TEK/NAT Kursrapport

Kurs	*Kurskod*	*Poäng*	*År*	*Start v.*
Beröringsfria mätmetoder	5FY197	7,50	2022	04

Institution	*Antal registrerade (män/kvinnor)*	*Antal aktiva studenter (deltagit i minst en examinerande del)*
Institutionen för fysik	7 (5/2)	-

Genomströmning (i %) och betygsutfall efter första tillfälle för examination (för varje betyg som satts på kursen ange antal som uppnått detta på formen ???

Genomströmning: 86% Betyg: 4(4) 5(2)

Hur mycket schemalagd lärar-/assistent-ledd tid har studenten tillgång till på kursen?

lectures - 26 KT, computer labs - 8 KT, labs - 4 weeks at 50%, student presentations - 6 KT

Hur är undervisningen upplagd?

Lectures, student presentations, supervision of experimental lab work

För vart och ett av lärmålen (FSR:en) i kursplanen, beskriv kortfattat hur det examineras.

definiera och ingående redogöra för optiska mättekniker för beröringsfria mätningar av läge, avstånd, förflyttning, hastighet, vibrationer, och brytningsindex

on the exam and in the lab assignments

ge en fördjupad förklaring om induktiva, kapacitiva och akustiska mättekniker för beröringsfri materialanalys och mätning av läge, hastighet, vinkel, tjocklek, elektrisk konduktivitet, magnetiskt flöde, vätskeflöde, tryck och temperatur

on the exam and in the lab assignments

självständigt implementera kunskaper om instrumentering, t.ex. för ljuskällor och detektorer, datainsamling och dataanalys.

in the lab assignments

visa förmåga att självständigt planera och med adekvata metoder genomföra experimentella arbetsuppgifter

in the lab assignments

lösa avancerade uppgifter i laboratoriemiljö

in the lab assignments

självständigt konstruera elektroniska system och datainsamlingssystem

in the lab assignments

skriva vetenskapliga rapporter

in the lab assignments

muntligt redovisa resultat av vetenskapligt arbete.

during student presentations

genomföra ett självständigt projektarbete

in the lab assignments

samarbeta med andra personer

in the lab assignments

kritiskt resonera kring och värdera sin egen insats i laborations- och projektarbete

in the lab assignments and during student presentations

på ett korrekt sätt citera andras vetenskapliga arbete

in the lab assignments

uppvisa medvetenhet om etiska aspekter på vetenskapligt arbete som t.ex. ett korrekt förhållningssätt till fusk och plagiat.

in the lab assignments and during student presentations

Beskriv hur betygssättningen på kursen fungerar. (Vilka betyg ges på kursen och hur sker bedömningen, dvs vilka delar betygssätts och hur vägs de samman? Finns det skrivtliga betygskriterier och/eller lärmål (FSR) för de olika betygen?)

Laboratory part (3.5 hp) is graded based on the reports written by students after each assignment and the oral presentation of the last assignment, the maximum number of points is 13, the grade limits are: 5 points for 3; 8 points for 4; and 10 points for 5.
Theoretical part (4 hp) is graded based on a written exam, maximum number of points is 17, the grade limits are: 7 points for 3; 10 points for 4; and 14 points for 5.
Final grade: The maximum number of points in the course is 30 (13 for the laboratory part and 17 for the written exam). The limits for the final grade are: 12 points for 3; 18 points for 4; and 24 points for 5. However, of these at least 5 points must be from the labs and 7 points must be from the written exam.

Samläses denna kurs med andra kurser??

Nej

Om ja, hur många?

Hur stor andel av kursen samläses?

Samläser flera program denna kurs?

Ja

Om ja, hur många?

3

Arbetar studenterna i projektform på kursen?

Ja

Om ja, uppskattad omfattning i poäng på projektdelen:

3.5

Antal projekt som varje student deltog i:

3

Antal studenter i projektgrupp:

2-3

Förväntades studenterna använda en projektmetodik för dokumentation och styrning (tex LIPS)?

Nej

Hur skedde indelning av studenter i projektgrupper?

Kursledning gjorde indelning

Har studenterna uppmanats föra projektdagbok?

Nej

Om ja, Har dagboken utgjort grund för examination?

