



**Development report
Industrial Engineering and Management
University of Twente**

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Introduction

On 17 and 18 November 2022, the programmes Industrial Engineering and Management at the University of Twente were assessed by an independent peer review panel as part of the cluster assessment Industrial Engineering and Management. During the site visit, a development dialogue was carried out in the form of thematic sessions. This resulted in lively discussions amongst teachers, students, programme management and the panel about future developments in the IEM programmes. This development report was written based on these sessions.

Description of the developmental themes

Theme 1. Cooperation with VU University Amsterdam

The University of Twente is engaged in a collaboration with VU University Amsterdam to offer several of the UT's bachelor programmes in Amsterdam as a second location next to Enschede. After a successful pilot with the bachelor's Mechanical Engineering, the bachelor's Industrial Engineering and Management is one of the future candidates for such a satellite programme in Amsterdam. The bachelor's IEM is currently considering how such a second location for their programme could take shape, and what elements should be considered in setting this up.

The panel and the programme discussed several topics related to this plan. These include:

- How to align the programme with the academic calendar in Amsterdam, which consists of semesters in three blocks of 8-8-4 weeks;
- How to transfer the small-scale, interactive nature of the programme to a different set-up, and differences between the VU Amsterdam and UT teaching and research cultures;
- How to connect the Amsterdam-based students to Twente, what to do with the time that students spend on campus in Twente, and how to generate enthusiasm for the UT master programmes.

The panel thinks that a cooperation with VU Amsterdam could be promising, and that there are several interesting opportunities for collaborations with several faculties at VU Amsterdam that could improve the programme. Hence, broadening the preparatory debate with the VU Amsterdam on the intended collaboration to different disciplinary groups is considered worthwhile to explore. There should be careful considerations about transferring the project-led, interactive and small-scale approach to Amsterdam, particularly when Amsterdam-based staff is used for the programme. This teaching staff should be selected based on the enthusiasm they have for this approach, and their didactic capacities to contribute to it. The different structure of the VU Amsterdam curriculum is a challenge, but also an opportunity to redesign the programme, for instance by using the 4-week periods each semester for larger projects with external organizations. According to the panel, time spent in Twente should focus on the unique selling points of Twente: the campus, the labs and engineering projects, as well as interaction with Twente-based students. This could make students enthusiastic about following a master's programme in Twente, rather than only visit Twente for electives or a minor. Vice-versa, it could be interesting for Twente students to work with students that have more of a home base in faculties in the social and exact sciences.

Theme 2. Smart Industry Lab

The programme management gives the panel a presentation on the Smart Industry Lab that the UT is setting up, and presents several ideas on how this lab could be used in the programmes. This lab is a physical demonstrator of a smart industry (Industry 4.0) facility. The panel discusses several ideas with the programme. The panel thinks that human-machine interaction and decision-making in automated facilities, as well as ethical and societal considerations of the use thereof, could be of particular interest for IEM students (cf. the ideas encompassed by the notion of Industry 5.0).

Other possibilities discussed included using the Lab to explain to prospective students what IEM is, by showing what an IEM graduate would contribute in an automated industrial setting. Furthermore, the Lab would be interesting to use for interdisciplinary projects, where students of different programmes work on a thesis project, each with their own approach based on their background. This could even extend to other educational organizations in the region (mbo, hbo) as well as companies.