

# Report - AF2602 - 2023-07-10

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.

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

frejoha@kth.se

## 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.**

Two student representatives were elected at the first lecture; this year one were male and one female. Students comments were collected through a questionnaire at the end of the course. The result was discussed with the student representatives at a course evaluation meeting. Gender aspects and answers relevant for disabilities was covered in the KTH LEQ result sorting and commented on in the meeting. An extra question had been added to consider gender aspects specifically.

## 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.)**

A meeting with the two student representatives was arranged after the questionnaire results were available. Examiner and course responsible represented the teachers. The outcome of the questionnaire was discussed and a list of action points for upcoming years was prepared.

## COURSE DESIGN

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

The course consists of morning lectures and afternoon workshops revolving around one key concept in rock mechanics per day. The workshops constitute the main learning activity for the students, as this is when they practice using the theoretical material from the lectures. 3 group reports and 1 quiz are handed in and graded. The course ends with a written exam. The lectures were this year all given in classrooms together with the workshops.

## THE STUDENTS' WORKLOAD

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

The workload is believed suitable (15-26 hours per week reported by the students).

## 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?**

Student results are believed to be comparable to previous years.

## STUDENTS' ANSWERS TO OPEN QUESTIONS

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

See appended questionnaire.

## SUMMARY OF STUDENTS' OPINIONS

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

The students really liked the site visit at the tunnel being built under Södermalm for the new subway. Quiz and reports were good. Overall a well structured course where you know what to expect.

Some more specific questions discussed during the meeting were:

- Only 6 out of 16 students did the LEQ-questionnaire. One possibility would be to implement a follow-up moment to go through the exam, and at that moment also ask the students to take the questionnaire.
- The students would like to have more problems to practice before the exam. One possibility would be to prepare a booklet with old exam problems.
- Some students experienced that the instructions for the quiz was a little unclear.
- Opinions on the length of the exam was also discussed. In general, the experience was that the exam contains too many questions with respect to available time. Perhaps could the exam be shortened or some of the problems be done more simple.
- The course contains a lot of lecture notes and excerpts from different papers. It would be good if the most important aspects on the ppt-slides were marked, so the reading could be done more effective.

## 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.**

The teachers' impression is that the students did very well this year, and that the course offering was run without major problems.

## 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?

The learning environment is very good to excellent overall, with average LEQ scores above 6 for all questions. Current focus is to keep and maintain the high level. Too few responses to draw conclusions for subsets of the student group.

## **PRIORITIZED COURSE DEVELOPMENT**

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

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1. In order to promote more answers on the LEW-questionnaire, include a follow up moment of the exam where the students are asked to complete the questionnaire.
2. Prepare more exercises for practice (work with this is now ongoing).
3. Clarify the instruction for the quiz, where the literature for the quiz is clearly stated together with reading instructions.
4. Reduce the length of the exam with one question, or make the GRC question less computational.
5. Consider to mark the most important parts of the lecture notes on the ppt.

The following developments points from previous years can also be considered in the future:

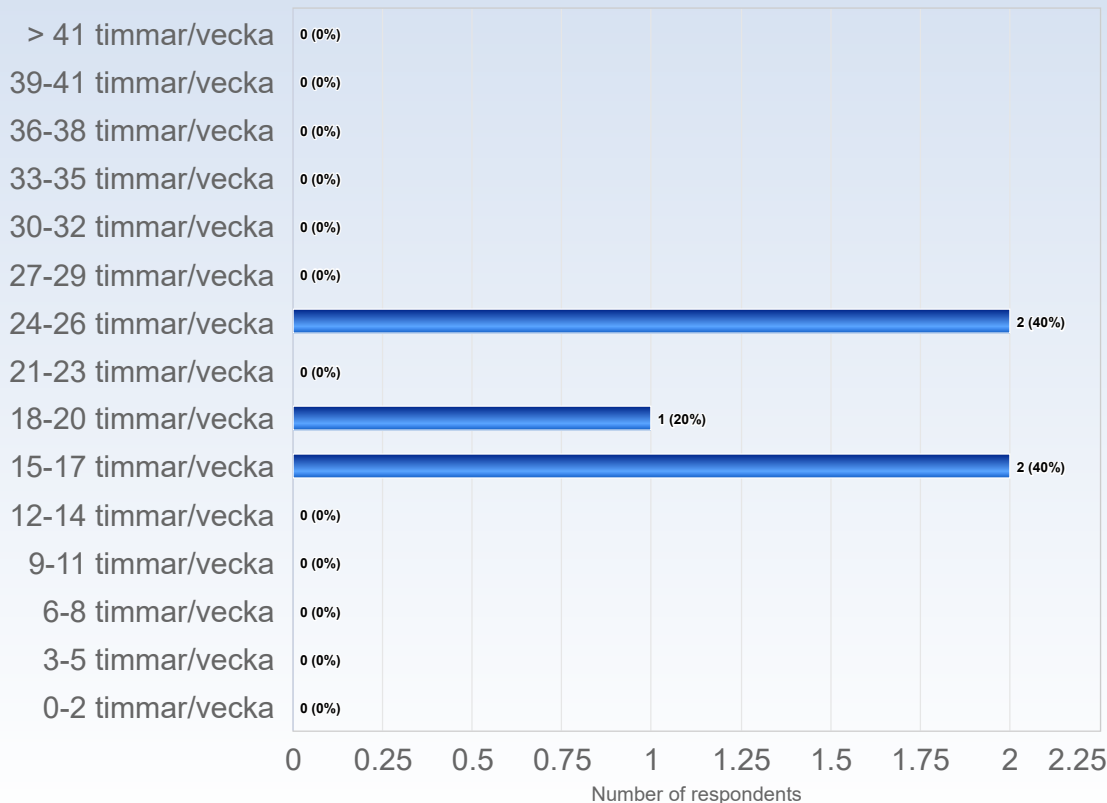
- Be clearer about requirements for technical reports. Consider sharing an "excellent" report in advance to point out what to strive for.
  - Check that all excerpts have references.
  - Test to have some lectures as prerecorded videos, that shall be viewed before the workshop. Each workshop is then started with a possibility to ask questions to the lecturer. Most suitable for the theoretical lectures.
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# AF2602 - 2023-03-09

Antal responder: 22  
Antal svar: 5  
Svarsfrekvens: 22,73 %

## ESTIMATED WORKLOAD

On average, how many hours/week did you work with the course (including scheduled hours)?