Kursens samverkan med forskning

Lärare som bedriver forskning (>25% av tjänsten) är aktiva på kursen

Annan samverkansform, nämligen:

Kursens samverkan med näringsliv eller offentlig verksamhet

Ingen samverkan med näringsliv/offentlig verksamhet förekommer på kursen

Annan samverkansform, nämligen

Genomförda förändringar till detta kurstillfälle

Because of the COVID-19 pandemic situation we had to go back to online lectures. We also allowed the students to form the project groups themselves, and the lab supervision was mostly online.

Förändringsförslag från föregående kursrapport

no changes needed

Lärare

Information om inblandade lärare

Kursansvarig

Aleksandra Foltynowicz-Matyba

Antal övrig personal som ej föreläser

4

Antal övriga föreläsare

1

Hur stor del av den schemalagda tiden på kursen undervisas av forskande lärare (dvs lärare med mer än 25% forskning i sin tjänst)?

100%

Hur stor del av den schemalagda tiden på kursen undervisas av lärare verksamma i näringsliv/offentlig verksamhet (dvs lärare med mer än 25% av sin tjänst förlagd till näringsliv/offentlig verksamhet)?

0

Kursvärd.

Totalt antal svarande

9

Sammanställningsdatum

2022-03-17

När genomfördes kursvärderingen?

Före examinationen

För varje lärmål på kursen ange hur stor del av de studerande som uppger att det har behandlats på kursen - ange svaret i procent på formen
har behandlats/har inte behandlats/vet ej

definiera och ingående redogöra för optiska mättekniker för beröringsfria mätningar av läge, avstånd, förflyttning, hastighet, vibrationer, och brytningsindex

89/0/11

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89/0/11

självständigt konstruera elektroniska system och datainsamlingssystem

78/0/22

skriva vetenskapliga rapporter

89/0/11

muntligt redovisa resultat av vetenskapligt arbete.

89/0/11

genomföra ett självständigt projektarbete

56/11/33

samarbeta med andra personer

89/0/11

kritiskt resonera kring och värdera sin egen insats i laborations- och projektarbete

56/11/33

på ett korrekt sätt citera andras vetenskapliga arbete

78/0/22

uppvisa medvetenhet om etiska aspekter på vetenskapligt arbete som t.ex. ett korrekt förhållningssätt till fusk och plagiat.

78/0/22

Sammanf.

Sammanfattning av åsikterna i kursvärderingen - positivt och negativt kring föreläsningar, seminarier, grupparbeten, laborationer, examination etc

The overall quality of the course was rated 4.44/5.
The students spent on average 30 hours per week on the course.
The students gave 4.67/5 on how they were treated during the course.
Comment:
- I would give a 5, since it was online due to Covid one point less.

Lectures:
100% of students had sufficient prior knowledge to follow the lectures.

How has the teaching been?
- good
- Obviously it would have been better not to have it on zoom, but I think it worked well. Aleksandra's lectures were better.
- The teaching has been good. Good with prerecorded lectures and that you could ask questions during actual lecture times.
- Good. The lecture content was interesting. The pace of lectures at the start of course was good. Would only preffer to have them on campus.
- Very good teaching, everyone have been helpful
- Good. Some writing was unclear. This is usually not a problem in live lectures because the lecturer ususally reads what is writen more or less symbol for symbol and in real time. When it is just stated from the start in a document it can be beneficial to read through all symbols and what they stand for. I found that I was writing J instead of I for half the first lecture and had to go back and correct it later. I also found that the images to illustrate the effects of different angles in the triangulation were very similar and the effect wasn't as noticable as I would have liked.

Course literature:
Course literature was rated 4.11/5.
Comments:
- There was no course literature?
- Nice lecture notes but could be good to have a course book to reference to.
- I think the slides covered the whole content of the lecture, but sometimes they were not very clear since it was handwritten.

The availability of information and material was rated 4.89/5.

Examination form:
- OK
- Good.
- Fair and reasonable way to examine this course.
- I think it is nice to have several different froms of evaluation as it tests different abilities and gives people with different interests and strengths all time to shine.
- Since I haven't written the exam yet, i can't say anything about it.
- I think writing the lab reports and presenting one of the experiments is very good to learn how to work scientificly.

