TEK/NAT Kursrapport

Kurs	Kurskod	Poäng	År	Start v.
Design och tjänsteutveckling för Internet of Things	5EL266	7,50	2019	04

Institution	Antal registrerade (män/kvinnor)	Antal aktiva studenter (deltagit i minst en examinerande del)
Institutionen för tillämpad fysik och elektronik	48 (27/21)	0

Genomströmning (i %) och betygsutfall efter första tillfälle för examination (för varje betyg som satts på kursen ange antal som uppnått detta på formen ???
Genomströmning: 94%   Betyg: 3(14) 4(15) 5(16)

Hur mycket schemalagd lärar-/assistent-ledd tid har studenten tillgång till på kursen?
Around 180hrs for lecture and lab supervision.
In addition, for the student drop-in questions.

Hur är undervisningen upplagd?
Lectures + laboratory tutorials + seminars+project

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

Beskriva olika komponenter i system för Internet of Things,
lecture + lab + seminar

Förklara funktionen för hårdvara och sensorer i Inbyggda system,
lecture + lab

Beskriva och förklara funktionen för olika komponenter i molnbaserade tjänster,
project

Muntligt och skriftligt presentera aktuella trender och teknologier för Big Data Analytics,
lecture + seminar + project

Använda sensorer för insamling av information från omgivningen
lecture + lab + project

Designa och installera en server/klient lösning för kommunikation och delning av data,
lecture + lab + project

Designa interaktioner i områden med multipla sensorer,
lecture + lab + project

Utvärdera och analysera IoT-applikationer från ett användarperspektiv,
seminar

Analysera säkerhetsproblem med avseende på produkten/tjänsten
seminar

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?)
To be approved on the course, it is required:
1. Laboratory part, 4 ECTS: U, G, VG
• G: All lab must be reported as G
• VG: At least 2 VG
2. Theoretical part, 3.5 ECTS: U, G, VG
• G: All seminars and the project must be reported as G
• VG: 2 G seminars + VG project
Final Grade: U, 3, 4, 5
• 3: G + G
• 4: VG + G or VG + G
• 5: VG + VG

Samläses denna kurs med andra kurser??
Nej

Om ja, hur många?

Hur stor andel av kursen samläses?

Samläser flera program denna kurs?
Nej

Om ja, hur många?

Arbetar studenterna i projektform på kursen? Ja
Om ja, uppskattad omfattning i poäng på projektdelen: 2ects
Antal projekt som varje student deltog i: 1
Antal studenter i projektgrupp: 4
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 Ingen samverkan med forskningsverksamhet förekommer 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

Förändringsförslag från föregående kursrapport

Lärare

Information om inblandade lärare
Kursansvarig   Keni Ren
Antal övrig personal som ej föreläser   0
Antal övriga föreläsare   2
Hur stor del av den schemalagda tiden på kursen undervisas av forskande lärare (dvs lärare med mer än 25% forskning i sin tjänst)?   110hr
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 13
Sammanställningsdatum 11 April 2019

När genomfördes kursvärderingen?
Efter genomfört första examinationstillfälle

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

       Beskriva olika komponenter i system för Internet of Things,

       Förklara funktionen för hårdvara och sensorer i Inbyggda system,

       Beskriva och förklara funktionen för olika komponenter i molnbaserade tjänster,

       Muntligt och skriftligt presentera aktuella trender och teknologier för Big Data Analytics,

       Använda sensorer för insamling av information från omgivningen

       Designa och installera en server/klient lösning för kommunikation och delning av data,

       Designa interaktioner i områden med multipla sensorer,

       Utvärdera och analysera IoT-applikationer från ett användarperspektiv,

       Analysera säkerhetsproblem med avseende på produkten/tjänsten

Sammanf.

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

To what extent do you think the course has given you the resource to achieve the expected study results? (1 indicates lowest rating, 5 highest)
Responses
(0) 1 0
(0) 2 0
(0) 3 1 (7.69 %)
(0) 4 4 (30.77 %)
(0) 5 8 (61.54 %)

How many other courses you are taking at the same time of this course?
 Responses
1 or 2 other courses 11 (84.62 %)
3 or 4 other courses 2 (15.38 %)
above 5 other courses 0

How do you assess your own work effort to achieve the goals of the course? (1 indicates lowest rating, 5 highest)
 Responses
(0) 1 0
(0) 2 1 (7.69 %)
(0) 3 1 (7.69 %)
(0) 4 8 (61.54 %)
(0) 5 3 (23.08 %)

To what extent do you think the collaboration among the group members? (1 indicates lowest rating, 5 highest)
 Responses
(0) 1 0
(0) 2 0
(0) 3 3 (23.08 %)
(0) 4 5 (38.46 %)
(0) 5 5 (38.46 %)

How do you think the amount and the content of the lectures?
Good amount and good lectures! Almost a bit too little though but just during a week or two.
I think maybe a few more lectures could be good to introduce some more of the tools we us. At the same time I was very happy with the amount of free time we had to work in the lab.
For me personally, I feel like the lectures didn't really add much value to the overall course because it felt very seperate from the work we did with ESPs and RSPi (which was the bulk of this course after all).
Good! The three lab tasks could have been made with less given information so the time so matched the time we had for it. The tasks was fun and realistic, but the time given for the mission was to long. The lectures was interesting!
De föreläsningar som inte handlade om projekten och seminarier kändes lite onödiga eftersom vi inte har någon tenta i kursen. Eftersom det var en ganska stressig period kändes det viktigare att fokusera på det som krävdes i kursen, alltså att klara av projekten.
Very good and interesting
I think it has been good, enough. And the supervision times have been very helpful.
content of lectures felt a bit useless
The lectures didn't seem so relevant to the laborations.
The lectures were interesting not as exciting as the practical work, maybe more to tie the content in with the specific laborations.

