



Report - AF2602 - 2020-04-28

Respondents: 1
Answer Count: 1
Answer Frequency: 100.00%

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):

Johan Spross, spross@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.

Student representatives were elected at the first lecture. Both genders were represented. 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 sorting relevant for disabilities was done in the KTH LEQ result sorting and commented on in the meeting.

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 video-conference meeting with 4 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. 4 group reports are handed in and graded. The course ends with a written exam. Since last year, we made sure that the schedule overlap with other courses was minimized. One assignment instruction was significantly updated.

THE STUDENTS' 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?

It corresponds well, according to 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?

This year, the students did very well in the reports and final exam. The grades were generally one or two steps higher than usual. We believe that the students worked harder this year than a normal year.



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.

Main conclusions were that the course works well, but that there is room for some small improvements, as specified below.

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.

PRIORITIZED COURSE DEVELOPMENT

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

- Computer hall workshops may need one more assistant present.
 - Introducing the conceptual idea of each concept at the beginning of each lecture would help the learning experience.
 - GRC lecture can be improved by handing out equations in advance. Less need for writing and more focus on concepts for students.
 - Assistants can consider starting each WS with a short introduction to the exercise.
 - Theory questions can be put also on WS, to encourage theoretical understanding.
 - Prepare exam answer suggestions from 2020.
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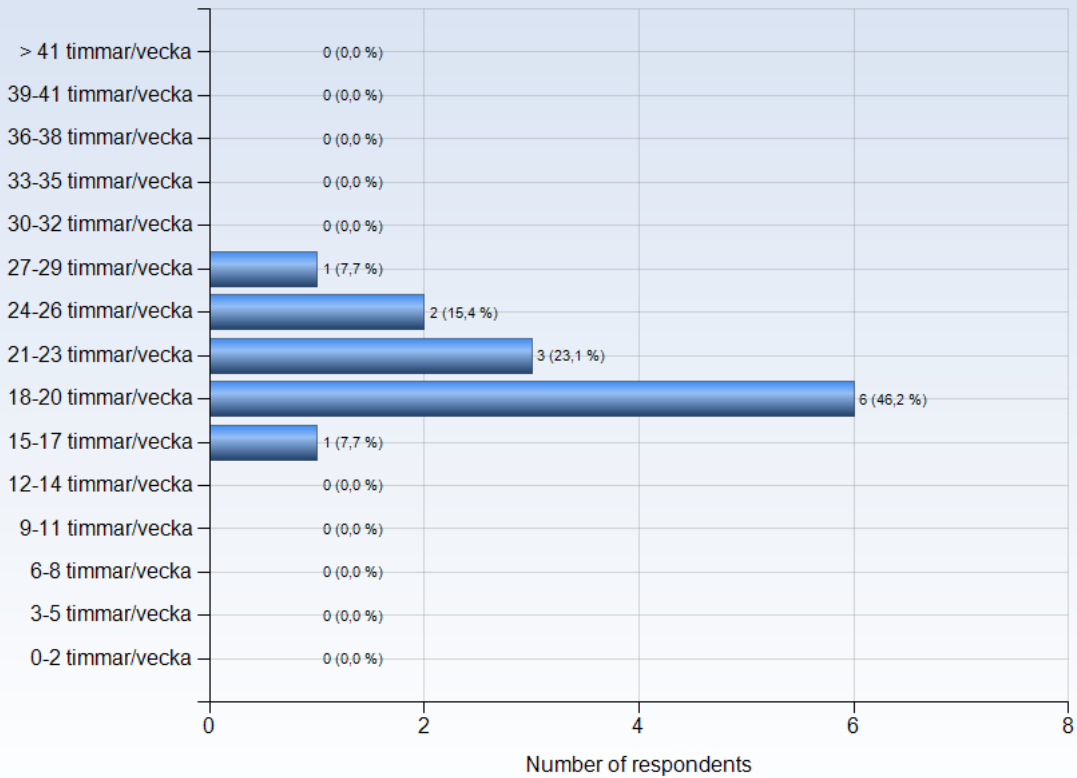


AF2602 - 2020-03-23

Antal respondenter: 37
Antal svar: 13
Svarsfrekvens: 35,14 %

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)

Bra fördelning mellan övningar och projekt. För en gångs skulle kändes inte kursen övermäktig utan om man la nog med timmar så hann man med!

I think the work load is fair.

I think the duration allocated for the lectures and tutorials were alright, but a lot of time was spent outside the classroom completing the reports for the assignments.

Comments (I worked: 21-23 timmar/vecka)

the assignment are time consuming, but it worth it.

The workload of the course is extensive. The material to read is not compact.

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

I calculated with

14 hours a week of courses/workshops

a few hours a week to review the lectures

a few hours a week for extra reading (book, extra material)

a few hours a week to work on the assignments outside of the workshops



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:

