# Some Experiences from Organizing a Student Conference

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*Abstract*—This paper describes some pedagogical experiences from a course for 1st year students following the Master program in Information Technology and Communications at Lund Institute of Technology. The main objective of the course "Communication Systems" is to give an overview of the telecommunication area, in particular Internet. In order to inspire the students, the course contains a project that finishes with a student conference. In this paper we describe how the project is conducted. One pedagogical benefit of including this type of project in a course is, for example, that the project encourages the students to learn the basic theory. Also, the students become highly motivated since they believe that the department takes good care of them. However, one problem for the teachers is that not all students are mature enough to have the responsibility of performing a project without continuous control from the teachers.

## I. INTRODUCTION

In 2001, a new Master program in Information Technology and Communication Systems started at Lund Institute of Technology (LTH). One of the first courses for the students at this program is the course Communication Systems, given in the first study period during the first year. One objective with the course is that the students should get a basic knowledge about computer communications, in particular Internet. Another important objective is that the students should get a feeling of what they will work with when they have graduated and thereby become inspired to complete the program.

The course is divided into two parts, one theoretical and one practical. The theoretical part gives the students a basic knowledge about computer communications, and it has a classical written exam. The practical part consists of a project, in which the students work in groups. Each group is focusing on a new or future telecommunication system. Examples from this year's course are GSM, UMTS, Bluetooth, WLAN, etc.

The goal with the project is that the students will become presenters at the "Annual Student Conference on Information and Communication Systems". Before the conference, each group has submitted a short paper about their subject. During the conference, each group gives a presentation about their subject. The conference is organized as any other academic conference, with proceeding, sessions, and invited participants. The proceeding consists of all the submitted papers.

In this paper we describe the course and also discuss the pedagogical benefits of having a student conference in a course. Also, we give some advices to other teachers that are planning to develop a course like this one.

## II. COURSE PLAN

An academic year at LTH is divided into four study periods, each consisting of seven weeks with studies and one week with exams. This course is given during the first study period in the first year. The course is divided into two parts, theory and project, and these parts are kept separate during the course.

The theoretical part is mainly taught during the first four weeks. This part consists of lectures, tutorials, and laboratory sessions. During the theoretical part, the students become familiar with the concepts and protocols in Internet and fixed telephony networks. The students need this knowledge in order to understand their project subjects. The theoretical part has a written exam in the beginning of the exam week.

The project starts in the fourth week. The students are divided into groups, each focusing on a specific subject in telecommunications. None of the subjects have been taught during the theoretical part. However, a student that has passed the theoretical part can learn and understand all the subjects. Each group receives a start material consisting of a number of technical articles about the subject. Also, each group has an advisor that has a deep knowledge about the subject. The advisor, for example a 5th year master student or a PhD student, plays an important role in the project.

During the following four weeks before the exams, the groups work with their subjects. Each group must meet the advisor once a week. The advisor's role is not to teach the subject, only to answer questions and make sure that the group has understood the subject. After two weeks work, the group must submit a one page description of the subject. After four weeks, at the end of study week seven, the group submits a paper consisting of four pages. The paper should teach the subject for the other students. Another group reviews the submitted paper and gives comments. After updating their papers according to the comments, the groups submit their final versions.

The student conference is held during one of the last days of the exam week. Participants are not only the students in the course but also some of the PhD students and teachers at the department. During the conference, each group gives a 15

minutes presentation about their subject. The conference is organized in sessions, sometimes parallel, with coffee breaks and lunch. The submitted papers are printed as proceedings that are available during the conference. All participants must register and are given name badges.

## III. PEDAGOGICAL EXPERIENCES

When we first started to develop this course, we decided that one important objective was to *inspire* the students. Since the course subject contains many new concepts for most of the students, which means that the subject can be very difficult to learn, we thus needed to include a motivating part in the course. Therefore, we came up with the idea of having a project that finishes with a conference. Our belief was that if the students independently were allowed to study a "hot topic" in telecommunications, they would also learn the basics of computer communication, which was the other objective with the course. The course has now been given for two years, and the result has been much better than expected.

First, almost all students passed the written exam directly. We did not want to give a too difficult course the first year. Due to the very good result on the written exam the first year, we added some computer communications theory the second year. But also this year, almost all students passed the exam. We believe that it is not the course that is too easy. Instead the project encourages the students to learn the basic theory, which means that they almost automatically pass the exam.

Second, the presentations at the student conference have been of a much higher quality than first expected. There are several reasons for this. First, the invited PhD students and teachers added to the seriousness of the conference. The students really felt that it was important to give a good presentation. Further, many students of today have experiences from giving presentations during their time in high school. However, what they usually have not learnt in high school is to give presentations with a time constraint. During the conference, the 15 minutes limit had to be kept. This was a problem for many groups, probably because they had not practiced enough.

Third, it is our belief that the students really have become inspired. The students from the first year have now followed an advanced course in computer communications at our department, with very good results. Both courses have received very good ratings on the student feedback forms. The students feel that our department takes care of them and many of them would like to follow more of our courses. When we speak with them, we get the impression that they are very motivated in their studies.

Of course, there have also been some negative experiences. The groups are supposed to carry out the project without continuous control from the teachers. They should meet their advisor once a week, and it is the group that must contact the advisor. However, not all students are mature enough to take this responsibility. Some groups did not contact their advisor, and some students did not come to the meetings. Also, some groups had problems with keeping the deadlines for submission, or ignored the review process. Our belief is that these problems are only due to the fact that the course is given for $1^{st}$ year students, which means that the students are unfamiliar with university studies. The high school studies are obviously more controlled by the teachers, for example with compulsory lectures. When the students returned for the advanced course in the $2^{nd}$ year, we did not experience the same problems.

## IV. SOME ADVICES TO OTHER TEACHERS

This section contains some short advices that we would like to give to those teachers that are planning to develop a course like this one.

First of all, it is very fun to teach a course that allows the students to independently study a chosen subject. The students become very motivated in their studies and this is very satisfying for a teacher.

However, it is important that the students get enough time to work with the project. A project cannot only be "added" to the rest of the course. Instead it must be included as part of the teaching, which means that some other parts of the course may have to be removed. However, since the project helps the learning process, the students will learn the remaining theory much easier.

Also, there is less teaching in this type of course compared to "ordinary" courses, since the students study a large part of the course by themselves. The advisors spent about 5 hours per group including preparation.

Unfortunately, some effort and time was spent on "chasing" those students that did not follow the project rules, even if most groups worked very well by themselves. In order to avoid this behavior, the project must be well planned. By adding deadlines when the groups must present some results, the groups are forced to work during all weeks and not just before the conference. The compulsory meetings with the advisors have the same effect. This is also a way of controlling the groups without explicitly saying so. The teachers can have a continuous dialogue with the advisors, and thereby early find out which groups that do not work as expected.

If the project includes a student conference of some kind, this should be as realistic as possible. One important issue is that all presentations a student listens to should concern different subjects, just as during real academic conferences. A problem arises if there are several groups with the same subject. This year we solved this problem by having parallel sessions. The number of subjects that the students could choose between in the beginning of the project was determined so that it suited the conference.