



## Kursanalys - KTH<sup>1</sup>

Formulär för kursansvarig.

Kursanalysen utförs under kursens gång.

Nomenklatur: F – föreläsning, Ö – övning, R – räknestuga, L – laboration, S – seminarium)

### KURSDATA Obligatorisk del <sup>2</sup>

<b>Kursens namn</b>	<b>Kursnummer</b>
Laser scanning technology	AH2915
<b>Kurspoäng och poäng fördelat på exam-former</b>	<b>När kursen genomfördes</b>
LAB2: 2.0 hp	HT16, P1
PRO2: 3.0 hp	
TEN1: 2.5 hp	
<b>Kursansvarig och övriga lärare</b>	<b>Undervisningstimmar, fördelat på F, Ö, R, L, S</b>
Milan Horemuz	

Antal registrerade studenter 16

Prestationsgrad efter 1:a examenstillfället, i %

Examinationsgrad efter 1:a examenstillfället, i %

### MÅL

Ange övergripande målen för kursen

Describe the principle of terrestrial and airborne laser scanning

Know how and where to use the LS technology

Plan and perform a terrestrial laser scanning project

Plan airborne LS project

Register point clouds taken from different stations

Georeference the point clouds

Segment and classify the point cloud

Fit geometrical primitives to point cloud

Create digital terrain model from LS data

Create animated flythrough of the model

Publish the model on Google Earth

Ange hur kursen är utformad för att uppfylla målen

Lectures, laboratory works, project, study visit

### Eventuellt deltagande i länkmöte före kursstart

Synpunkter från detta

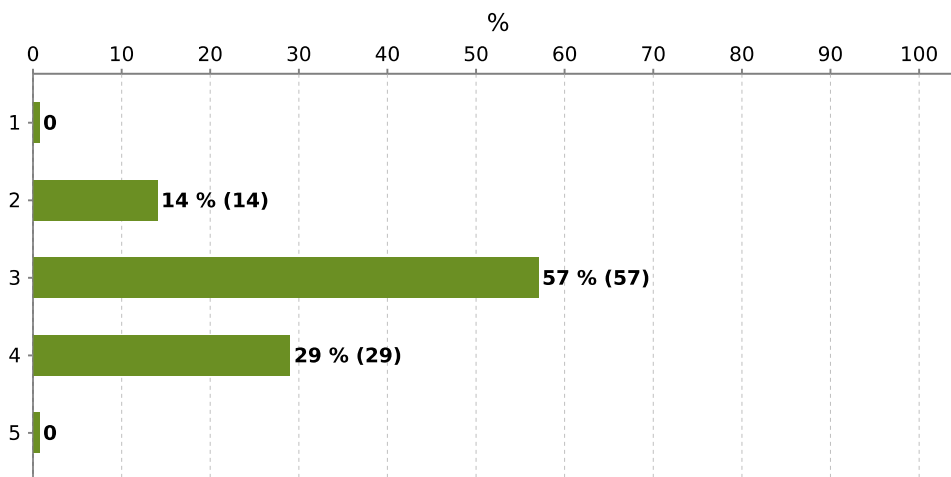
<sup>1</sup> Instruktioner till kursanalysformulär sist i dokumentet

<sup>2</sup> Rektors beslut: <http://www.kth.se/info/kth-handboken/II/12/1.html>

## Survey results

<b>Survey</b>	Course evaluation
<b>Event</b>	AH2915 Laser Scanning Technologies
<b>Status</b>	open
<b>Date</b>	2017-03-13 19:52
<b>Group</b>	Participants
<b>Answered by</b>	7(16) (43%)

How is your background knowledge related to this course ?



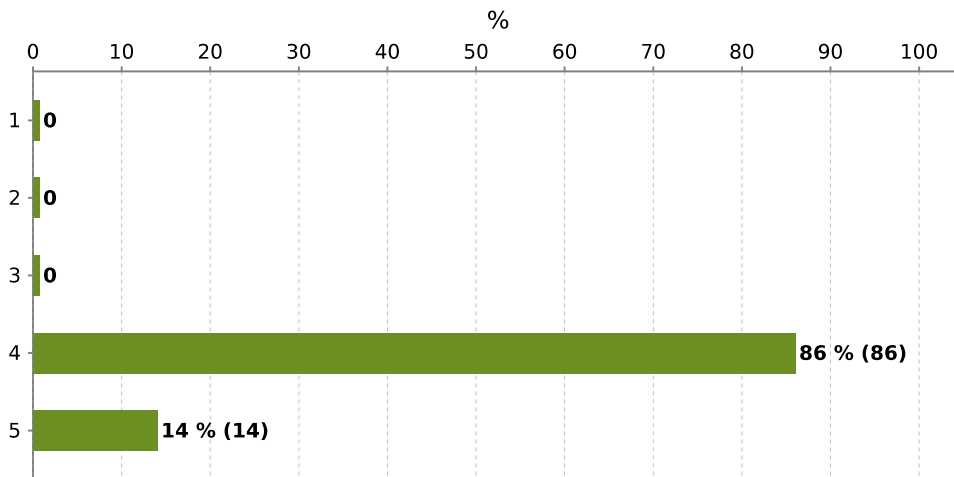
Answer choice	1	2	3	4	5
<b>Distribution</b>	0%	14,3%	57,1%	28,6%	0%
<b>Number</b>	0	1	4	2	0

**Average** (for numeric answers): 3,14

7 have answered of 16 (43%)

Maximum number of choices: 1

What do you think of the content of the lectures?



