Design considerations regarding the development of an interdisciplinary engineering innovation course involving collaboration with small and micro-sized companies

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This paper discusses some of the issues and dilemmas that have come up when designing courses aimed at teaching innovation competencies to engineering students through means of authentic industry collaboration with small and medium sized enterprises (SME).

The paper is focused around the phase of designing the course SME Innovation and Intrapreneurship where the aim has been to create a match between the company need for short, result oriented innovation projects and the structured professional and interdisciplinary learning goals for a coming bachelor of engineering. The main dilemmas in the development have evolved around the concept of bridging real-life with a university learning context, the question of how to change teaching and exam structure to support new and different learning objectives, as well as the challenges of handling interdisciplinary teams.

The 13 week, 10 ECTS credit course is structured around a shorter project-period of challenging the problem proposed by the company and building the relations among the students necessary to generate innovation and a longer project-period dedicated solving the engineering challenge.

The CDIO (Conceive — Design — Implement — Operate) pedagogical framework has been used to design the project, and the paper will include considerations on design of the course and experiences with SME-collaboration as well as interdisciplinary collaboration between the students.

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