



Developing Innovative and Attractive CVET programmes  
in industrial shoe production

# Developing Innovative and Attractive CVET programmes in industrial shoe production

Curriculum  
Romania

IO 4

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## Content

1	Environmental Management .....	3
1.1	Objectives:.....	3
1.2	Lecturers: .....	3
1.3	Project work:.....	4
2	Sustainability Management.....	5
2.1	Objectives:.....	5
2.2	Lecturers: .....	5
2.3	Project work:.....	6
3	Corporate social responsibility (CSR) .....	7
3.1	Objectives:.....	7
3.2	Lecturers: .....	7
3.3	Project work:.....	8
4	Design.....	9
4.1	Objectives:.....	9
4.2	Lecturers: .....	9
4.3	Project work:.....	10
5	Technical Development .....	11
5.1	Objectives:.....	11
5.2	Lecturers: .....	11
5.3	Project work:.....	11



# 1 Environmental Management

## 1.1 Objectives:

- Carry out advanced training in the field of environmental management
- Acquire theoretical and applied skills in designing an environmental management system and specific environmental management procedures
- Acquire competencies in applications of environmental management systems, ISO 14001, integrated environmental management systems, integrated quality-environment systems and environmental performance.

**Duration:** 14 weeks

**Theoretical teaching/learning classes:** 56 hours (28 lectures + 28 project work)

**Self-learning:** 69

**Credits:** 5

**Total number of hours:** 125 (25 / credit)

**Work Basel-Learning:** double the theoretical and self-learning hours?

Level 6 - minimum 150 hours

## 1.2 Lecturers:

Topic	Content	Duration	Mode
International and European Environmental Management Framework.	<ul style="list-style-type: none"> <li>• Environmental Management Standard</li> <li>• Environmental Management Systems</li> <li>• European Eco-Management and Audit Scheme (EMAS)</li> <li>• International standard ISO 14001</li> </ul>	4 hours	
ISO 14000 series	<ul style="list-style-type: none"> <li>• Comparison between EMAS and ISO 14001 International Standard</li> <li>• Environmental Management System (EMS)</li> </ul>	4 hours	
Development of an Environmental Management System (EMS)	<ul style="list-style-type: none"> <li>• ISO14001 series standards</li> <li>• Advantages and disadvantages of implementing environmental management systems</li> <li>• Tools of environmental management systems (environmental audit, environmental performance assessment, life cycle assessment, eco-labelling)</li> </ul>	6 hours	

Topic	Content	Duration	Mode
Developing and implementing an Environmental Management System (EMS)	<ul style="list-style-type: none"> <li>Staged implementation of environmental management systems in accordance with ISO 14001 (environmental policy of the organization, planning, implementation and operation of EMS, environmental reporting).</li> </ul>	6 hours	
Environmental performance	<ul style="list-style-type: none"> <li>Environmental performance indicators system</li> <li>Monitoring environmental performance indicators</li> <li>Integrated environmental dashboard</li> </ul>	4 hours	
Sisteme de management integrat. Conceptul integrat calitate-mediu. Standardele ISO de calitate-mediu, etc. (seria de standarde ISO 9000 si ISO 14001) Integrated management systems	<ul style="list-style-type: none"> <li>The integrated quality-environment concept.</li> <li>ISO quality-environment standards (ISO 9000 and ISO 14001 series)</li> </ul>	4 hours	
<b>Total</b>		<b>28</b>	

### 1.3 Project work:

<b>Environmental Management [MM]</b> (conceptual approaches, reasons / causes / importance / objectives associated with MM, environmental factors, polluting factors of a company - generalities, analysis of the project theme, etc.)	6 hours
<b>The environmental management system of a company</b> (design, implementation, etc.)	18 hours
<b>Integrated environmental management system procedures</b>	4 hours
<b>Total</b>	<b>28</b>

## 2 Sustainability Management

### 2.1 Objectives:

- Develop knowledge, skills and competencies regarding sustainability in footwear industry
- Acquire knowledge on standardization and certification systems in the footwear industry
- Acquire knowledge regarding REACH and safety of products legislations and contractual, social and commercial legislation
- Gain knowledge on sustainable materials and components for footwear and technologies and processes for sustainable footwear manufacturing.
- Gain theoretical and practical on footwear Carbon footprint