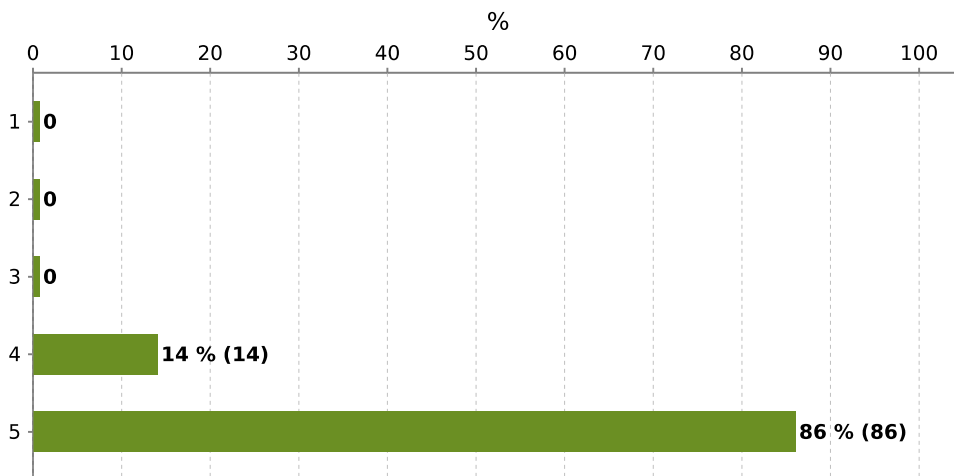
Answer choice	1	2	3	4	5
Distribution	0%	0%	0%	85,7%	14,3%
Number	0	0	0	6	1

**Average** (for numeric answers): 4,14

7 have answered of 16 (43%)

Maximum number of choices: 1

What do you think of the lecturers' academical competence?



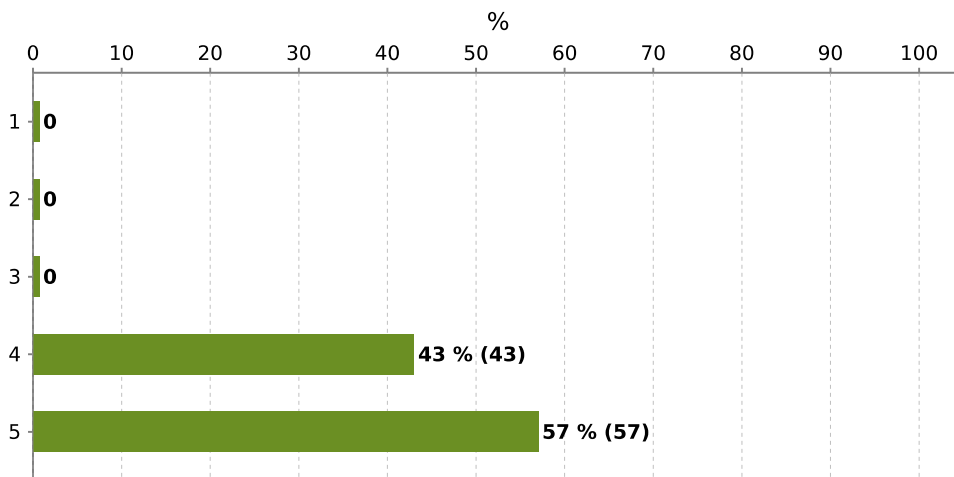
Answer choice	1	2	3	4	5
Distribution	0%	0%	0%	14,3%	85,7%
Number	0	0	0	1	6

**Average** (for numeric answers): 4,86

7 have answered of 16 (43%)

Maximum number of choices: 1

Did the lecturers succeed in transferring new knowledge to the students?



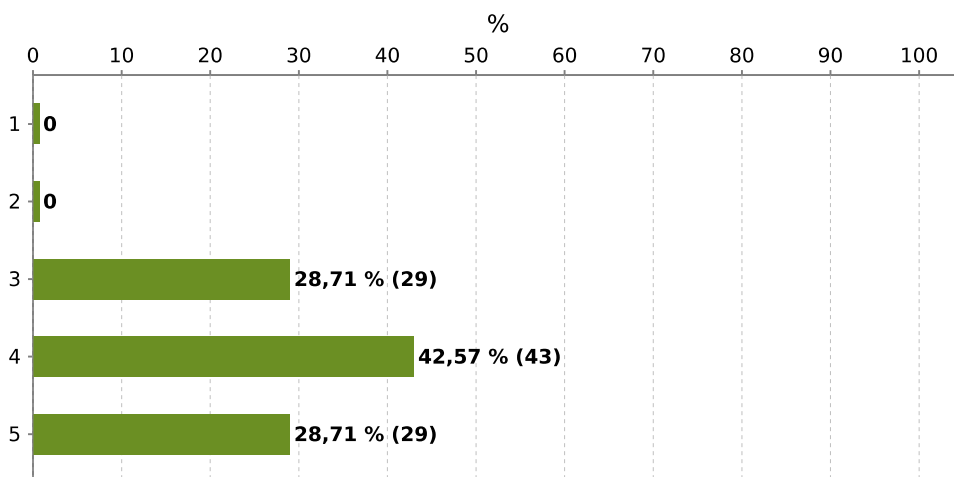
Answer choice	1	2	3	4	5
Distribution	0%	0%	0%	42,9%	57,1%
Number	0	0	0	3	4

**Average** (for numeric answers): 4,57

7 have answered of 16 (43%)

Maximum number of choices: 1

Did the lectures increase your interests in the subjects?