### Comments

#### Comments (I worked: 18-20 timmar/vecka)

Very well balanced course. Exercises can be done in time assigned for exercises in schedule, there is no need to continue at home. Additional hours per week spent on analysing assignments, writing reports and reading course literature.

#### Comments (I worked: 24-26 timmar/vecka)

we had roughly 14 hrs per week lecture and exercise hrs and I put in extra 12 hrs per week on average for revision and assignments. I think it was worth it. The course also had a high tempo from the beginning.

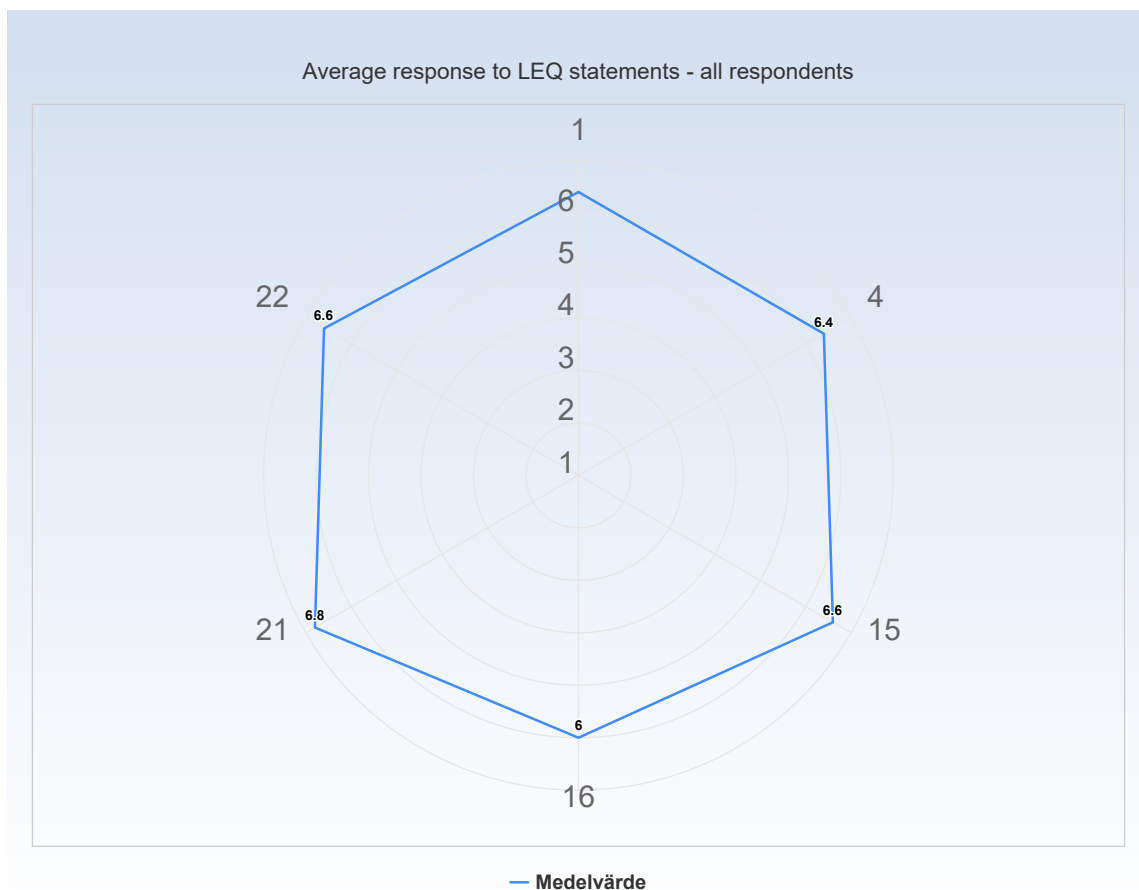
Over the duration of the normal study period, project work took up the most time and effort.

# LEARNING EXPERIENCE

The polar diagrams below show the average response to the LEQ statements for different groups of respondents (only valid responses are included). The scale that is used in the diagrams is defined by:

- 1 = No, I strongly disagree with the statement
- 4 = I am neutral to the statement
- 7 = Yes, I strongly agree with the statement

**Note! A group has to include at least 3 respondents in order to appear in a diagram.**



## **KTH Learning Experience Questionnaire v3.1.4**

### **Meaningfulness - emotional level**

#### *Stimulating tasks*

1. I worked with interesting issues (a)

#### *Exploration and own experience*

2. I explored parts of the subject on my own (a)
3. I was able to learn by trying out my own ideas (b)

#### *Challenge*

4. The course was challenging in a stimulating way (c)

#### *Belonging*

5. I felt togetherness with others on the course (d)
6. The atmosphere on the course was open and inclusive (d)

### **Comprehensibility - cognitive level**

#### *Clear goals and organization*

7. The intended learning outcomes helped me to understand what I was expected to achieve (e)
8. The course was organized in a way that supported my learning (e)

*Understanding of subject matter*

- 9. I understood what the teachers were talking about (f)
- 10. I was able to learn from concrete examples that I could relate to (g)
- 11. Understanding of key concepts had high priority (h)

### *Constructive alignment*

- 12. The course activities helped me to achieve the intended learning outcomes efficiently (i)
- 13. I understood what I was expected to learn in order to obtain a certain grade (i)

### *Feedback and security*

- 14. I received regular feedback that helped me to see my progress (j)
- 15. I could practice and receive feedback without being graded (j)
- 16. The assessment on the course was fair and honest (k)

