

RESEARCH THEME

XLII Cycle – a.y. 2026/2027

Title of the doctoral research	Textiles beyond fashion. Integrating new technologies and sustainable practices through knit design
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Abstract	The textile sector is at a critical intersection between environmental urgency and technological transformation. While identified as one of the most resource-intensive industries globally (Niinimäki et al., 2020), it is also emerging as a field of material and computational innovation capable of addressing contemporary sustainability transitions. Within European policy frameworks promoting circularity (European Commission, 2020), textiles are repositioned not merely as products but as systems embedded in complex socio-technical networks. This research investigates textile design as a design-driven innovation platform (Verganti, 2009), capable of redefining meanings, production models, and applications beyond fashion. It specifically addresses the progressive change of scale in textile applications — from small-scale artifacts and wearable systems to product components, spatial installations, and architectural textile structures. By integrating computational design, advanced knitting technologies, and emerging sustainable fibers, the project explores how textile systems can operate coherently across scales, maintaining material intelligence, structural performance, and circular logic. Informed by sustainability transitions (Manzini, 2015) and designerly ways of knowing (Cross, 2006), the study aims to develop experimental textile systems and multi-scale prototypes that contribute to a sustainable and technologically advanced production ecosystem.
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Keywords	Textile, sustainability transitions, Industrial machines
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