

Title: Cornerstones of a New Interdisciplinary Innovation and Product Development Master's Program

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Abstract

In today's era of rapid technological advancement and pressing environmental concerns, the role of interdisciplinary higher education in the context of sustainable product development and the green transition is of high importance. There is a growing demand for education in sustainable and greener product development, which necessitates the development of new collaboration models between industry and the university. Also, by breaking down traditional academic boundaries and fostering collaboration, higher education institutions can empower a new generation of professionals who are adept at harnessing innovation to drive environmental sustainability.

Interdisciplinary higher education programs have recently emerged as a response to the complex challenges faced by society. These programs have a mission of breaking down traditional academic silos, encouraging collaboration in research and development across various disciplines, such as engineering, environmental science, economics, and design. As the world seeks innovative solutions to address climate change and environmental degradation, interdisciplinary education stands as an interesting cornerstone for building a brighter, more sustainable tomorrow.

The green transition, characterised by a global shift towards environmentally responsible practices, demands professionals who can navigate the complexities of sustainability. Interdisciplinary higher education aims to equip students with an understanding of specific environmental issues and the ability to develop eco-conscious solutions. In addition, new technologies are at the forefront of innovation in sustainable product development. Interdisciplinary education aims also to equip students with the skills needed to leverage these technologies effectively.

University of Oulu's (UniO's) Department of Industrial Engineering and Management (IEM) has grasped the challenge of creating a two-year international and interdisciplinary Master's education program. The program will prepare students in collaboration with students from different disciplines to harness new technologies for sustainable product development within the context of the green transition. The program development is the primary mission of the new Professorship of Practice (POP) and will have a special emphasis on fostering innovation, product development, and new business in the context of green transition in collaboration with small and medium-sized enterprises (SMEs). In the context of sustainable product development, this interdisciplinary Master's program approach empowers students to tackle multifaceted

challenges holistically and practically. The Master's education program will be built upon three foundational pillars: Project-Based Pedagogy and Curriculum, Studio Model and Reflective Practices, and a Supportive Learning Community, all underpinned by the core values of Trust and Empathy.

Starting from the year 2025 UniO's planned new interdisciplinary higher education is preparing students for the challenges and opportunities presented by the green transition and the integration of new technologies into sustainable product development in collaboration with Northern Finland's SMEs. These graduates will play a pivotal role in shaping a greener, more sustainable future by designing and developing products that align with the principles of the green transition and leverage the full potential of new technologies.