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Clean and Innovative Textiles Strategy for Circular Economy

Intensive Summer Course

Intensive summer school training program and blended methodologies

University of Ljubljana

July 2022





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Report

The CLEANTEX Summer School was successfully held in Ljubljana from July 4–8, 2022, under the auspices of the University of Ljubljana, Faculty of Natural Sciences and Engineering, Department of Textiles, Graphic Arts and Design.

Twenty-two students of bachelor's and master's degree study programmes in textile engineering and design and nine mentors from three universities belonging to the CLEANTEX partnership, namely Kaunas University of Technology (KTU), Lithuania, the Ecole Nationale Supérieure des Arts et Industries Textiles (ENSAIT), France, and the University of Ljubljana (UL), Slovenia, actively participated in the summer school, including five students and two mentors from KTU and ENSAIT and twelve students and five mentors from UL.

The summer school started on Monday, July 4, 2022 at 9 a.m. with the welcome by Andrej Demšar, Vice-Dean for Economic Affairs, and the introduction of the University of Ljubljana. After that, the aim, objectives and intellectual outputs of the CLEANTEX project were presented. The students were divided into five groups, ensuring inter-institutionality and interdisciplinarity.

After a brief introduction of the students and mentors, the hackathon activities started with the presentation of the hackathon methodology and the bootcamp programme, which consists of the 5-day Design Sprint process with the structure of Understand, Sketch, Decide, Prototype and Evaluate. These activities were led by ENSAIT mentors, who also provided all the necessary bootcamp materials. Since the objective of the hackathon was to integrate circular economy and eco-design strategies in the new production process of the virtual textile company Samertex, the students received the company brochure, an interview with the sales manager and Life Cycle Assessment (LCA) of the production process of the swimsuits that are the exclusive items of the company Samertex. In this activity, understanding the needs of the company and identifying the environmental hotspots were crucial.

To support the students' activities, the CLEANTEX MOOC platform was set up on the CLEANTEX project website before the summer school. It allowed students to learn 7 modules with 21 video lectures on the topics of introduction to circular economy and eco-design, sustainable fibres and material sourcing, waste management and recycling, sustainable production of yarns, fabrics and garments, sustainable chemical processes and textile care and business and quality management. During the summer school, the PowerPoint presentations of the MOOC lectures were also uploaded to the computers to make it easier for students to browse through the lectures. In addition to CLEANTEX MOOC, the e-book presenting LCA and eco-design methodologies and 18 real-life examples of LCA and eco-design implementation in textile companies from France, Greece, Italy, Lithuania, Slovenia and Spain was also available to inspire students on how to solve the problem and to get feedback to finalise the e-book draft.

In addition to the hackathon activities, visits to the textile company TEKSTINA d.o.o. and the AquafilSLO fishing net warehouse in Ajdovščina, and to the AquafilSLO company in Ljubljana were organised on Tuesday, July 5, and Wednesday, July 6. At the TEKSTINA company, the students and mentors were able to look at production in the weaving mill and finishing line. At AquafilSLO fishing net warehouse in Ajdovščina, and at the AquafilSLO company, students were



able to learn about the selection of nylon waste, its chemical recycling into caprolactam monomer, polymerization into polyamide 6, and the melt spinning of polyamide filament yarn known as ECONYL®. While visiting the companies, the students discussed with textile experts to find out how the companies implement sustainable approaches and circular economy in the production process. These fruitful discussions contributed greatly to the students' ability to build and complete the prototype.

On Friday, July 8, the students presented their best sustainable ideas and conceptual prototypes in the form of pitches. At the end of the presentations, the judges and student groups announced the best ideas to solve the company problem. Students received certificates for successful participation in the CLEANTEX Summer School, which was confirmed by the Senate of the Faculty of natural Sciences and Engineering of the University of Ljubljana and awarded with 4 ECTS credits. The summer school was concluded with a visit to the laboratories of the Department of Textiles, Graphic Arts and Design.

Report was prepared by Barbara Simončič

Ljubljana, July 14, 2022



Annexes



Figure 1 – Students divided into groups during the sessions



Figure 2 – Students during one of the visits



Figure 3 – Students during one of the visits



Figure 4 – Students during their graduation after the course concluded



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