Course analysis, Spring 2024
II1305 Project in Information and Communication Technology

Course Data

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Course dates: Wednesday, 2024-03-20 through Friday, 2024-05-31.
Registered students: 79. Examined students: 78 (99%).

General

The course is offered in year 2 for two programs: the Swedish-language Civilingenjörsutbildning i informationsteknik (CINTE), and the English-language Bachelor's Program in Information and Communication Technology (TCOMK). All written material for the course is in English.

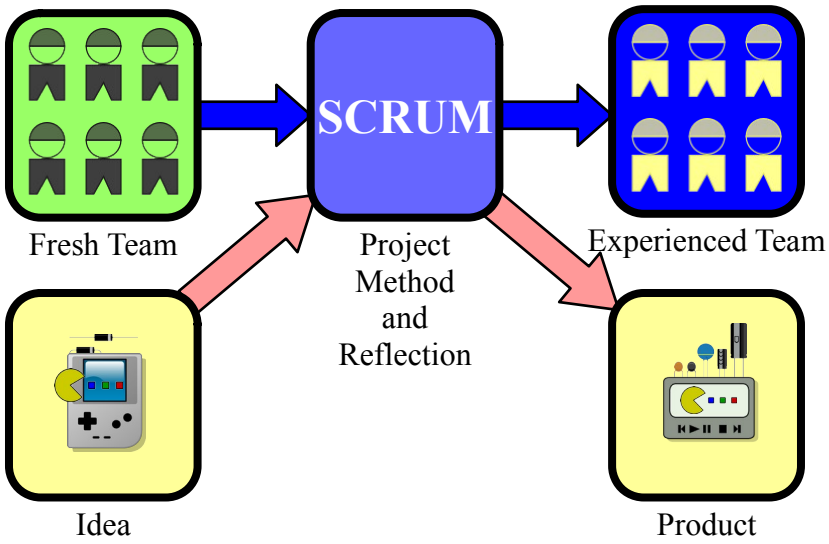

Figure 1. A very simplified outline of the course, in graphical form.

The course teaches project methods and tools. Students form teams of 6-10 persons. Each team conceives, designs, and implements a project with software, hardware, and/or communications technology. The course involves structured reflection, so that students process their experience into knowledge for the future. An outline is shown in Figure 1.

There are three phases in the course: *preparation*, *project weeks*, and *reflection.* Reflection is also a continuous part of the course. In the **preparation phase,** students form teams and read up on methods and tools. The teams also discuss product ideas with the examiner. The preparation phase is shown in a simplified, graphical form in Figure 2.

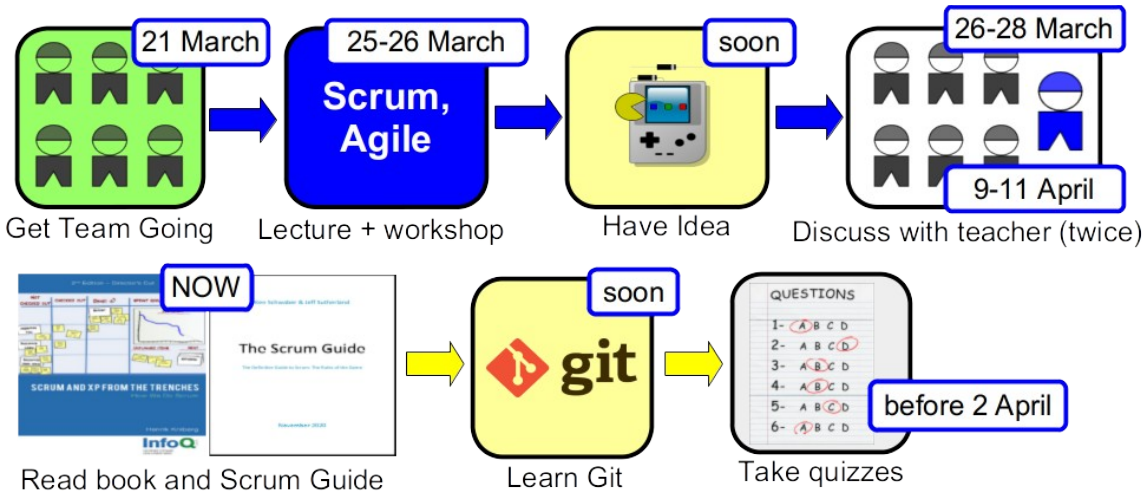

Figure 2. A simplified, graphical representation of the preparation phase of the course.