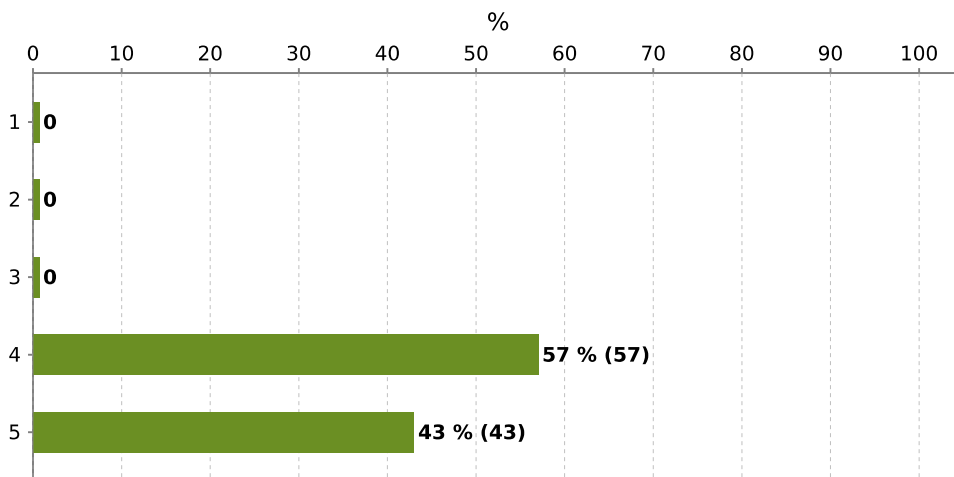
Answer choice	1	2	3	4	5
Distribution	0%	0%	28,6%	42,9%	28,6%
Number	0	0	2	3	2

**Average** (for numeric answers): 4

7 have answered of 16 (43%)

Maximum number of choices: 1

How is the content of the exercises?



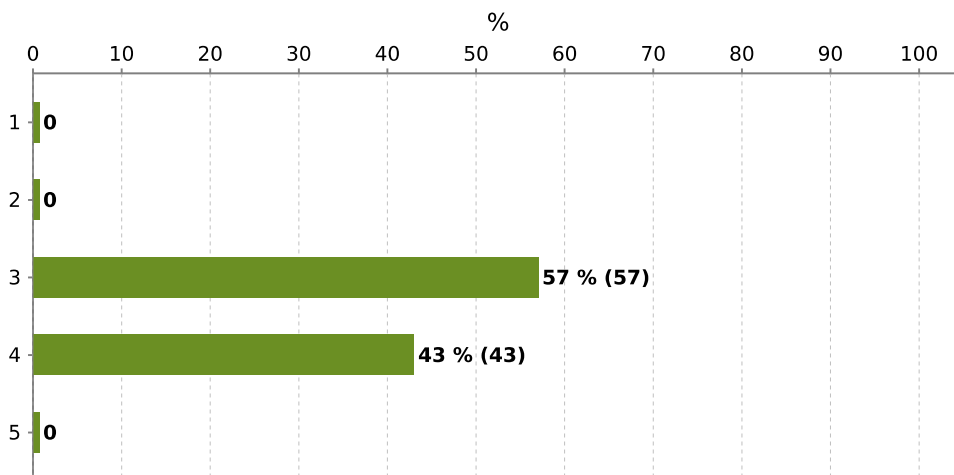
Answer choice	1	2	3	4	5
Distribution	0%	0%	0%	57,1%	42,9%
Number	0	0	0	4	3

Average (for numeric answers): 4,43

7 have answered of 16 (43%)

Maximum number of choices: 1

Are exercise problems too difficult? (1=very easy; 5=very difficult)



Answer choice	1	2	3	4	5
Distribution	0%	0%	57,1%	42,9%	0%
Number	0	0	4	3	0

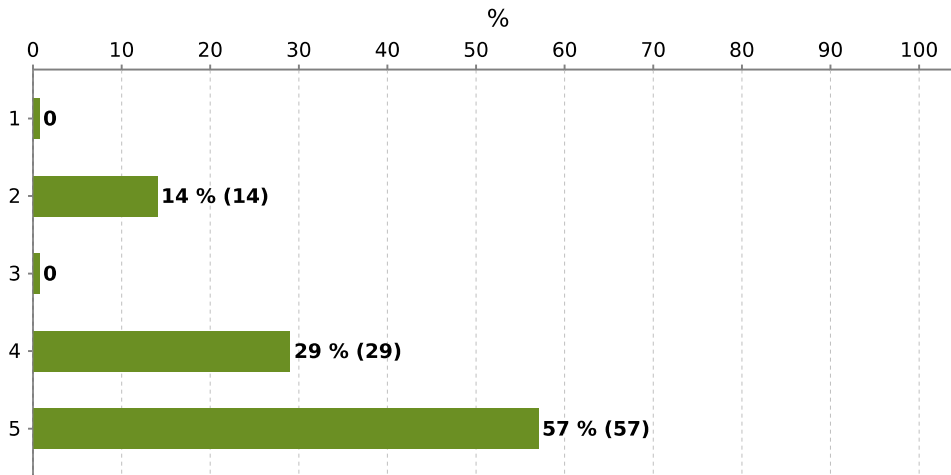
**Number**                    0                    0                    4                    3                    0

**Average** (for numeric answers): 3,43

7 have answered of 16 (43%)

Maximum number of choices: 1

Is the lab facility satisfactory for performing the exercises?