## **Manageability - instrumental level**

### *Sufficient background knowledge*

- 17. My background knowledge was sufficient to follow the course (f)

### *Time to reflect*

- 18. I regularly spent time to reflect on what I learned (l)

### *Variation and participation*

- 19. The course activities enabled me to learn in different ways (m)
- 20. I had opportunities to influence the course activities (m)

### *Collaboration*

- 21. I was able to learn by collaborating and discussing with others (n)

## *Support*

22. I was able to get support if I needed it (c)



## **Learning factors from the literature that LEQ intends to examine**

We tend to learn most effectively (in ways that make a sustained, substantial, and positive influence on the way we think, reflect, act or feel) when:

a) We are trying to answer questions, solve problems or acquire skills that we find interesting, exciting or important

b) We are able to speculate, test ideas (intellectually or practically) and learn from experience, even before we know much about the subject

c) We are able to do so in a challenging and at the same time supportive environment

d) We feel that we are part of a community and believe that other people have confidence in our ability to learn

e) We understand the meaning of the intended learning outcomes, how the environment is organized, and what is expected of us

f) We have adequate prior knowledge to deal with the current learning situation

g) We are able to learn inductively by moving from concrete examples and experiences to general principles, rather than the reverse

h) We are challenged to develop a true understanding of key concepts and gradually create a coherent whole from the content

i) We believe that the work we are expected to do will help us to achieve the intended learning outcomes

j) We are able to try, fail, and receive feedback before, and separate from, each summative assessment of our efforts

k) We believe that our work will be considered in an honest and fair way

l) We have sufficient time for learning and devote the time needed to do so

m) We believe that we have control over our own learning, and not that we are being manipulated

n) We are able to collaborate with other learners struggling with the same problems

## Literature

Bain, K. (2004). *What the Best College Teachers Do*, Chapter 5, pp. 98-134. Cambridge: Harvard University Press.

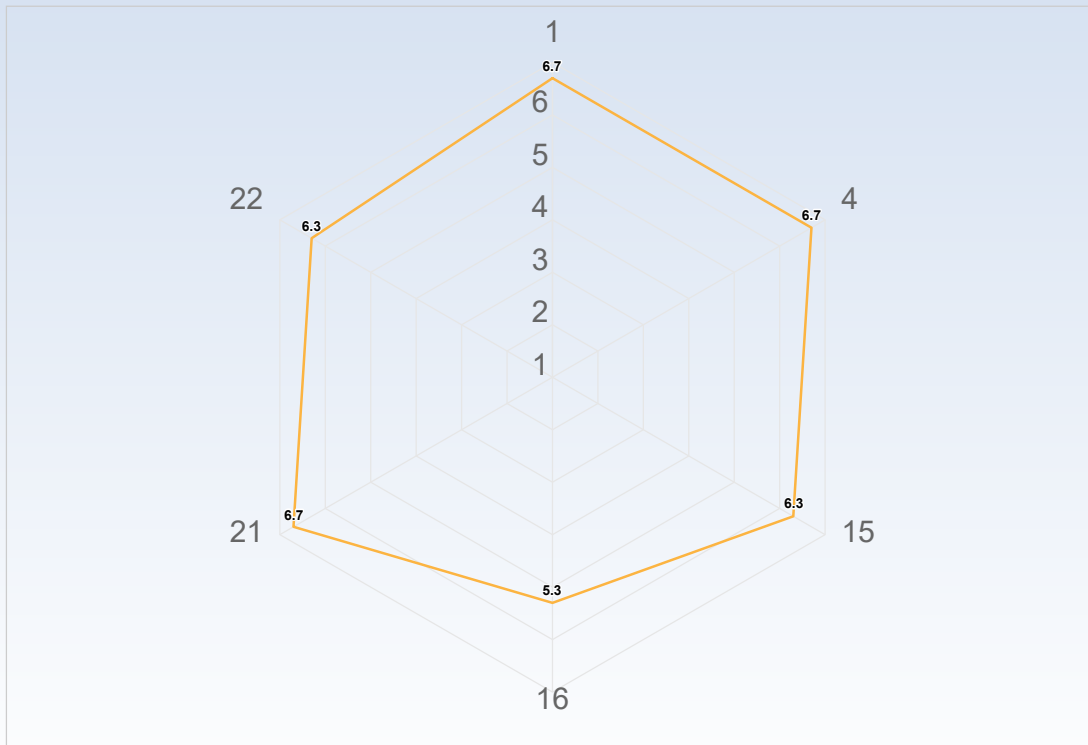
Biggs J. & Tang, C. (2011). *Teaching for Quality Learning at University*, Chapter 6, pp. 95-110. Maidenhead: McGraw Hill.

Elmgren, M. & Henriksson, A-S. (2014). *Academic Teaching*, Chapter 3, pp. 57-72. Lund: Studentlitteratur.

Kember, K. & McNaught, C. (2007). *Enhancing University Teaching: Lessons from Research into Award-Winning Teachers*, Chapter 5, pp. 31-40. Abingdon: Routledge.

