

## **General Course Analysis: ME2096 ICT Innovation Study Project**

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**Author:** Johan Nordensvärd and Anna-Maria Nyquist

### **1. Description of the course evaluation process**

The evaluation process for ME2096 ICT Innovation Study Project at KTH Royal Institute of Technology integrated an anonymous online survey designed for inclusivity and accessibility to capture a wide range of student feedback. Additionally, the process featured structured face-to-face meetings with students to foster direct dialogue about the course design and student experiences.

Complementing these student-focused feedback mechanisms, teachers also conducted their own evaluation, reflecting on their experiences and the overall effectiveness of the course changes. These evaluations helped identify areas where the recent focus on reducing feedback sessions and enhancing lecture content improved student engagement and learning outcomes. Teacher observations also highlighted the need for clearer usage guidelines for AI tools, recognizing this as a recurring theme in both student feedback and their own teaching experiences.

Together, the insights from students and teachers provided a dual perspective that was invaluable for ongoing course development and ensuring alignment with educational goals.

### **2. Description of meetings with students**

Meetings were informal on several occasions during the course to encourage open dialogue among students and instructors.

### **3. Course design**

The course underwent significant revisions with a new focus on marketing challenges for technical innovations. It features a balance of lectures and reduced feedback sessions, enhancing learning engagement, as well as the introduction of flipped classroom pedagogics. The structure aligns with the intended learning outcomes, facilitated by targeted learning activities and assessment methods.

### **4. Students' workload**

The workload was deemed appropriate for a 6-credit course, with students engaged in learning activities that reflect the expected effort level. However, if the students' self assessments in the survey is representative, then maybe the workload is a bit too low, ranging from 3-11 hours per week. We need to monitor this extra next year.

### **5. Students' results on the course**

The majority of students achieved grades between A and C. The distribution is consistent with previous offerings, indicating effective learning and assessment alignment.

## 6. Students' answers to open questions

- Students appreciated the innovative aspects of the course, such as research, seminars, and guest lectures. The challenge and engagement provided by these elements were viewed positively, especially the application to real-world companies and handling real business cases.
- Feedback on the workload varied, with some students feeling it was manageable, while others suggested it was challenging to coordinate group work. The variance in weekly hours worked (ranging from 3-11 hours) points to different engagement levels, possibly influenced by group dynamics and individual commitment.
- Several responses highlighted difficulties in group coordination and a desire for more structured time during class for group activities. Suggestions included mandatory lectures for group work to enhance collaboration and efficiency.
- The effectiveness of peer reviews and flipped-classroom seminars was questioned, with some students feeling that these sessions lacked meaningful interaction and teacher involvement, particularly during online sessions.
- There was a call for clearer guidelines and better organization, especially concerning AI tool usage and general course instructions. Students expressed a need for more structured and proactive guidance from teachers, both in-person and digitally.
- Some students criticized the feedback mechanism, suggesting that feedback generated by large language models (LLMs) was not helpful and that teacher participation in discussions was insufficient. [Note. There was no LLM-based feedback, but some language revisions where Gen-AI could have had a part, and a test to see if we could create more pedagogical descriptions of the human written grading criteria.]
- Concerns were raised about the clarity of assignment instructions and the balance of grading between group and individual assignments. Some students felt that the weighting did not accurately reflect the effort required, suggesting a reassessment of how assignments are structured and evaluated.

## Students' suggestions for improvement

- Enhancements to the course could include more in-presence lectures to reduce the experienced chaos of online sessions and improve the clarity and delivery of course material. However, an alternative could be to clearer describe the purpose of flipped classrooms and that students need to take more responsibility for their own learning. This should be considered before the next course period.
- Increasing the interaction between groups might foster better relationships and accountability within teams, potentially leading to more effective group projects. However, again, students are also expected to function in self-organized teams, it is part of their learning process to work with others.
- Students also recommended more innovative content and clearer guidance on assignments to prevent redundancy and confusion. This is a good suggestion and something that has been improved every year, but apparently still with room for more improvement.

- Students advised future participants to engage deeply with the course materials and not procrastinate, particularly on group projects. Emphasizing a proactive and coordinated approach from the start was seen as key to managing the course's challenges.

## 7. Summary of students' opinions

The analysis shows that while the course is valued for its innovative approach and real-world relevance, there are areas for improvement in terms of organization, clarity in guidelines, and interaction during peer reviews and group work.

## 8. Overall impression

The course was well-received with improvements noted in student engagement and outcomes. The reduction in feedback sessions and enhanced lecture content seems to have had a positive effect, and there was a generally positive atmosphere throughout the course.

## 9. Analysis

While the course did not show significant disparities in experiences across gender or disability, a small number of international students expressed challenges in adapting to course expectations, which could be explored further.

## 10. Prioritized course development

- **Clearer instructions about AI Tool utilization:** Based on feedback, there is a need for more explicit instructions on how AI tools can be integrated into course projects. Providing detailed examples and perhaps workshops could clarify their application, ensuring students utilize these tools effectively.
- **Support for international students:** Enhancing support for international students to help them integrate more effectively into the course culture and expectations could be an improvement.
- **Engagement and course content:** The positive reception of the course's innovative aspects underscores the importance of maintaining and expanding on these elements. Applying theoretical knowledge to real-world cases will continue to be a cornerstone of the course.
- **Workload and group dynamics:** Feedback indicates a need for better coordination and structure in group activities. While it is crucial for students to develop the ability to work independently and in self-organized teams, providing more guided opportunities for collaboration could alleviate some of the coordination challenges.
- **Course guidance and feedback:** The criticism of the feedback mechanism, particularly the use of LLM-generated responses, suggests a need for more direct and meaningful engagement from instructors. Enhancing teacher involvement could improve the quality of feedback and student satisfaction or evaluate how this can be developed. To be noted, there was no LLM-based feedback, but some language revisions where Gen-AI could have had a part, and a test to see if we could create more pedagogical descriptions of the human written grading criteria. This will need some further evaluation before the next course period.

- **Assessment and assignments:** There are indications that assignment instructions need to be more precise and that the grading system may require rebalancing to better reflect the effort involved in different tasks. This will be reviewed.
- **Improvements in course delivery:** While the move towards more in-presence lectures could address some issues with online session chaos, it is also important to better articulate the expectations of flipped classrooms and encourage student responsibility in these settings. This understanding will be emphasized before the next course period.
- **Innovative content and student responsibility:** Continuous improvement in course content and clarity in assignments is necessary. Acknowledging that students must take active roles in their learning, particularly in group settings, is part of their educational journey and will be stressed in future courses.
- **Proactive measures:** Encouraging future participants to engage deeply from the start and not procrastinate on assignments, especially group projects, will be a key message during course introductions.

## **11. Other information**

The introduction of academic writing in the first week has improved the quality and timeliness of student submissions, indicating a successful adjustment to the course curriculum.