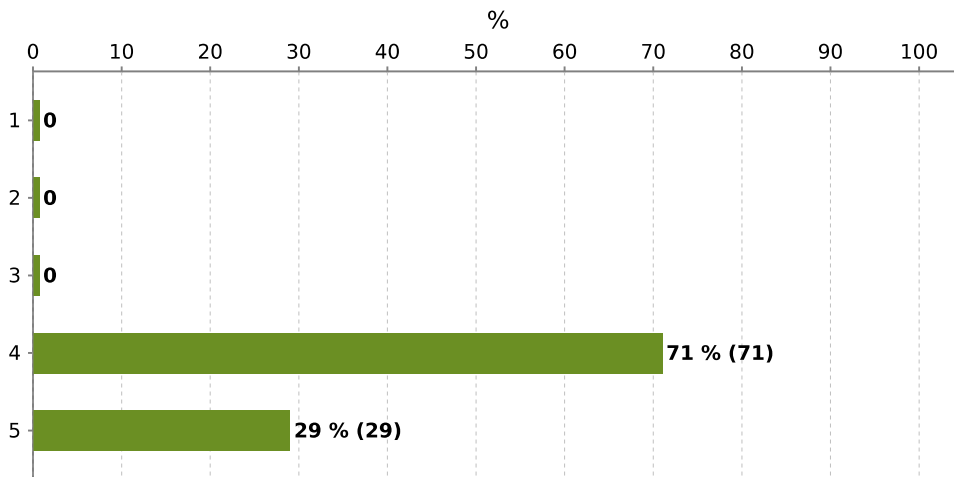
Answer choice	1	2	3	4	5
<b>Distribution</b>	0%	14,3%	0%	28,6%	57,1%
<b>Number</b>	0	1	0	2	4

**Average** (for numeric answers): 4,29

7 have answered of 16 (43%)

Maximum number of choices: 1

Is the course literature sufficient?



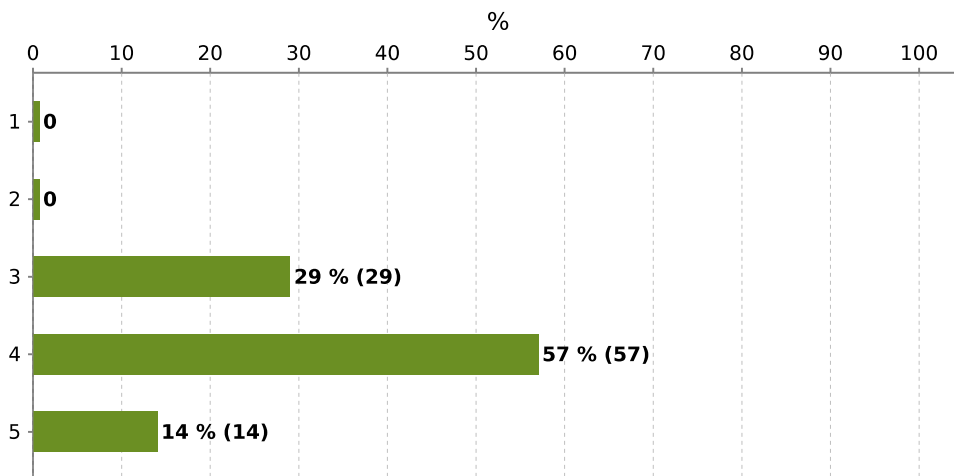
Answer choice	1	2	3	4	5
Distribution	0%	0%	0%	71,4%	28,6%
Number	0	0	0	5	2

**Average** (for numeric answers): 4,29

7 have answered of 16 (43%)

Maximum number of choices: 1

Is the literature adapted to your knowledge level?



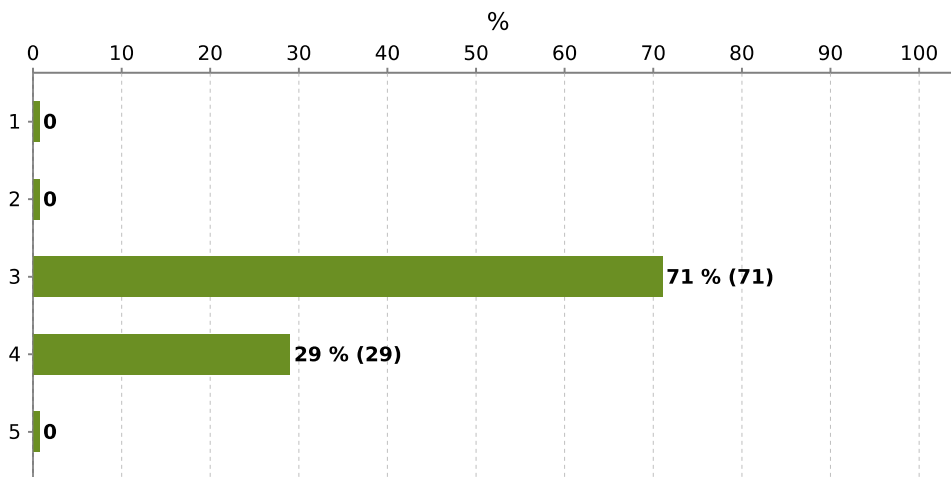
Answer choice	1	2	3	4	5
Distribution	0%	0%	28,6%	57,1%	14,3%
Number	0	0	2	4	1

**Average** (for numeric answers): 3,86

7 have answered of 16 (43%)

Maximum number of choices: 1

Is the literature easy to understand?