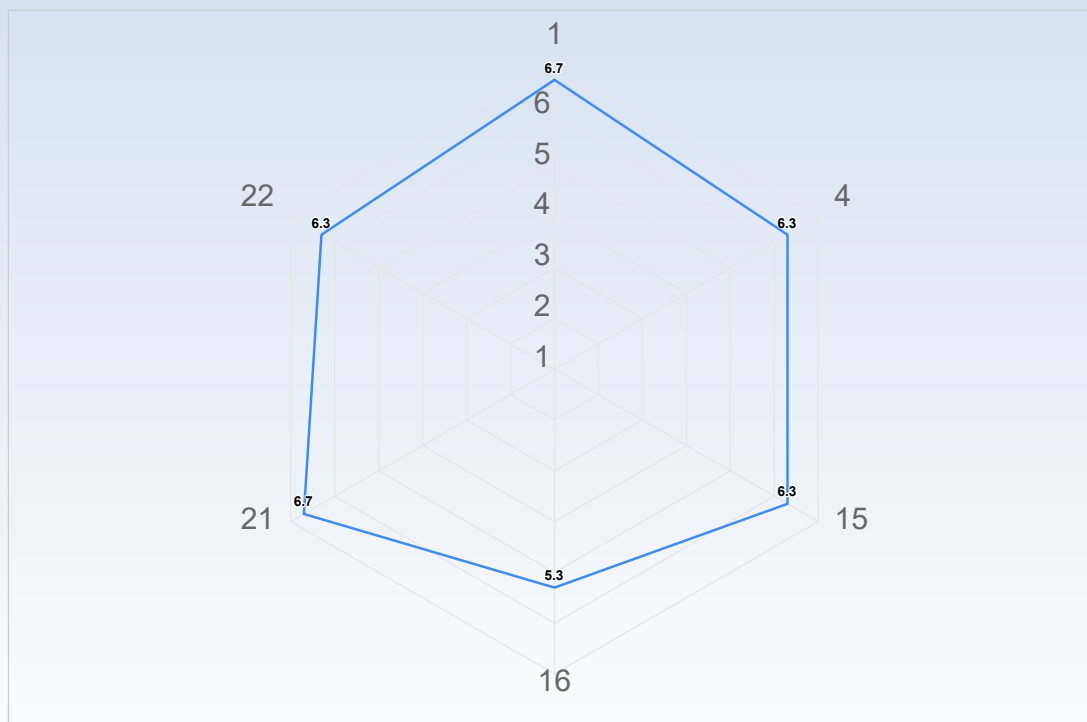
Ramsden, P. (2003). *Learning to Teach in Higher Education*, Chapter 6, pp. 84-105. New York: RoutledgeFalmer.

Average response to LEQ statements - per gender



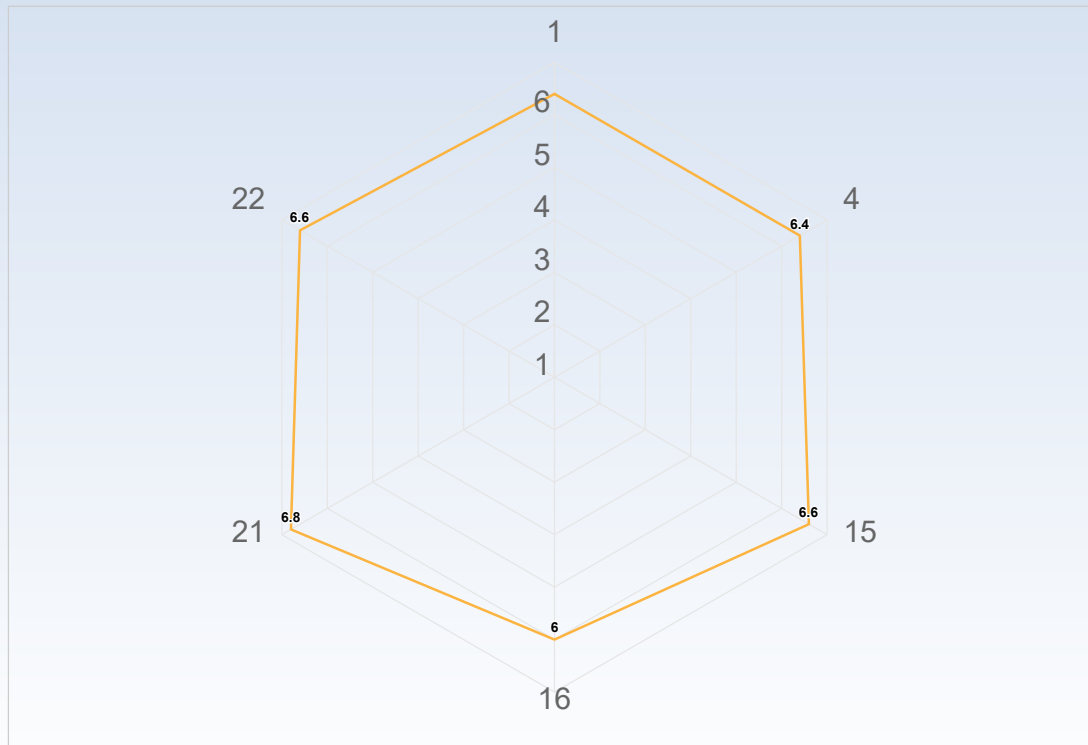
— Kvinna — Man — Annat — Vill ej uppge

Average response to LEQ statements - per type of student



- Internationell masterstudent
- Svensk student i årskurs 4-5
- Internationell utbytesstudent
- Annan typ av student
- Svensk student i årskurs 1-3
- Vill ej uppge

Average response to LEQ statements - per disability



— Ja — Nej — Vill ej uppge

## GENERAL QUESTIONS

What was the best aspect of the course?

What was the best aspect of the course? (I worked: 15-17 timmar/vecka)

The site visit

Exercises and lectures are related to practical conditions

What was the best aspect of the course? (I worked: 18-20 timmar/vecka)

I very much enjoyed that the course connected many forms of studying. Lectures that familiarize us with topics, exercises to implement obtained informations. First quiz was good way to repeat and reports to work on skills needed for writing scientific papers. Field trip was amazing, true cherry on the top!

What was the best aspect of the course? (I worked: 24-26 timmar/vecka)

I would first say that the course was very well organised and structured. I loved that I would read a summary of what to expect from the days lectures on the canvas homepage. The fact that we were getting guest lectures from industry was very inspiring. Since it would help relate with the applications of the theory in real life. Finally, the site visit was one of my favourite events in the course. Thank you for a well delivered course Johan and Fredrik!

Being in the tunnels during the site visit; in terms of guest lectures I really, really enjoyed Jonny's part on slope stability - there was a lot of content to cover in that class, but I felt it was done in a very clear and engaging way.