What do you think of the task that the Labs has required you?
 Responses
Too low requirement for both G and VG tasks. 0
Too low requirement for G tasks. 0
Good level of G and VG tasks. 11 (84.62 %)
Good level of G . Fairly high demand for VG tasks. 2 (15.38 %)
Too high demands for VG tasks. 0

How do you like the distribution of time on the 3 labs and the project?
great
Bra tidsdistribuerat
I think it was a good distribution except for the start of the project. We had very much time for doing the shopping list and I think that startup time could be reduced.
Felt good on all three. Great structure and introduction on each new lab.
Get started on the project earlier so all the stuff do not arrive a couple of days before presentation.
I think the time frame was good, but the each labs could have been extended by and extra day or so, because there was a lot of time in the begining of the project where you couldn't do anything at all because the sensors had yet to arrive.
It felt good, the labs felt good for me personally and even though we got stuck on the project there was enough time!
The project had a good distribution of time, but it was to long for the labs (I aimed for G). If I was aiming for VG, it migth had been good as well.
It was good!
It felt good, I don't know how you might improve it.
For me personally, I would have preferred more time for the project, and less for the labs, as media signals also took a lot more time towards the end. The courses combined took way more than 100%, we were at the uni many evenings and weekends working on our projects.

What was good at the course and should be retained?
Lots of help from teachers
The lab structure was great! I would not change a thing there.
The types of assignments were very good, a lot of fun and rewarding to work with.
Fun to get to choose what project to do, yourself.
Yes!
The labs, the teachers, the seminars etc. The sensors and equipment was very good.
The tasks was fun and realistic! Everyting should be retained.
the project should definitely continue in this course
The labs and project were a lot of fun.

Very interesting to do something practical, one of the most fun courses I've had.
The laborations where good. The project was great!
The labs, especially the way each lab progressed the previously lab (from just using one sensor to using node red and the raspberry pi more), that felt really good to do. The project and the presentations were really fun aswell!
Labbarna och projekten
yes

What do you think should be changed to make the course better?
Be more specific of what you want for the project and writing assignments. For instance some groups came really prepared for the presentation of the project while other seemed to wing it.
Vissa föreläsningar som handlade om etik inom iot kändes inte så viktiga
Perhaps reconsider nodered.
More supervision time, it is not enough for the supervisors to only be in the room 2h a day, especially when so many of the students are new to the programming environment.
Maybe make the teachers more available during the project. Orders for sensors should be made earlier so there isn't a gap where there is difficult to get anything done.
A big focus was on the labs and the project (was a good thing) which made some lectures not as interesting to attend, not sure how to change that because I would still give the labs the same amount of time. Maybe make some lectures even more involving for the students such as coming up with IoT devices / project there as well.
I loved the course so I actually have no thoughts on that matter.
Make the course more effective and more examples for the final project and some restrictions for what gives you G or VG at that project.
The VG tasks should be changed. Because I wanted to do them, but didn't have time to make the first one and then the second and third ones were extensions of the previous VG-tasks. So if you missed one, you essentially had to complete 2 VG-tasks at once in order to complete it. Because of that I didn't have the time to complete any VG tasks on time.
I think that the seminars were good, but unnecessary to hand in a summary, because it didn't give as much. It's enough to discuss the subject a the seminar, I think.
Less time for the labs, more time for the project.
Hand in shopping list earlier. we got our last sensor when we had 2 working days left until demo day, not ideal.

Do you have any other comments?
Great course and great teachers!
You should give the students a heads up that Sparkfun microchips may not work with ESPs since they are built for Arduino. This caused a lot of problems for my group during the project.
A great and fun course!
Best course ever! I really enjoyed it, and I think it's well thought through! I feel like I learned a lot.
Great course!
Great course!
My favourite course so far! I learnt a lot and was very inspired.
Bästa kursen hittils under min utbildning!

Lärarnas synpunkter på kursens innehåll och genomförande

Great course, fun to teach and supervise.
A lot of hours developing the course since it was new.
Interaction lecture should move to later the course. So the student can think more during the project period.
Select "product list" instead of creating a shopping list.
More cloud service content should be added into lecture and Lab3.

Förslag till nästa kurstillfälle - ange vem som ansvarar för förändringen

Interaction lecture moves to later the course. (course coordinator)
Select "product list" instead of creating a shopping list. (course coordinator)
Add cloud service into lecture and Lab3. (teacher responsible for Lab3)
Seminar 2 narrow down the topic. (the teacher responsible)
Add material for Node-RED, add in the lecture. (the teacher responsible)
Detail about project report requirement. (course coordinator)

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

Granskn.

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Eventuella kommentarer på granskningsprocessen