the learner, the complexity of the teaching content, the didactic strategy and the rhythm of assimilation of knowledge by the trained team. The recommended distribution of hours is given in the following table:

Learning spheres	Learning Content	No. hours
Core Spheres	Cutting	150
	Pre-stitching	90
	Stitching	114
	Pre-lasting and Lasting	84
	Assembly	96
	Finishing	48
Optional spheres	Design Technical development Quality assurance Production planning	72

The module has a flexible structure, so it can incorporate new teaching resources at any time in the educational process. Is recommended to spent the training in the specialized stations within educational unit or economic operator, according to the recommendations of the Professional Training Standards (in rom. Standard de Pregatire Profesionala -SPP, according with Annex nr.2 OMENCS 4121/13.06.2016).

Didactic strategies applied by teachers need to provide students with the opportunity to be actively involved in the training process, to acquire knowledge and skills that they can use either to access higher levels of qualification or to integrate efficient in the production / service sector. The student-centred training is recommended to be applied by designing various learning activities to take into account the individual learning styles of each student, including adaptation to students with special educational requirements. These learning activities aim at:

- application of student-centred methods, activation of cognitive and operative structures of pupils, exercise their psycho-physical potential, transformation of the student into co-participant in their own training and education;
- combining and systematically changing the activities based on the individual effort of the student (documenting by various sources of information, personal observation, personal exercise, scheduled training, experiment and individual work, work technique with cards) with activities that require collective effort (team, group)
- the use of methods that favour the pupil's direct relationship with the objects of knowledge, by using concrete models such as the experimental model, documenting activities, modelling, guided observation / investigation etc.;

- the acquisition of independent information and documentation methods (e.g. individual study, scientific investigation, case study, method of presentation, method of project, etc.), which offers openness to self-training, continuous learning (use of information sources: e.g. libraries, internet, virtual library).

To achieve the objectives, it is recommended to use active and interactive, student-centred instructional methods with a higher share of practical activities and less theoretical ones, such as:

- action-based methods:
  - group practical application;
  - individual or team work;
  - practical demonstration;
- exploratory methods:
  - direct observation;
  - independent observation;
  - training and documentation visits;
  - heuristic conversation, exam, fixation;
  - guided discovery;
- exposure methods:
  - explication;
  - specific training at the workplace;
  - description;
  - examples.



### 4. Suggestions for evaluation

Evaluation is the final part of the didactic design approach whereby the teacher will measure the effectiveness of the whole instructional-educational process. The evaluation determines the extent to which students have achieved the learning outcomes set in the training standards.

It is recommended to use both formative and summative assessment in order to verify the achievement of learning outcomes.

a. Formative assessment:

- Students will be evaluated for achieving the learning outcomes at the end of each module. It will be done by the teacher on the basis of evidence that explicitly refers to the knowledge, skills and attitudes specified in the training standard. We suggest the following assessment tools: observation sheets, worksheets, documentation sheets, portfolio with practical exercises.
- The formative feedback forms (presented at the end of each Trainer Manual) are recommended to be filled by trainers/tutors
- Planning of the evaluation should take place after a set schedule, avoiding the crowding of several evaluations over the same time period.

b. Summative assessment:

The summative assessment gives the extent to which the student has achieved the outcomes for the work based learning (WBL) program and it is achieved by the following tools:

- **Test quiz** at the end of the work based learning (WBL) process. The test will cover all the learning outcomes. Students will have access to marking criteria before they start their summative assessment.
- **Portfolio** will contain the pieces of work performed by learner in each learning station according to the exercises and practical work defined in Learning and Teaching Activities.
- **Practical test** consist in manufacturing a pair of shoes, which allows the students to demonstrate their skills in all learning stations: cutting, pre-stitching, stitching, lasting and assembling, finishing and quality control.