## What would you suggest to improve?

What would you suggest to improve? (I worked: 15-17 timmar/vecka)

More exercises to practice

What would you suggest to improve? (I worked: 18-20 timmar/vecka)

As students come from different backgrounds, different topics were covered on geotechnical courses on different universities. Also, looking for translations from native language is sometimes misleading. It was a bit of a struggle for me to prepare for the first quiz, not knowing what would be covered there. It would be appreciated if the students could receive some literature containing basic geological topics from where they could repeat in English.

What would you suggest to improve? (I worked: 24-26 timmar/vecka)

To be honest, I think this time round workload was quite okay. Geo courses (Courses from the soil & rock mechanics department) have a reputation of having a lot of workload among students. Hence I know students who haven't chosen Geo courses based on this attribute. But the flow was good. No complains.

I felt that in order to do well on the exams (because of the limited time), you would really have to do every variation of each calculational exercise type many, many times beforehand (therefore, virtually almost memorizing each procedure). The issue is not the difficulty of the exercises, I even felt that this year's questions were easier than from the past (especially in regards to the theoretical part), but rather the long computational procedures. That leaves no room for unfamiliarity with the computational steps (i.e. for that particular exercise variation) or double-checking results in case suspicious values are obtained. But, if I'm entirely honest, I feel that this is an issue with a lot of subjects at KTH (where subject matter relies on long computational procedures) and I feel this could be easily solved if there were many grade components (like for project, exercises and exam to demonstrate that the student has achieved the required knowledge), but then I don't think this is the place to write about this, so.... sorry for writing so much about this.

## What advice would you like to give to future participants?

What advice would you like to give to future participants? (I worked: 15-17 timmar/vecka)

Go to the site visit

Follow the lectures and do the exercises regularly

What advice would you like to give to future participants? (I worked: 18-20 timmar/vecka)

Spend some time on writing good quality reports, because it's very important skill to have. And enjoy the diversity of the course!

What advice would you like to give to future participants? (I worked: 24-26 timmar/vecka)

Start early, and work with the assignments and exercises according to schedule, otherwise you might easily fall behind since the course has a fast tempo from the beginning. You gonna enjoy the course!

Come to lectures to more easily understand the discussed material.

If you also go through some parts of the lectures (like derivations) later on your own, it may help you more easily connect with the content.

There is not much time during exams - to do well you really have to perform as fast as a robot (especially with calculational tasks, but don't neglect the theoretical ones!).

## Is there anything else you would like to add?

Is there anything else you would like to add? (I worked: 24-26 timmar/vecka)

Nope. Thank you!

The guest lectures were really a great addition to see to range of possible work in the rock mechanics field. I enjoyed coming to all of the lectures and think I've enjoyed the whole experience (...well, maybe apart from the final exam).

## SPECIFIC QUESTIONS

## RESPONSE DATA

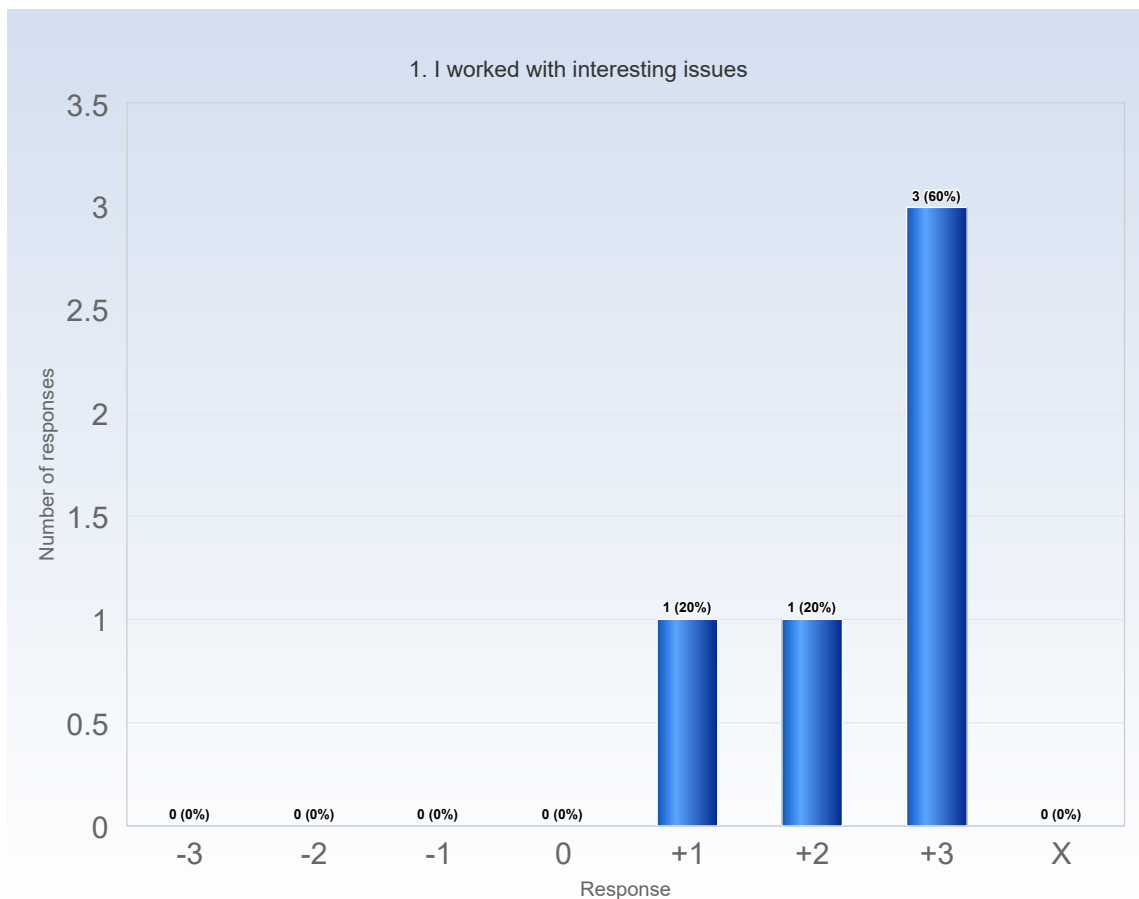
The diagrams below show the detailed response to the LEQ statements. The response scale is defined by:

