



Report - SK2770 (HT22) – 2022-10-24

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

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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.

Several modules introducing nanomaterials, their classification, top-down and bottom-up nanotechnology, nanocharacterization tools and applications of nanomaterials are introduced. Four guest lecturers from KTH and four alumni were invited to present about their discipline vs. work/science domain. A few quizzes during the period following the guest lecturers, and a final oral exam was implemented. No changes since HT2021.

THE STUDENT'S 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?

Not too heavy, not too light; 84% of the students answer between 6 and 17 hrs per week. Depending on their background students have experienced different workload in the course.

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?

All the active students completed the course with pass grades (in the range A-E). No significant differences with the previous course offerings.

OVERALL IMPRESSION OF THE LEARNING ENVIRONMENT

What is your overall impression of the learning environment in the polar diagrams, for example in terms of the students' experience of meaningfulness, comprehensibility and manageability? If there are significant differences between different groups of students, what can be the reason?

Students' response are very positive in the polar diagram. Responses in the polar diagram range between 5.4 and 6.4. The students find the course and the info given in the classroom meaningful and comprehensible.

(18 out of 40 active students (45%) responded the questionnaire and their response are used to answer the following part in details)



ANALYSIS OF THE LEARNING ENVIRONMENT

Can you identify some stronger or weaker areas of the learning environment in the polar diagram - or in the response to each statement - respectively? Do they have an explanation?

Students are content about the teaching environment based on their responses given to specific questions. Almost all the respondents (95%) feel that they worked with interesting issues (Q1); a heavy majority (84%) find that the course was challenging in a stimulating way (Q4); All respondents feel the ILOs helped them to improve their learning (Q7); majority (95%) thinks that they were able to learn from concrete examples (Q10); Majority (84%) the respondents feel that understanding the key concepts had higher priority (Q11);); Majority (83%) of the respondents think that the course activities helped them to achieve ILOs effectively (Q12); Majority (78%) finds the feedback mechanism useful (Q15); majority (89%) found the assessment fair and honest (Q16); majority (89%) of the respondents feel that their background was sufficient to follow the course (Q17); that the course activities enabled them (66%) learn in different ways (Q19); and they (94%) were able to learn by collaborating and discussing with others (Q21). Besides, majority of the respondents (94.9%) identify that the support was available whenever they needed (Q22).

ANSWERS TO OPEN QUESTIONS

What emerges in the students' answers to the open questions? Is there any good advice to future course participants that you want to pass on?

The open questions and some of the answers are given below:

What was the best aspect of the course?

- A broad array of topics was discussed during the course. It gave a good introduction to the general topic of nanotechnology and its many subfields.
 - The workload
 - We had multiple professors from different areas come and give an insight of the domain from their point of view.
 - The guest lectures were very insightful
 - The fact that guest lecturers came and talked about their professions and the upcoming classes (required/elective; allowing students to choose, or have some idea on what the courses will be about), while questions coming from this part was less than 15%, which is super fair. Because people had different backgrounds all over, and guest lecturers questions were simple enough (and not much considering the overall grade) that people from different backgrounds could be able to answer. Moreover it brought students a broad vision. Also, there were graduate guests who talked about their companies and working experiences. Another helpful tool for us to create a network and a friendly chatting environment for students to ask questions directly to people working in the relevant fields and the industry. Also, it is good to see a variety of people; from startup companies to corporate companies and academicians.
 - Guest Lectures.
 - Lots of information and insight into the field of Nanotechnology
 - The guest lectures delivered an insight of current research trends in the nanotechnology domain
 - Interdisciplinarity, research perspective, relevant introduction for next courses. Guest lectures were very interesting.
 - The alumni were interesting, it was nice to see what this type of degree can lead to.
 - The feedback and support from the lecturer.
 - The quality of the lectures
 - Multidisciplinary approach
 - Muhammet Toprak is one of the best professors I've encountered. He is always on-time, smiling, fun, not difficult to keep up with, because he has our attention from the beginning; the class is never monotonous. Also something I have noticed; he was able to answer every single question that came up from the students in the class, at the moment. He is a very knowledgeable professor.
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What would you suggest to improve?

- More assignments, and lower weight for the final exam since the exam required memorization of many ideas which can be a lot for a single exam.
- Make the slides more elaborative by putting few sentences because after the course, if we would like to look back and learn about some concept, it is extremely difficult as one doesn't remember all the details taught in the course.
- I really don't know much about the Swedish exam system, but a small midterm exam/quiz or another grade among from the final exam would make me feel less stressed about the overall course and grading system.
- Ensuring guest lecturers provide presentation slides BEFORE the lecture.
- Trying to provide systematic definitions (orally+on presentation) would help in learning and understanding the majorly relevant topics.
- The examination style of a single big exam does not feel fitting for this type of course, it feels more appropriate to have several midterms instead.
- Some field/Lab visit would more interesting
- Change the evaluation scheme and add reports off every lecture to have a more solid knowledge

What advice would you like to give to future participants?

- try to do better
- Note down the concepts in the class during lectures which will be very handy.
- Pay attention to the guest lectures if you want to understand more about nanotech in the industry!
- If you are interested in working with nanoscale materials, or in semiconductor industry overall, you should take this course.
- Recommend coming to lectures in person as opposed to online for greater engagement.
- Take good notes of guest lectures as the discussions sometimes can be more important than the slides themselves. Lots of information, so the more engaged you are with the class the easier to learn everything properly.
- Enjoy the course
- Ask questions, professor and guest lectures can give very interesting point of views, perspective and opinions.
- Attend the lectures, it can be hard to catch up using only the slides.
- To do solid notes regarding the guest lectures
- Need some chemistry and quantum physics knowledge would helpful



PRIORITY COURSE DEVELOPMENT

What aspects of the course should primarily be developed? How could these aspects be developed in the short or long term?

No immediate action is needed. More examples with answers will be provided to the students to practice more on the concepts

OTHER INFORMATION

Is there anything else you would like to add?

Students are generally content with the course, and proposed changes in the way of examining, and the frequency of examination. As the course is rather young, there may be some changes introduced in this aspect in the future rounds. A short lab tour, or field trip, can be introduced.