**Duration:** 14 weeks

**Theory:** 56 hours (28 lectures + 28 project work)

**Self-learning:** 69

**Credits:** 5

**Total number of hours:** 125 (25 / credit)

### 2.2 Lecturers:

Topic	Content	Duration	Mode
Sustainable Materials and Components for Footwear	<ul style="list-style-type: none"> <li>• Criteria to be taken into account in the manufacture of sustainable footwear</li> <li>• Types of materials for the upper assembly</li> <li>• Types of materials for the lower assembly</li> <li>• Components and accessories</li> <li>• Examples of sustainable materials</li> </ul>	4 hours	
Eco-labeling and eco-certification of footwear materials and products	<ul style="list-style-type: none"> <li>• Ecological criteria and parameters</li> <li>• Environmental impact and life cycle analysis</li> <li>• Certification systems</li> </ul>	4 hours	
REACH regulation and consumer product safety	<ul style="list-style-type: none"> <li>• Legislative norms</li> <li>• Regulations regarding consumer health and safety</li> <li>• REACH regulation</li> </ul>	4 hours	
Sustainable technologies and manufacturing processes	<ul style="list-style-type: none"> <li>• Cutting</li> <li>• Pre-stitching</li> <li>• Stitching</li> <li>• Pre-lasting</li> <li>• Lasting</li> <li>• Finishing</li> </ul>	6 hours	

Topic	Content	Duration	Mode
Managing methods supporting a sustainable approach	<ul style="list-style-type: none"> <li>• 5S – a system focused on the creation of individual working places</li> <li>• Total Quality maintenance (TQM)</li> <li>• Total productive maintenance (TPM)</li> <li>• Visual control</li> <li>• Continuous flow</li> </ul>	4 hours	
Carbon footprint – a sustainability measurement indicator	<ul style="list-style-type: none"> <li>• Value chain analysis</li> <li>• Sustainable solutions for reducing environmental impact</li> <li>• The concept of Life Cycle Assessment</li> <li>• Techniques to calculate the carbon footprint</li> </ul>	6 hours	
<b>Total</b>		<b>28</b>	

### 2.3 Project work:

<b>Sustainability evaluation for footwear product</b> <ol style="list-style-type: none"> <li>1. Identify the polluting factors for a footwear product</li> <li>2. Identify the value chain links for the studied product</li> <li>3. Improving the impact of a footwear product by implementing different sustainable solutions</li> <li>4. Life cycle impact assessment</li> <li>5. Selection of impact categories for footwear</li> <li>6. Carbon footprint calculation</li> </ol>	28 hours
<b>Total</b>	<b>28</b>



### 3 Corporate social responsibility (CSR)

#### 3.1 Objectives:

- Acquire knowledge on CSR concepts, consumer perspective, regulations and benefits
- Develop and implement a CSR plan.

**Duration:** 14 weeks

**Theory:** 56 hours (28 lectures + 28 project work)

**Self-learning:** 69

**Credits:** 5

**Total number of hours:** 125 (25 / credit)

#### 3.2 Lecturers:

Topic	Content	Duration	Mode
Corporate social responsibility (CSR)	<ul style="list-style-type: none"> <li>• Conceptual approaches regarding CSR</li> <li>• Consumer perspective on CSR</li> <li>• Regulations associated with CSR</li> </ul>	6 hours	
CSR benefits	<ul style="list-style-type: none"> <li>• CSR Aspects</li> <li>• CSR benefits</li> <li>• Competitive advantage and financial performance</li> </ul>	6 hours	
Social responsibility and community involvement	<ul style="list-style-type: none"> <li>• Charities and volunteering actions</li> <li>• Sponsorships</li> <li>• Supporting local economic growth</li> <li>• Fair trade practices</li> </ul>	4 hours	
Implementation of CSR	<ul style="list-style-type: none"> <li>• CSR framework</li> <li>• Approaches associated with CSR implementation and development</li> </ul>	8 hours	
Study cases	<ul style="list-style-type: none"> <li>• Examples of Footwear companies that have implemented CSR</li> </ul>	4 hours	
<b>Total</b>		<b>28</b>	