-3 = No, I strongly disagree with the statement

0 = I am neutral to the statement

+3 = Yes, I strongly agree with the statement

X = I decline to take a position on the statement

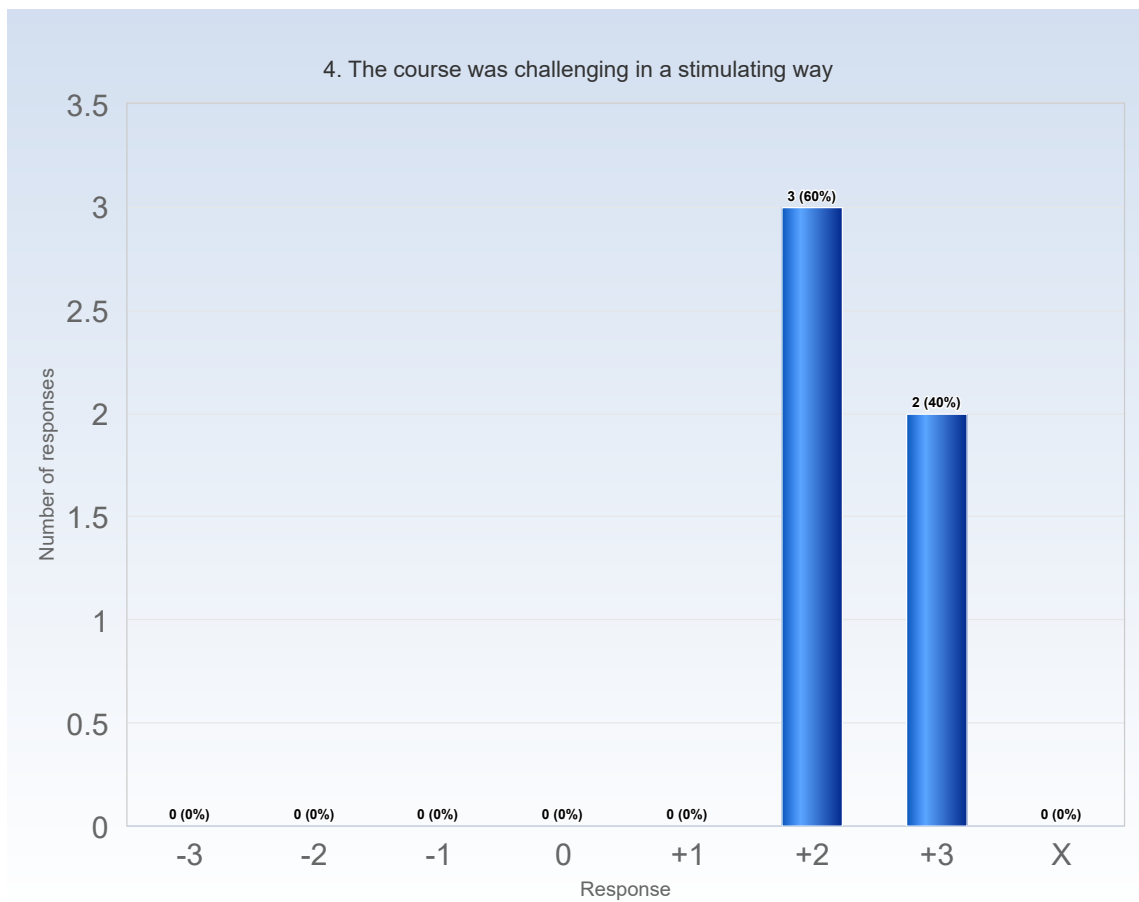




Comments

Comments (My response was: +3)

This has been the most interesting course I have read so far due to its relevance & applications.

