

100 apps to improve learning

At the Norwegian University of Science and Technology (NTNU), students are identifying what problems they face in their everyday lives and solve them by building their own apps.

Software Engineering is a course for second year students in several IT-related study programmes. Around 400 students take the course each year. The main goal of the course is to teach the students to plan, manage and complete a software engineering project.

In the Software Engineering course, students are given clear responsibility for their own process and learning. In the

project, the students create mini-companies with a different role assigned to each student, and they work on both soft skills and hard skills.

In spring 2017, Excited was recently awarded SFU status, and the students were given an assignment in the SFU's spirit: 'How can we revolutionise university education using software?' The students' response to the challenge comprised 100 apps.

FROM IDEA TO LAUNCHED PRODUCT

The problems the students chose to work on can roughly be divided into three categories: solutions for communication between the lecturers and students, tools for personally adapted information and time management, and tools for use during lectures.

The students believe that with a little engineering and innovative thinking, robots and software can, if not revolutionise, then at least help to improve education.

'The good thing about this course was that we had the chance to make all sorts of different things, as well as an opportunity to solve some of the problems we have experienced during our time as students. This motivated us to work harder, and the fact that NTNU might use our idea or product was always at the back of our minds,' says the team behind QueMe.

They made an app Excited found promising enough to hire them in a summer job to complete and release it. NTNU has now started using the app. QueMe solves the problem of unstructured queues of students waiting for the student assistant to help them with assignments.

STEEP LEARNING CURVE

Using the development of a product as a method for learning and assessment

in a subject is called 'Learning through construction' (LtC). Through LtC, the students are thrown into a development project meant to be similar to the projects they will face in their professional lives. What did the students behind QueMe think of this way of learning?

'The course was different from the courses we had taken previously, which was both positive and negative. We were free to more or less choose how much work we wanted to put into the project. This meant that we worked a little too much at times. We had to learn most things ourselves, which of course meant that we really learnt a lot.'

'There was a lot more practical training than theory, which was a different challenge from previous courses. You had to google the answers to everything, which we think is extremely relevant in any job, and which is a very good tool to know how to use. We all agree that the learning outcome from the course was really good, and we strongly recommend it if you want to learn more about software engineering and programming in general.'

EXAM TURNED INTO CONFERENCE

One new aspect of the course this year was that the assessment was exclusively based on the project, poster and documentation. The course concluded with a conference day where the students presented their projects to each other and a jury handed out prizes.

'We think it's important to have varied forms of assessments, and not just the traditional written exam. That is why the course's exam form was changed so that the assessment was fully based on the project, presentation and documentation,' Professor Jaccheri explains.

The students felt that this form of assessment was very inspiring.

'The concluding conference was a fitting way to end to the course, and it was fun to present our project and be able to see and test the things our fellow students had been working on.'



LEARNING THROUGH CONSTRUCTION (LTC)

Using the development of a product as a method for learning and assessment in a subject is called 'Learning through construction' (LtC). The method is used in IT education programmes to stimulate motivation in students through the practical application of theory and knowledge, rather than through studying for an ordinary written exam. This learning method also means that the students develop software engineering skills that are in demand in the labour market. LtC gives the students a chance to follow the process from the idea and design state to implementation, testing and launching. Since the 1970s, IT students at NTNU have been required to do project work as part of their studies, which is a teaching method that requires students to get involved and take responsibility.