### 3.3 Project work:

<b>Development of an integrated CSR strategic plan</b> <ul style="list-style-type: none"> <li>• Raising CSR awareness</li> <li>• Assessing the corporate purpose of the organization in the current social context</li> <li>• Establish CSR mission and vision</li> <li>• CSR evaluation</li> <li>• Development of an integrated CSR strategic plan</li> <li>• Implementation of the integrated CSR strategic plan</li> <li>• Maintaining internal and external communication</li> <li>• Evaluation of integrated strategies and the communication process associated with CSR</li> <li>• Real integration (institutionalization) of CSR</li> </ul>	28 hours
<b>Total</b>	<b>28</b>

## 4 Design

### 4.1 Objectives:

- Acquire knowledge regarding design and product development and identifying the particularities of design in the footwear industry
- Presentation and experimentation of modern concepts in the design of footwear products
- Acquire skills to develop innovative concepts footwear

**Duration:** 14 weeks

**Theory:** 56 hours (28 lectures + 28 project work)

**Self-learning:** 69

**Credits:** 5

**Total number of hours:** 125 (25 / credit)

### 4.2 Lecturers:

Topic	Content	Duration	Mode
Footwear Design tools, methods and practices	<ul style="list-style-type: none"> <li>• Product development</li> <li>• Product design and value analysis</li> <li>• Design optimization</li> </ul>	4	
Consumer-Orientated Footwear Design	<ul style="list-style-type: none"> <li>• Trends - Sustainability, Comfort, Multifunctional and Smart, Personalization</li> <li>• Customer needs and requirements</li> <li>• QFD – Quality Function Deployment</li> </ul>	8	
Modular design	<ul style="list-style-type: none"> <li>• Concepts and instruments</li> <li>• Methodology</li> <li>• DSM - Design Structure Matrix</li> <li>• DFM - Design for manufacturing</li> <li>• MFD - Modular Function Deployment</li> <li>• AD - Axiomatic Design</li> </ul>	8	
Digital Design	<ul style="list-style-type: none"> <li>• Virtual prototyping</li> <li>• Digital Materials and Rendering</li> <li>• Rapid prototyping</li> <li>• Virtual Reality and Augmented Reality</li> <li>• Virtual testing</li> </ul>	8	
<b>Total</b>		<b>28</b>	

### 4.3 Project work:

<b>Development of an innovative footwear concept</b> <ul style="list-style-type: none"><li>• Define design concepts and prepare presentation panels</li><li>• Translate the design concept into a 3D model</li><li>• Define model components and technical details</li><li>• Develop a model collection</li><li>• Evaluate and analyse the footwear concept.</li></ul>	28 hours
<b>Total</b>	<b>28</b>

## 5 Technical Development

### 5.1 Objectives:

- Learning the principles of computer-aided footwear design in order to ensure ergonomic, functional, hygienic, aesthetic and economic characteristics for the designed products.

**Duration:** 14 weeks

**Theory:** 56 hours (28 lectures + 28 project work)

**Self-learning:** 69

**Credits:** 5

**Total number of hours:** 125 (25 / credit)

### 5.2 Lecturers:

Topic	Content	Duration	Mode
Shoe lasts	<ul style="list-style-type: none"> <li>• Last measurements and grading</li> <li>• Development of digital lasts</li> </ul>	4	
Footwear uppers development (3D modelling)	<ul style="list-style-type: none"> <li>• Last digitalization</li> <li>• Development of upper pieces</li> <li>• Development of accessories</li> <li>• Materials and textures</li> </ul>	10	
Footwear uppers development (2D modelling)	<ul style="list-style-type: none"> <li>• Last flattening</li> <li>• 2D patterns</li> <li>• Grading</li> <li>• Nesting</li> </ul>	8	
Footwear bottom components development	<ul style="list-style-type: none"> <li>• Bottom components for footwear</li> <li>• Moulds for bottom components</li> <li>• 3D CAD of soles</li> <li>• 3D CAD of heels</li> <li>• Bottom components grading</li> </ul>	6	
<b>Total</b>		<b>28</b>	

### 5.3 Project work:

<b>Technical Development of a footwear model</b> <ul style="list-style-type: none"> <li>• Digital last</li> <li>• Upper pieces</li> <li>• Bottom components</li> <li>• Textures and colours</li> </ul>	28 hours
<b>Total</b>	<b>28</b>