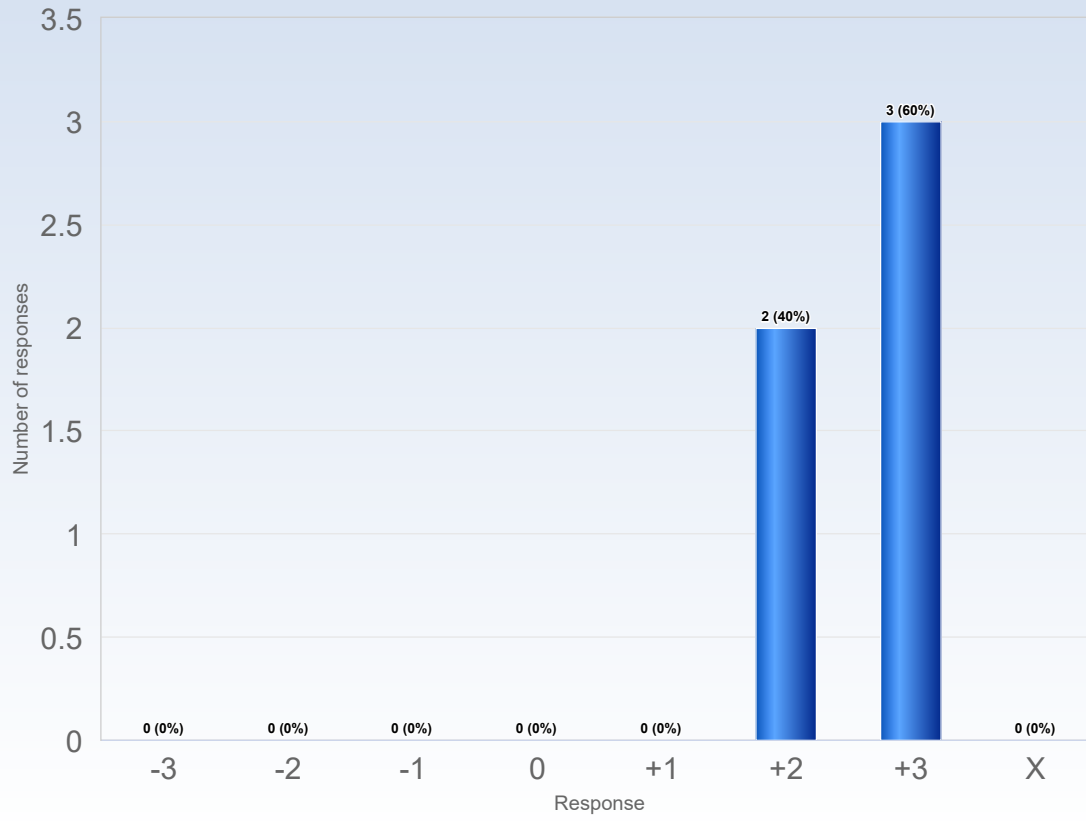


Comments

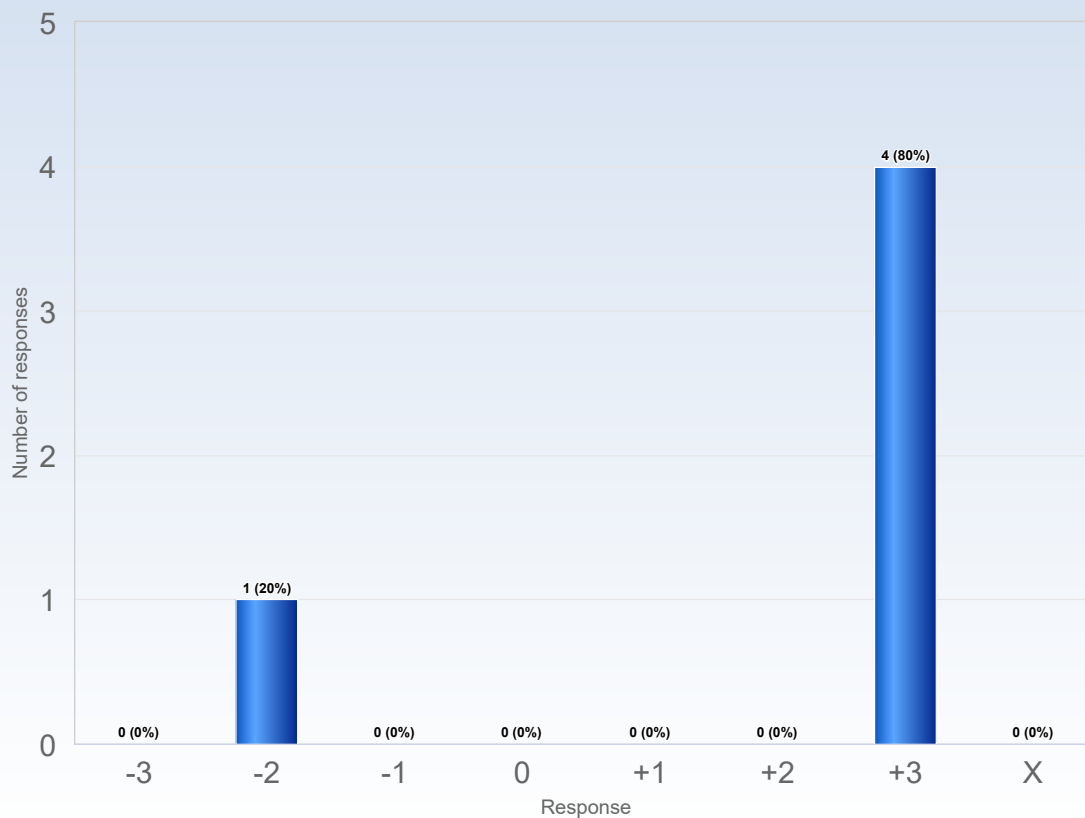
Comments (My response was: +3)

Yes , all teachers and assistantts were very helpful.

15. I was able to practice and receive feedback without being graded



16. The assessment on the course was fair and honest



Comments

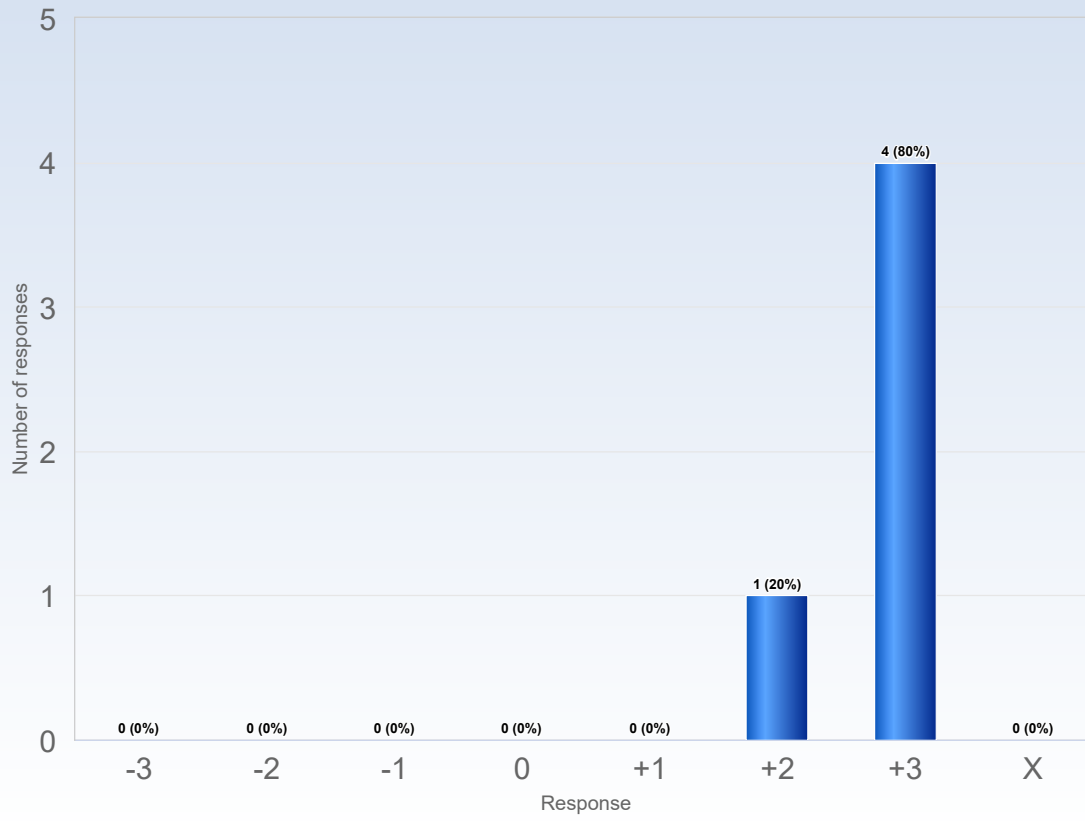
Comments (My response was: -2)

