Knowledge Platform for Transferring Research and Innovation in Footwear Manufacturing

Agreement No. 2015-1-RO01-KA203-015198, Period: 2015-2018

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PROJECT RESULTS

OUTPUT 2: Training program and e-learning content for transferring research and innovation

The main objective of the training programs is to develop skills and competencies in research, innovation and technological transfer applied to footwear manufacturing. It contains three modules:

- Module 1- Developing project proposals for research and innovation in footwear enterprises
- Module 2- Creativity and innovation for the footwear industry
- Module 3- Research and technological transfer in footwear manufacturing

The strategy and the methodology on the curriculum development are determined based on the needs analysis in the partner countries. Thus, the new curriculum considers:

- the identified training needs in field research (Output 1- survey)
- the new qualification requirements (Output 1-desck research)
- the possible future developments (to demonstrate the sustainability of the project).
- the learning potential of the trainees
- the preferred learning styles and habits and learning by doing approach

It is based on the interoperability and comparability of the running study programs in partner countries. At the same time, the modular approach of the courses allows for further developments into customised short training courses that could be provided by the research centres that are partners in this project after the project ends.

At the end of the course, the trainees should be able to:

- elaborate and apply the procedures and tools for Research, Development and Innovation (RDI) in the footwear sector, including new product development, technology development, process development and technological transfer;
- carry out projects in relation to the latest developments on new materials and components for footwear;
- develop new footwear concepts and products based on specific requirements of various customers and market trends;
- carry out projects in relation to the latest developments on new manufacturing technologies and business models;
- demonstrate soft skills adapted to complex projects and working situations, such as: creative and critical thinking, solving problems, team work and entrepreneurial thinking.

University partners (P1- TUIASI, P4- TUC, P8- TTF) and research centres (P3- INCDTTP, P6-CTCP and P7-INESCOP) commonly designed the curriculum and the rest of the partners analysed and validated it from the perspective of enterprises (P2-CEC, P5-Virtual Campus and P9-CRE.THI.DEV).
Module 1- Developing project proposals for research and innovation in footwear enterprises

Unit 1: R&D in European projects
- Horizon 2020- Horizon 2020 pillars; Participation modalities; Beyond H2020 for SMEs.
- SME Instrument- Programme description and singularities; Programme achievements; Eligibility requirements; Preparation of competitive proposals; Proposal evaluation.
- INNOSUP- Programme description and singularities; Enterprise Europe Network; Support for business innovation; International partnership; Events; Local contact point.

Unit 2: Preparation of a proposal in H2020. From the idea to the project
- Internal Analysis in the company- Selection of lines of strategic interest; Commitments undertaken; Responsibilities; Identification of the best funding instrument.
- The partnership- Quality and balance of the partnership; Composition of the partnership; Sources of information.
- IPR management, communication results exploitation and dissemination- IPR management; Communication; Results exploitation; Common agreements of exploitation and dissemination.

Unit 3: Budget and financial management
- Budget and financial management-H2020 Model Grant Agreement; Calculation and distribution of project budget, Eligibility and UE contribution; Reimbursement; Payments from the European Commission.

Unit 4: Presentation of a proposal in H2020
- Submission of an SME Instrument proposal-Research and innovation participant portal; Creating an EU login and getting a PIC; Submission procedure step-by-step (SME Instrument).
- Entrepreneurship and business planning- Defining the concepts: entrepreneurship and entrepreneur; Importance of business planning; The business plan and its content.

Test Quiz

Module 2- Creativity and innovation for footwear industry

Unit 1: Footwear design-driven innovation
- Design tools, methods and practices - Design and product development; Modular design; Design for manufacturing; Quality function deployment; Value analysis.
- Approaches to the consumer-oriented footwear product design- Trends that shape the consumer’s behaviour; How to know what a customer needs; How to involve a consumer into the designing process.