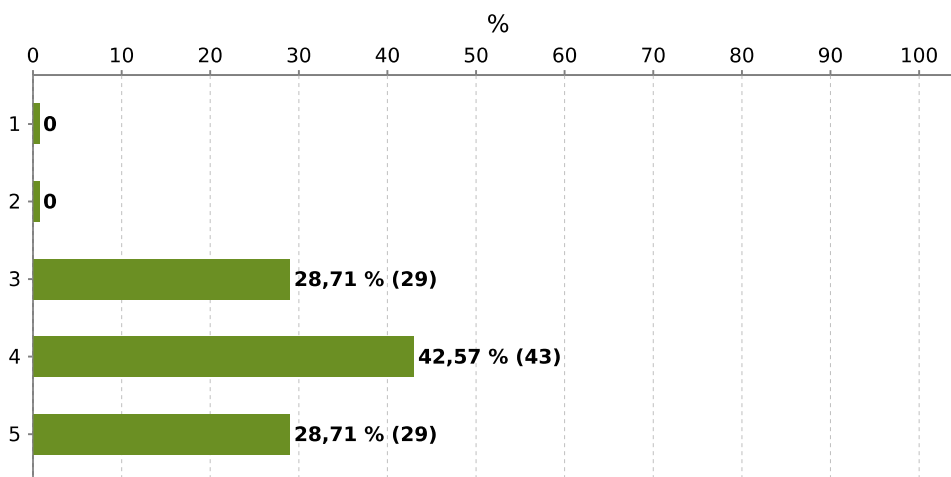
Answer choice	1	2	3	4	5
Distribution	0%	0%	71,4%	28,6%	0%
Number	0	0	5	2	0

**Average** (for numeric answers): 3,29

7 have answered of 16 (43%)

Maximum number of choices: 1

How are the written instructions for exercise problems/lab work?



Answer choice	1	2	3	4	5
Distribution	0%	0%	28,6%	42,9%	28,6%
Number	0	0	2	3	2

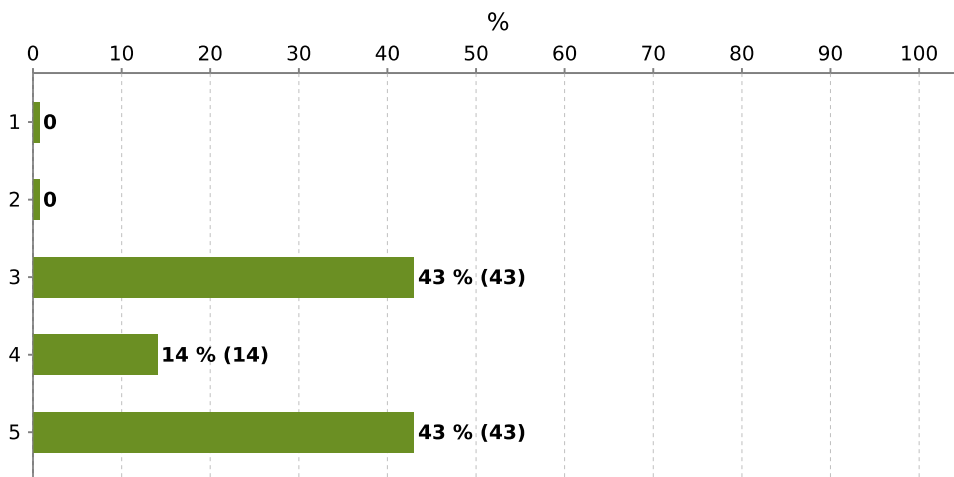
**Average** (for numeric answers): 4



7 have answered of 16 (43%)

Maximum number of choices: 1

Are the home assignment questions easy to understand? (1=very easy; 5=very difficult)



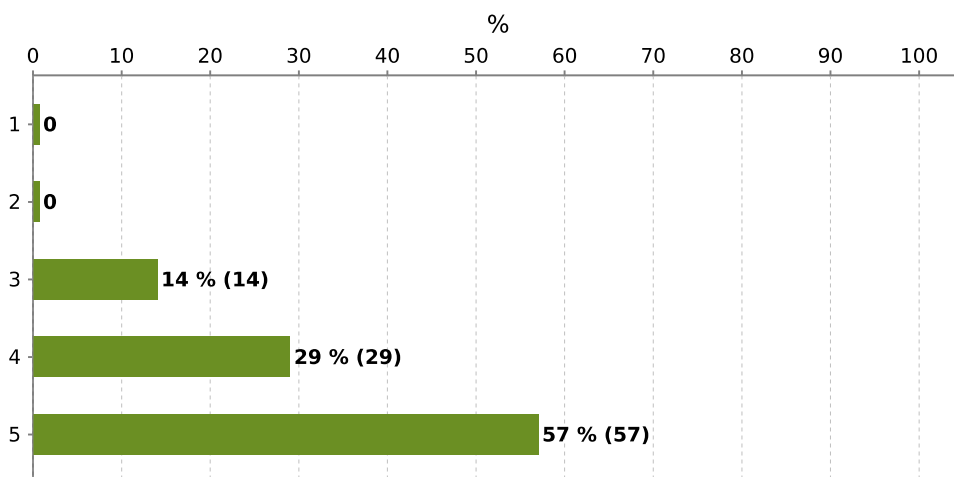
Answer choice	1	2	3	4	5
Distribution	0%	0%	42,9%	14,3%	42,9%
Number	0	0	3	1	3

Average (for numeric answers): 4

7 have answered of 16 (43%)

Maximum number of choices: 1

Did the home assignment questions reflect the content of the course?



