

# Report - IH2652 - 2023-04-17

Respondents: 1  
Answer Count: 1  
Answer Frequency: 100.00%

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Please note that there is only one respondent to this form: the person that performs the course analysis.

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**Course analysis carried out by (name, e-mail):**

Mattias Hammar, hammar@kth.se

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**DESCRIPTION OF THE COURSE EVALUATION PROCESS**

**Describe the course evaluation process. Describe how all students have been given the possibility to give their opinions on the course. Describe how aspects regarding gender, and disabled students are investigated.**

Primarily through individual discussions with all students after the oral exams, but also through the anonymous questionnaires at the end of the course (answered by eight out of 34 students). There are also good student interactions and discussion during the five laboratory occasions. Since all students (at least the ones taking part in the oral exams) are involved in these discussions, opinions from different gender (50% female), ethnic backgrounds, etc. are picked up.

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**DESCRIPTION OF MEETINGS WITH STUDENTS**

**Describe which meetings that has been arranged with students during the course and after its completion. (The outcomes of these meetings should be reported under 7, below.)**

We don't have a specific course committee for dedicated discussions regarding the course evaluation, since it has proven difficult to find students volunteering for this assignment. However, after the oral exam, we always dedicate some time for discussions with the students regarding their impressions with the course. These discussions are usually very helpful in finding out potential difficulties and problems as well as constructive advises.

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**COURSE DESIGN**

**Briefly describe the course design (learning activities, examinations) and any changes that have been implemented since the last course offering.**

The course is based on eight topical lectures (each corresponding to one or two book chapters from the course literature), one lecture regarding the laboratories, five laboratories (directly corresponding to five of the lectures) with required student reports, and one oral exam. The lectures are given by different experts from the EECS and SCI faculty. The oral exam is based on preparatory questions corresponding to the topical lectures. The course literature is assembled from different book chapters and articles (all freely available to the students), reflecting the broad topic of the course. The course structure was the same as the previous four years, except from the two recent years where the lab activities were somewhat affected by the prevailing Covid situation.

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**THE STUDENTS' WORKLOAD**

**Does the students' workload correspond to the expected level (40 hours/1.5 credits)? If there is a significant deviation from the expected, what can be the reason?**

In the course evaluation, the median of the estimated workload is 12-14 hours per week, which is slightly less than expected for a 7.5-credit course (should approximately correspond to a half-time effort or 20 hours/week). If this work load regards the full time from course start to oral exams, it would correspond to a total workload of around 160 hours, again slightly less than expected for a 7.5-hp course (200 hours). This deviation is slightly surprising since the students also seem to regard it as a demanding course with a lot of lab activities and also theory sections to go through.

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**THE STUDENTS' RESULTS**

**How well have the students succeeded on the course? If there are significant differences compared to previous course offerings, what can be the reason?**

The overall throughput is high (85.7% on the first year exam and re-exam with the result for one oral re-exam pending), and there is a quite even distribution of grades on the A-F scale with no significant variation between the years 2018-2022.

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**STUDENTS' ANSWERS TO OPEN QUESTIONS**

**What does students say in response to the open questions?**

Overall a highly appreciated course, regarding content, learning activities and exam. The laboratory sessions were very much appreciated as reflected by several positive comments.

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**SUMMARY OF STUDENTS' OPINIONS**

**Summarize the outcome of the questionnaire, as well as opinions emerging at meetings with students.**

Well-appreciated course, especially the lab part and the oral exam.

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**OVERALL IMPRESSION**

**Summarize the teachers' overall impressions of the course offering in relation to students' results and their evaluation of the course, as well as in relation to the changes implemented since last course offering.**

There are no major changes implemented since 2018 except minor adjustments, one exception being that we have made use of teaching material developed during the pandemic, e.g., video tutorials for improved lab preparations. The course is demanding in terms of expensive lab equipment (rent per hour) and a multi-headed teaching staff, including different lecturers as well as lab assistants. But this is also a good way of introducing the group to the faculty and also gain some expert (research front) insight around the various characterization techniques.

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**ANALYSIS**

**Is it possible to identify stronger and weaker areas in the learning environment based on the information you have gathered during the evaluation and analysis process? What can the reason for these be? Are there significant difference in experience between:**

- students identifying as female and male?
- international and national students?
- students with or without disabilities?

We have not been able to identify any significant differences in experiences as based on gender or nationality. The nanotechnology program (from which the main part of the students are admitted) is very international (90% for the present class) and also have a high fraction of female students, so the statistical basis per se should be sufficient to pick up on such differences.

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## **PRIORITIZED COURSE DEVELOPMENT**

### **What aspects of the course should be developed primarily? How can these aspects be developed in short and long term?**

There are room for improvements in all parts of the course: the laboratory exercises, the lectures, the literature and the preparatory questions. The sample selections for the labs can be improved for a better demonstration of the complementarity between different techniques. The lectures are quite few considering the broad topics that they cover, and it is important to focus on concepts and underlying principles rather than novelties. The lectures tend to be unnecessarily crowded and more time should be devoted to the basics. The literature vary in quality and can possibly be improved for some topics. Finally, the preparatory questions should be paid some attention. These questions define the reading instructions, but at present they are sometimes too problem oriented. The way forward here will be to initiate a discussion between the different lecturers and lab assistants. Regarding the labs, we will probably need to omit the thermal methods lab given at Albaova due to lack of teachers. While this is unfortunate, and it may also have a positive impact in reducing the stress imposed on the students and we don't anticipate to replace it with a different lab.

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