Suggestions for improvements:
- All good.
- I believe it is good as it is.
- I am very pleased with the course as a whole, very good thank you! I only have a small suggestion for improvement and that is the handwritten first parts of the course. I had some troubles to read some of it but I appreciated that they are handwritten and in the same times we have both videos and notes so there was no big problem but lost some time interpret the words.
- Over all I think this course has been a lot of fun! In my experience it takes more time than 20 h/week but as I combined it with an evening course it was not that big of a problem for me as my workdays never ended at 17 anyway. I would hesitate to take it at the same time as a more demanding course though. Then again a lot of the time spent in the lab was spent looking for errors and trying to fix them. This was very good for understanding the setup but some things I believe should have been checked before hand.

Laboratory sessions:
100% of students had sufficient prior knowledge to follow the lab sessions.
The availability and function of equipment was rated 4/5.

Comments:
- Some lab equipment did not work, leading to a lot of time wasted on less important things.
- During two of the three labs we had equipment that malfunctioned. The first was a faulty breadboard and then a faulty acquisition card. But overall good equipment.
- We had no real problems with equipment.
- One point less, since we had big problems with setting up the circuit for the triangulation setup. This wasn't due to errors of our side, since the supervisor couldn't find the error and we just tried to build it up several times until it works. In the end we can't explain the error, maybe something in the equipment.

Lab supervision was rated 4.67/5.
Comments:
- Ove was very good at checking in on the labs and making sure everything was working.
- Would be better if it was more on the spot. However i think it has been good considering the circumstances and the avaliability of supervisors was excellent.
- The supervision was dependent from the supervisor. The contact with the supervisors was good. However, it was sometimes difficult to clarify problems and questions about Zoom, especially about the setup, so it was much easier that sometimes the supervisors came to the lab or just drop by there.

Overall opinion about the laboratories was 4.67/5.

Comments:
- Fun, i liked that we got not all the answers. Was fun to do the work independently. The difficulty level felt reasonable. I also think the feedback given on reports where good and helped the learning.
- I think the challenge in the experiments was not the physics but rather to set up the experiment.

Suggestions for improvements:
- Provide better equipment. Make sure nothing is faulty before the labs start so the students don't have to waste time. Also, the report templates were very bad. Not well structured, and some of them contained sections that do not seem relevant,

e.g. magnetic hysteresis. Do not include references and appendices in the page count.
- Make sure that the breadboards in the lab room are working and removing the acquisition card from the acoustic lab.
- It was pity that we had to take help using zoom, but that is very understandable in these times. It was very appreciated from Ove that he came by from time to time or was very fast to appear when help was needed.
- Test all lab equipment before hand. Having to search for errors and try different components is fine but for the static things in the setup that we are not intended to be building ourselves it would be nice to know that those parts at least worked. For example the connection from the optical fibre spool through the side of the box being broken is not something we would have found on our own and not something the next group had to deal with. I would also suggest you exclude the appendix from the page limit for the reports. I feel like the restriction in length had an impact on the quality of my writing and clearity of the overall report. The appendix is also ususally a separate document in larger reports and articles so I think excluding it from the limit would still make for a realistic experience in report writing. And it would not mean extra pages of text to correct either as it is mostly figures and tables.

Lärarnas synpunkter på kursens innehåll och genomförande

We thank the students for all positive feedback.

We are also sorry that the contact with the students was mostly via Zoom, this was forced on us by the pandemic situation.

Before each course edition the supervisors check the functioning of the equipment. However, given the amount of equipment and parts in each project, they might miss some broken items. We are sorry that the students experienced that they lost time because of malfunctioning equipment, and we will continue our effort to fix or replace such parts both before and during the course.

I am surprised by the comment about the report templates being very bad (all of them?) - I believe they serve as good guides to what should and should not be included in the report. I would appreciate more specific feedback on this.

We will keep improving the quality of the lecture notes, gradually moving to typed rather than handwritten notes.

Förslag till nästa kurstillfälle - ange vem som ansvarar för förändringen

How the teaching will be next time will depend on the pandemic situation. Hopefully we will be able to go back to teaching in classroom and in-person lab supervision.
The supervisors will be asked to check carefully the functioning of all equipment.

Bör kursplanen ändras till nästa kurstillfälle - vem ansvarar i så fall för att förändringen görs?

no

Granskn.

Granskare lärare (CAS-identitet)

alafoz03 [Aleksandra Foltynowicz Matyba]

Granskare student (CAS-identitet)

oshe0028 [Oskar Hellström]

Granskare studieadministratör (CAS-identitet)

gaaaln03 [Gabriella Allansson]

Eventuella kommentarer på granskningsprocessen