

IM2661 – Superconductivity and its applications

Course analysis - autumn 2014

Basic information

The course was given in period 2, autumn 2014, and had 7 active students (one registered as CTFYS, four registered as TTFYM and two exchange student). Course responsible was Magnus Andersson. In total, 24 h of teacher time, including lecturing and testing.

Aims

The aim of the course is to give basic knowledge about superconductivity and its applications. To achieve this, the course consists of lectures, where the theory of superconductivity and its relation to superconducting applications are discussed. A special emphasis is made on issues relating the theory with the applications and to give an engineering perspective on the subject.

Pedagogic development

The examination was done as a continuous written exam this year. It consisted of four different parts: i) a group home exercise with problems to be solved, ii) short individual exams on theory, iii) a short individual exam on conceptual understanding and, iv) group essays on superconducting applications (one power application and one electronic application). A minor update of the compendium was done before the course and a short exercise using one methodology to make the evaluation work for the essays.

Quantitative data

7 students were active on the course and all of them participated in the examination. All students passed the examination with the following grades:

A	1 student
B	3 students
C	3 students

Course assessment

After the course, the new LEQ questionnaire was used to get student input on the course. However, only two students answered the questionnaire and that was too little to get a report from KTH Social. Hence, I have not yet received the student answers.

General conclusions

My general conclusion from contact with students during the course is that it is working well. With such a small group working with a specific subject, it is easy to get good contact and have relevant discussions with the students.

Course material

The course material seems relevant for the course, although some more should probably be written on Ginzburg-Landau theory and BCS theory.

Examination

The examination method seems very relevant for this type of course.

Summary for next year's course

When using parts of three of the lectures for examination, there lecturing time was too short for a reasonable discussion of the course material and one lecture will be added next year. At the same time, three of the lectures will essentially become examination occasions. If it is not possible to get access to the results from the student survey, the survey will be done in another way next year.