Answer choice	1	2	3	4	5
Distribution	0%	0%	14,3%	28,6%	57,1%
Number	0	0	3	1	3

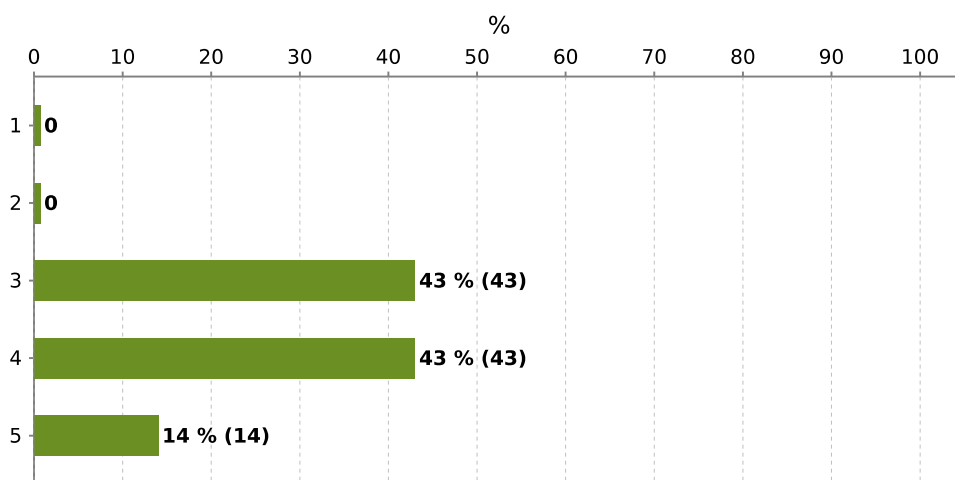
**Number**                    0                    0                    1                    2                    4

**Average** (for numeric answers): 4,43

7 have answered of 16 (43%)

Maximum number of choices: 1

Are the home assignment problems too difficult? (1=very easy; 5=very difficult)



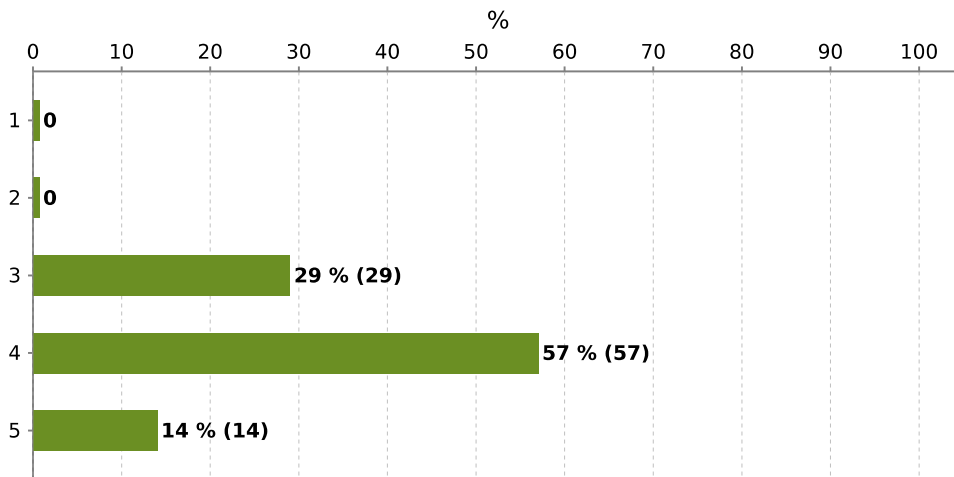
Answer choice	1	2	3	4	5
<b>Distribution</b>	0%	0%	42,9%	42,9%	14,3%
<b>Number</b>	0	0	3	3	1

**Average** (for numeric answers): 3,71

7 have answered of 16 (43%)

Maximum number of choices: 1

What is your opinion on the lectures?



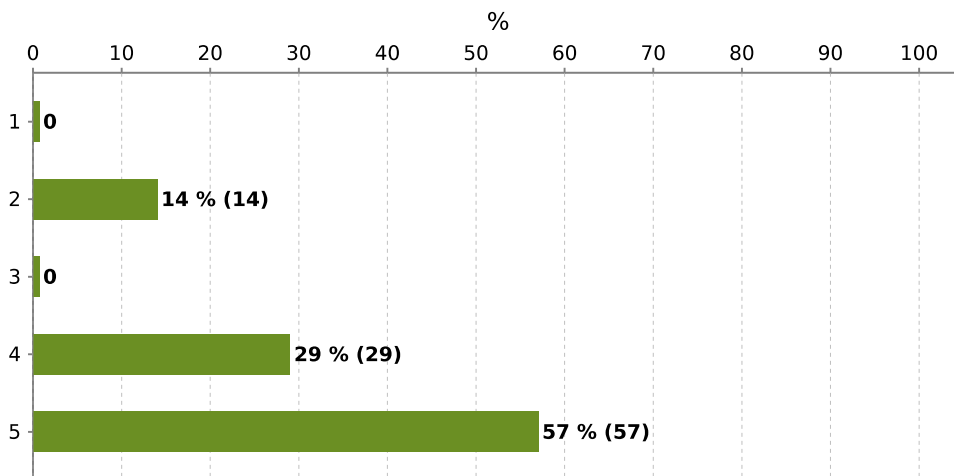
Answer choice	1	2	3	4	5
Distribution	0%	0%	28,6%	57,1%	14,3%
Number	0	0	2	4	1