Teams are formed randomly by the teacher. As part of the preparation phase, all teams must create a so-called *social contract* for the team. The social contract contains rules of conduct for a productive collaboration.

Each team is encouraged to invent a product idea, through brainstorming and other structured creative activities. Project-ideas from external stakeholders are welcome. Some students have contact with external stakeholders, but the examiner has the final word on which project idea should be implemented during the project weeks.

In the **project weeks,** teams work in four so-called *sprints*. Each sprint is one week long, and starts with a session of structured planning. The sprint ends with a demonstration, followed by a session of structured reflection called a *sprint retrospective*.

During the sprints, students work weekdays from 08:00 through 17:00, with a one-hour lunch break. The working hours fulfill two purposes. Firstly, the method works best when the team is seated together, with all team-members in the same room at the same time. Secondly, the working hours simulates actual developers' working-hours.

Each team has a designated workplace in a classroom. Three classrooms are reserved during the project weeks, and 2-4 groups shared a classroom. The passage-control system is set up to allow course-participants access to the booked rooms.

The final phase of the course is the **reflection phase.** Immediately after the project-weeks, all teams show their products to the general public at an expo. Following the expo, there is a week during which each student writes an individual reflection, to be handed in to the examiner.

To summarize, the course lets students perform real development work in a controlled environment. The three phases of preparation, project weeks, and reflection is part of a general pattern. The same pattern is repeated within each single project week: plan and try, demonstrate and then reflect. This pattern can be described as **"plan – try – reflect".** Reflecting on mistakes, and learning from them, is a very powerful learning activity, that is employed throughout the course.

Students' view of the course

The students gave their view of the course mainly through comments in their individual reflections. There was also a learning experience questionnaire, and comments from the expo.

The questionnaire was open from 2024-05-22 to 2024-06-05, and was filled-out by 9 out of 79 students – an answer rate of 11%. One answer to "What was the best aspect of the course?" was:"*The fact that I got to utilize the skills that I have accumulated over the past 2 years, for creating something practical! Really enjoyed it.".*

In response to the question "What would you suggest to improve?", one suggestion discussed sick leave. Quote: *"I would suggest improving how sickness is handled during project weeks. Currently, the policy is too strict, as it requires additional assignments if you are sick for more than one day."*

When writing the **individual reflections,** many students added comments on the course. There were also oral comments during the course. Some comments from the individual reflections:

"This course has been the most enjoyable and enriching experience of my time at KTH. Although it was demanding, the time seemed to fly by, thanks to the camaraderie and teamwork within our group."

"Under mina tre år på KTH har jag läst många tekniska kurser, men det här projektet var första gången jag fick se all denna kunskap omsatt i en verklig produkt. Vi fick möjlighet att tillämpa våra teoretiska kunskaper i praktiken och skapa något konkret. Det var en fantastisk känsla att se alla dessa olika delar falla på plats och bilda en fungerande helhet."

"I do have to admit that this was my favorite course in the entire program [...]"

Not all comments were positive. One of the most negative comments is from the questionnaire:

"Was kind of a painful course having to come to school every day at early morning. Was left feeling unsatisfied and felt like a lot of my time had been wasted."

There were also complaints about the air in some classrooms being stuffy and hot.

The comments from the expo suggested that the expo was too long. Almost all visitors came in person, and the on-line part of the expo should be cancelled in future.

Comments on working from 08:00 through 17:00 were both positive and negative. Some students would prefer a work-from-home option.

Some students would have preferred teacher-guidance at more than one sprint retrospective.

To summarize, almost all students are positive to the course, and feel that they learn a lot during the course. As always, there is some room for improvement.

Analysis by the examiner

II1305 is a mature course, evolved from earlier courses that were originally offered since 2005.

There were no big changes in 2024. From 2025, however, the previous companion course will be cancelled: IV1303 Modern Software Development is not available anymore. This calls for a reorganization, with scheduling changes.