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Not enough time during the exam to really think through the calculational tasks.

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21. I was able to learn by collaborating and discussing with others

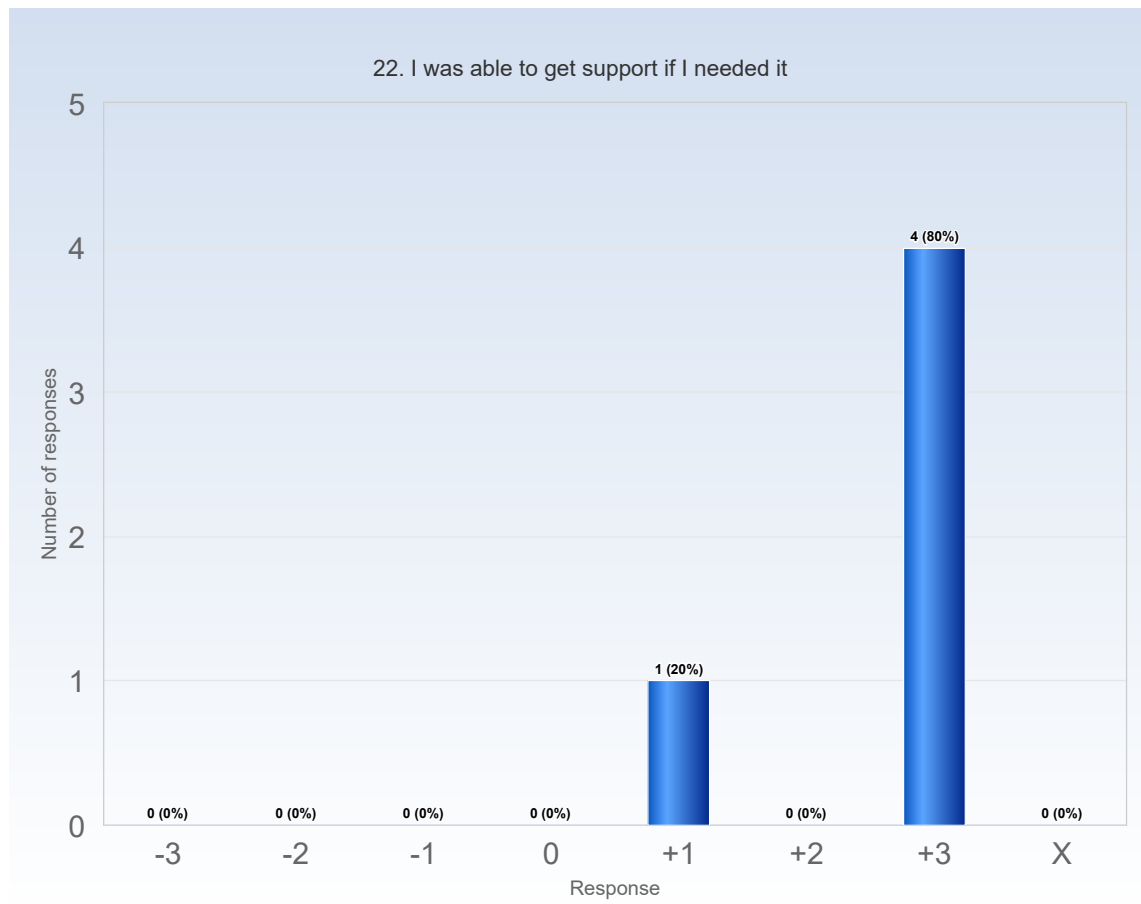


Comments

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Comments (My response was: +2)  
Especially in project assignments

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Comments

Comments (My response was: +1)

It was always possible to reach out and ask.

**SPECIFIKA FRÅGOR**

Kursen innehöll ett studiebesök. Vad tyckte du om arrangemanget, innehållet och det du fick se?

**SPECIFIKA FRÅGOR**

Kursen innehöll ett studiebesök. Vad tyckte du om arrangemanget, innehållet och det du fick se?

I think the visit was very well organised with the three rotations that we had. It was interesting to see e.g rock supports and variation of tunnel sizes in real life. Also, the tour guides were really competent and took up some aspects of rock mechanics that we were taught in class e.g use of spiling at a poor rock zone.

Even though the tent session was said to be a last minute adaptation, I think it worked well since we got to see the different machines and elements used for drilling, bolting & blasting.

It was very good organised! I enjoyed a lot that the site was on the advanced level of excavation, seeing the scale of the project was trully motivating!

It's pretty exciting whenever there are opportunities like this. Always helps visualize the topics we are studying. The best part was going into the tunnels and seeing how the work progress actually looks like.

It was so interesting

This is one of the best site visit i have had.I saw the practical aspects of tunnelling and learn how things are done.