**Average** (for numeric answers): 3,86

7 have answered of 16 (43%)

Maximum number of choices: 1

What is your opinion on the exercises/labs?



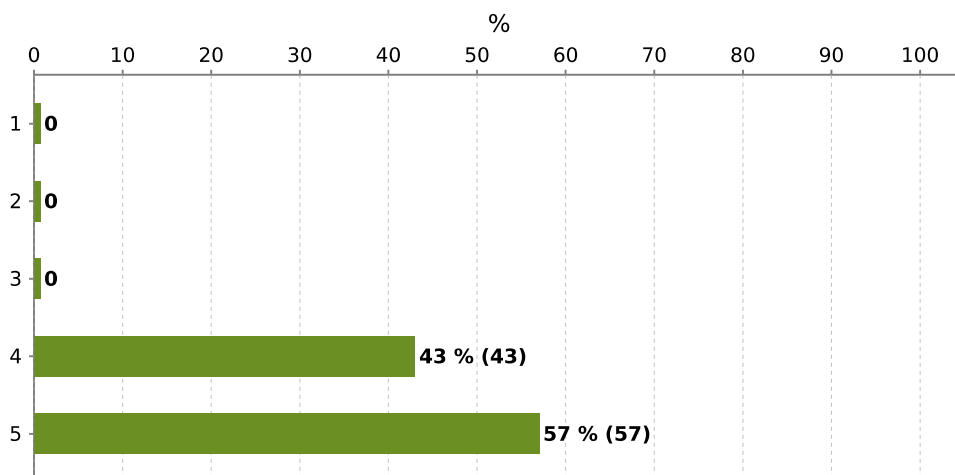
Answer choice	1	2	3	4	5
Distribution	0%	14,3%	0%	28,6%	57,1%
Number	0	1	0	2	4

**Average** (for numeric answers): 4,29

7 have answered of 16 (43%)

Maximum number of choices: 1

What is your overall grade for the course as a whole?



Answer choice	1	2	3	4	5
Distribution	0%	0%	0%	42,9%	57,1%
Number	0	0	0	3	4

**Average** (for numeric answers): 4,57

7 have answered of 16 (43%)

Maximum number of choices: 1

What in this course is good?

**Text answers:**

The project and the home assignment

Project, getting to plan measurements and perform the work

The idea of having the home assignment since the beginning although I did not have time to look very deep into it until very late. And the oral exam is also a good idea since it only is about some theoretical topics.

The study visit and the lab are good for us to understand more about the topic of the lecture.

The field work is interesting.

Exposure to Matlab as I did not use Matlab before in my home university.

Field exercise using the laser scanning instruments was an eye-opener.

The lab exercises were satisfactory in level of difficulty. It was good that you try different labs, i.e. matlab, cyclone, practical scanning, etc.

A good way of examination: oral exam and home assignment, effectively challenged you on the course topics.

7 have answered of 16 (43%)

What in this course **is not** good and should be changed/improved next year?

**Text answers:**

The DEM part of the project was a bit out of place and it was difficult to include it in a good way due to the long time between that lab and the writing of the project report. During the lab, the DEM part of the project was unclear and it was hard to go back and redo parts of it to fit within the project.

For some of the labs the scheduled time for them was too short so that we had to work on other times, it would be good to have another time scheduled for some of them. Also, the fountain model that we did could become a lab instead of being part of the project, as it became very long in the end.

I think the home assignment is difficult . Maybe for the next year, it could be a little bit easier.

The home assignments are difficult and does not have many hints.

I would prefer to have slightly more guidance in the home assignments.

The project's three parts are somewhat unintuitive. Since the parts are so distant from each other, it seems a bit weird that you have a project for all of them with a single report. I understand that you want to grade the report, and therefore wants them in the project though.

6 have answered of 16 (37%)

Other suggestions for improving the course in the future

**Text answers:**

Make the DEM lab separate from the project.

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Maybe providing more material of the lecture.

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nil

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3 have answered of 16 (18%)

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## Kursens pedagogiska utveckling I

Beskriv de förändringar som gjorts sedan förra kursomgången. (Berätta även för studenterna vid kursstart)

A new lab was added. The assignment is to process laser scanning data using software LASTOOLS.