Unit 2: Product-related innovation
- Innovative materials and components for footwear
- Engaging engineering tools for innovative footwear

Unit 3: Design-driven additive manufacturing
- What is additive manufacturing?- Development and classification of additive technologies; Manufacturing stages by additive methods; Printing devices; Materials for 3D printing.
- Application of additive manufacturing in footwear design - Development of a footwear model; Production of a footwear model with a combination of 3D printing and classic procedures-hybrids; Fully 3D printed footwear model- examples; 3D printing of shoe parts, insoles.
- 3D modelling and 3D printing- 3D modelling software and tools; Preparation for 3D printing; Parameter setting on 3D printer; 3D printing.

Unit 4: Footwear product development. Study cases
- Study case 1 - Prototyping a footwear insole based on foot measurements - Objective of the study case; Collecting and analysing foot measurements; 3D modelling of a footwear insole; Testing and validating.
- Study case 2 - Developing a footwear collection based on visual stimuli-Finding inspiration; Developing a story; From sketches to study drawings; Making models; Explaining the design concept.

Test Quiz
Module 3 - Research and technological transfer in footwear manufacturing

Unit 1: Introduction to Technology Transfer
- What is Technology Transfer? Defining technology transfer (TT); Object associated to technology transfer (TT); Technology transfer (TT) models.
- The Technology Transfer Networks - Technology transfer network (TTN) context; Taxonomy regarding the technology transfer networks (TTN); Critical elements of technology transfer networks (TTN).

Unit 2: Process Innovation and Emerging Technologies
- New equipment with high contents of technology - Introduction; CAD/CAM technology; Automatic cutting and marking systems; Automatic stitching machines.
- Technology Assessment - Value Proposition - Value proposition; Market assessment; People/infrastructure.
- Integrating Technology - Business model; Business plan; Operating plan; Market entry plan.

Unit 3: Intellectual Property Rights
- Types of IPR - Trade secrets; Trademarks; Design; Patents; Evaluation and decision making.
- IPR Strategy - IPR strategy; Patent classification schemes; Patent databases; Patent search.

Test Quiz

OUTPUT 3: Multimedia handbook for project based training and virtual placement

Content of Guide for Students
- Starting your virtual internship - Platform Log in; Platform main page; Profile Setup; Accessing the courses; Transferring Research and Innovation into Footwear Manufacturing; Virtual Internship and Project Based Training; Navigation panel.
- Communicating on the platform - Forums; Announcements forum; Questions and Doubts forum; How to use the forums; Private messages.
- On line assessment - Test Quiz; Assignment; Team Project Work.
Content of Guide for Trainers

- Getting Started - Platform Log in; Profile setup; User section; Edit profile section.
- Platform overview - Course overview panel; Transferring Research and Innovation into Footwear Manufacturing; Virtual Internship and Project Based Training; Navigation tree panel; Administration panel; Auxiliary information panel.
- Course editing - Edit topic name; Edit Section; Move Resource; Edit Resource; Add an activity or resource.
- Platform activities - Forums; Adding a new forum; Platform forums; Assessment activities; Adding a new assessment activity; Adding an Assignment; Adding a Test quiz; Grades.
- Team project work - Launching Team Project Work; Evaluation.

Output IV: Knowledge4Foot Platform for Transferring Research and Innovation in Footwear Manufacturing

- The online course was opened to students in November 2017 and it will be running for 2 months. 98 students from the 3 partner universities have been already enrolled in Modules 2 and 3.
- For the second stage of the training, namely Virtual Internship, the students will be grouped in 10 teams.
- One online brokerage sessions via K4F platform will be organized in January-February 2018. The footwear companies from partner countries will select 10-20 project topics according with their interest in research and technological transfer.
- In the period of January-March 2018, the 10 teams will continue the second stage of the training under the supervision of tutors from K4F consortium, by working in multinational teams and having the following cumulative assessment tasks: to pass the online training for Module 1 and to submit the project research proposal.
- The best projects will be awarded and the members of the winning teams will participate in the upcoming Intensive course in Athens.

UPCOMING EVENTS

Entrepreneurial thinking in footwear manufacturing - Intensive program for higher education learners
Location: Athens/ Greece
Date: 23-27 4th April 2018

Research and Innovation in Footwear Manufacturing - Final conference
Location: Bucharest/ Romania
Date: 11th July 2018

PARTNERS