Warp to Wear: Bridging Design & Engineering through Interdisciplinary Education

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Abstract

From Warp to Wear: Fundamentals to Advanced Textile Design is a collaboration concept development project which aims to bridge the gap between design, engineering, and technical textiles through an interdisciplinary, hands-on learning approach. By combining practical textile techniques with access to the machine park and rapid prototyping facilities at the Institut für Textiltechnik RWTH Aachen, students are encouraged to develop their technical knowledge, creative skills, and understanding of textile structures through collaboration, concept development and prototyping. The course creates an open environment for interdisciplinary exchange, with regular opportunities for students to present and discuss their work, enabling collaborative development and peer-to-peer learning.

The learning experience culminates in a self-directed collaborative textile project in which students apply and integrate the knowledge and skills acquired throughout their studies. An Innovation Workshop provides an opportunity to present the developed prototypes, receive feedback, and establish networking connections. Inspired by the traditional design salon, this format places communication, critical reflection, and knowledge exchange at the centre of the learning process. The project therefore not only strengthens students' understanding of textile design, engineering, and production, but also develops their ability to give and receive feedback, collaborate across disciplines, and approach textile innovation in a more interactive and practice-oriented way.

In the first iteration of the Warp to Wear workshop session, students from five universities and three countries with backgrounds ranging from Fashion Design to Marketing to Engineering participated. The theme of the first workshop was Design for Recycling. Over the two-day workshop, three working groups formed and generated concepts for semester long projects. All of the groups developed concepts relating to the topic such as recyclable shoes construction, bio-degradable lingerie and applications for waste wool. Each group explored their chosen topic through research and collaboration to varying degrees of development. This workshop also inspired two spin-off projects involving spinning of home compostable yarn and textiles and exploration of spacer fabric production

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