## Kontakt med studenterna under kursens gång

Studenter i årets kurs-nämnd:

Namn

E-post (lämnas blank vid webbpublicering)

Resultat av formativ mittkursenkät

Resultat av kursmöten

## Kontakt med övriga lärare under kursens gång

Kommentarer

## Kursenkät; teknologernas synpunkter Obligatorisk del <sup>3</sup>

### Att komma ihåg:

- 1) Uppmana, mha kursnämnden, till ifyllande av kursenkät i anslutning till / just efter slutexaminationen
- 2) Delge kursnämnden enkäten
- 3) Publicera enkäten under en kortare tid

**Period, då enkäten var aktiv** 2016-10-31 to 2016-11-15

**Frågor, som adderades till standardfrågorna**

**Svarsfrekvens** 7 of 16

**Förändringar sedan förra genomförandet**

**Helhetsintryck**

**Relevanta webb-länkar**

## Kursansvarigs tolkning av enkät

**Positiva synpunkter** Field exercise using the laser scanning instruments was an eye-opener  
The lab exercises were satisfactory in level of difficulty. It was good that you try different labs, i.e. matlab, cyclone, practical scanning, etc  
good way of examination: oral exam and home assignment, effectively challenged you on the course topics

**Negativa synpunkter** The DEM part of the project was a bit out of place and it was difficult to include it in a good way due to the long time between that lab and the writing of the project report. During the lab, the DEM part of the project was unclear and it was hard to go back and redo parts of it to fit within the project  
The project's three parts are somewhat unintuitive. Since the parts are so distant from each other, it seems a bit weird that you have a project for all of them with a single report. I understand that you want to grade the report, and therefore wants them in the project though

<sup>3</sup> Rektors beslut: <http://www.kth.se/info/kth-handboken/II/12/1.html>

<b>Var kursen relevant i förhållande till kursmålen?</b>	Yes
<b>Syn på förkunskaperna</b>	Most of the students had sufficient prior knowledge
<b>Syn på undervisningsformen</b>	Lectures, labs and project is a suitable form for this course
<b>Syn på kurslitt/kursmaterial</b>	Some topics are covered just by lecture slides, more relevant articles/books should be added
<b>Syn på examinationen</b>	Oral examination is a suitable form of examination for this course
<b>Speciellt intressanta kommentarer</b>	
Synpunkter från övriga lärare efter avslutad kurs	
Vad fungerade bra	
Vad fungerade mindre bra	
Resultat av kursnämndsmöte efter examination	
<b>Studenternas sammanfattn.</b>	
<b>Förslag till förändringar</b>	
<b>Länk till kursnämndsprot.</b>	
Kursansvarigs sammanfattande berättelse	
<b>Helhetsintryck</b>	
<b>Positiva synpunkter</b>	
<b>Negativa synpunkter</b>	
<b>Syn på förkunskaperna</b>	
<b>Syn på undervisningsformen</b>	
<b>Syn på kurslitt/kursmaterial</b>	
<b>Syn på examinationen</b>	
Kursens pedagogiska utveckling II Obligatorisk del <sup>4</sup>	
<b>Hur förändringarna till denna kursomgång fungerade</b>	
<b>Förändringar som bör göras inför nästa kursomgång</b>	- new moment will be added- determination of point cloud by drone
Övrigt	
<b>Kommentarer</b>	

<sup>4</sup> Rektors beslut: <http://www.kth.se/info/kth-handboken/II/12/1.html>



### **Instruktioner till kursanalysformulär**

- 1) Kursanalysformuläret fylls i interaktivt; fälten expanderar automatiskt.
- 2) Fyll i fälten inom en månad efter kursens slut. (Viktigt krav från KTH!)  
Skicka sedan till studierektor (som vidarebefordrar till prefekt och programansvarig).
- 3) Försök att ge så kompletta uppgifter som möjligt.  
Tänk på att kursanalysen är ett hjälpmedel inte bara för teknologerna, utan även för Dig som lärare.
- 4) Med ”prestationsgrad” avses antalet presterade poäng hittills på kursen (inlämningsuppgifter, projektuppgifter, laborationer etc.) dividerat med antalet möjliga poäng för de registrerade studenterna. Med ”examinationsgrad” avses antalet studenter av de registrerade, som klarat samtliga kurskrav.  
Kurssekreteraren hjälper gärna till här.
- 5) Kontakten med studenterna:
  - Etablera kursnämnd under kursens första vecka (minst två studerande, gärna genusbalanserad).
  - Lämplig bonus till kursnämndsdeltagarna är fri kurslitteratur.
  - Om kursnämnd ej kan etableras, skall sektionens studienämndsordförande (SNO) kontaktas genast (se [www.ths.kth.se/utbildning/utbildningsradet.html](http://www.ths.kth.se/utbildning/utbildningsradet.html) för kontaktuppgifter).
  - Kursnämnden skall sammanträda under kursens gång, exempelvis i halvtid. Har mittkursutvärdering genomförts, skall den diskuteras då.
  - Kursnämnden skall även ha ett möte efter det att studenterna har besvarat kursutvärderingen och kursnämndens studenter fått tillgång till resultaten. Undantaget är kurser i period fyra, där mötet bör ske direkt efter examinationen är avslutad för att analysen skall vara klar innan sommaren.
  - Under det avslutande kursnämndsmötet bör studenterna föra protokoll. Detta protokoll skall kursansvarig få senast en vecka efter mötet.
  - Det är kursansvarigs ansvar att kalla till kursnämndsmöten.

### **Slutligen, tänk på:**

- det är viktigt att kursanalysen tydligt *visar utvecklingen av kursens kvalitet* från ett läsår till nästa.
- möjligheten att lägga ut kursanalysen på kurshemsidan.
- spara kursanalysen till förberedelsearbetet inför nästa kursomgång.