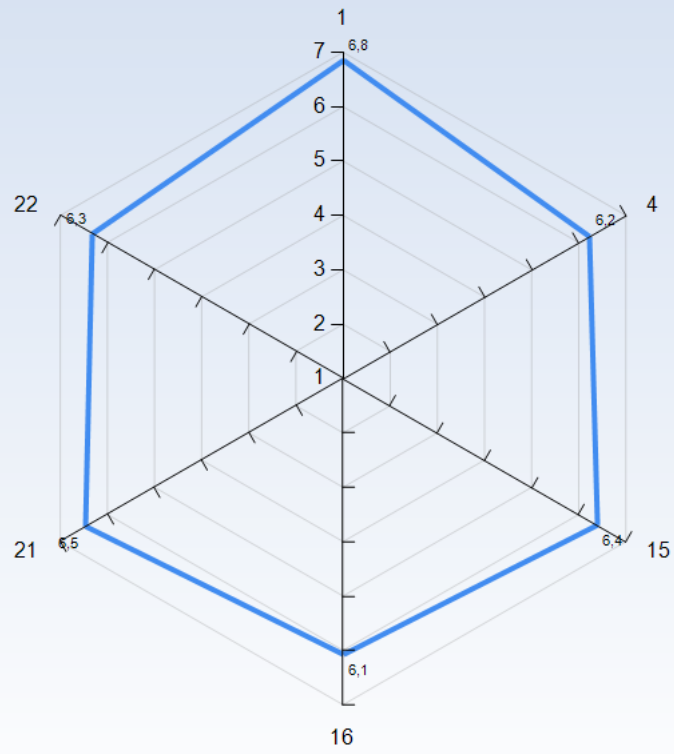
1 = No, I strongly disagree with the statement

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.

Average response to LEQ statements - all respondents



— Medelvärde



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.

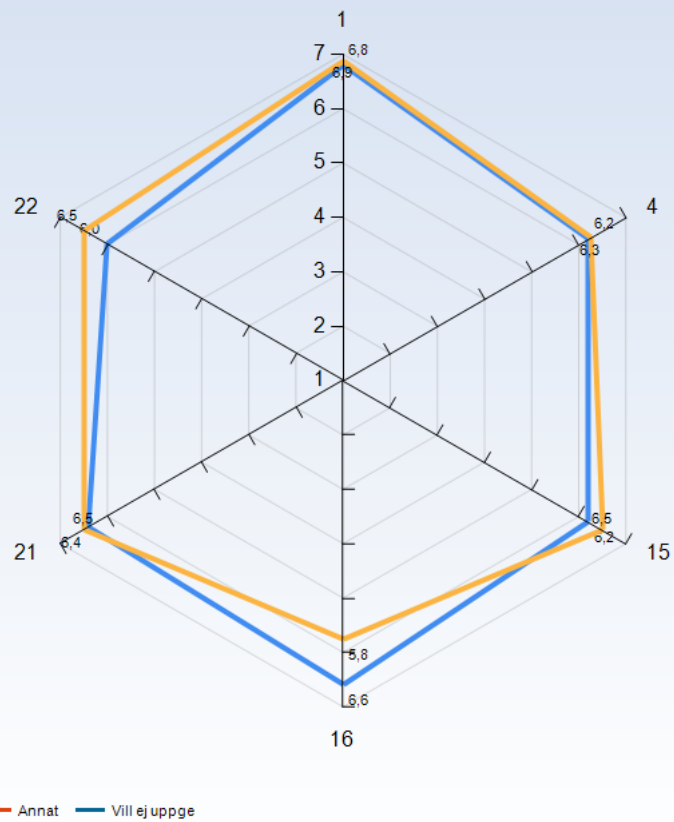
Biggs J. & Tang, C. (2011). *Teaching for Quality Learning at University*, Chapter 6, pp. 95-110. Maidenhead: McGraw Hill.

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



Comments

Comments (I am: Kvinna)

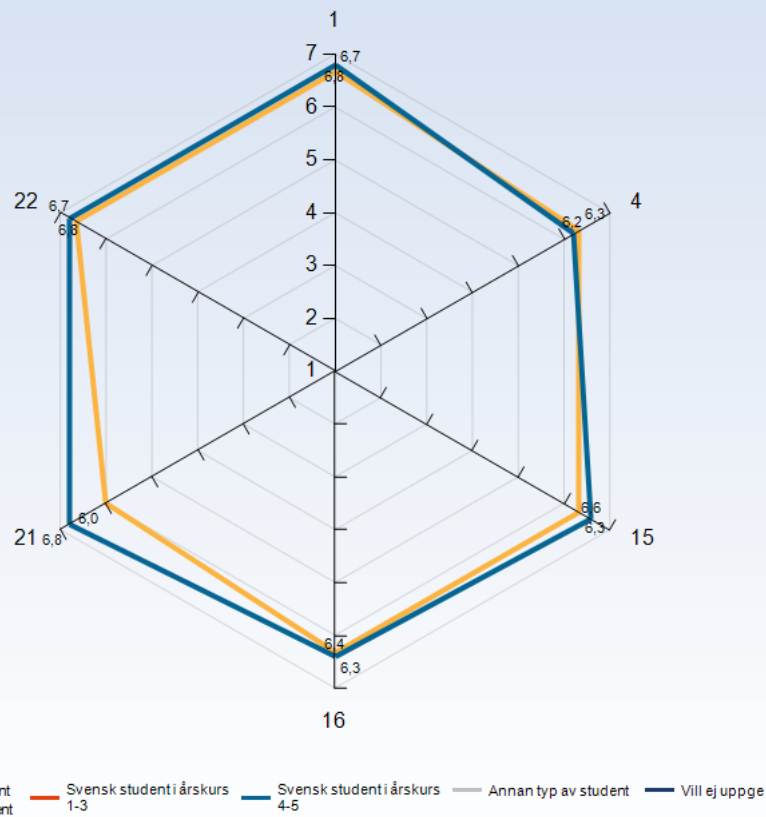
There is no difference

It's very encouraging to see many other female students in the course and in the field (giving lectures or at the site visit).

Comments (I am: Man)

Nothing

Average response to LEQ statements - per type of student



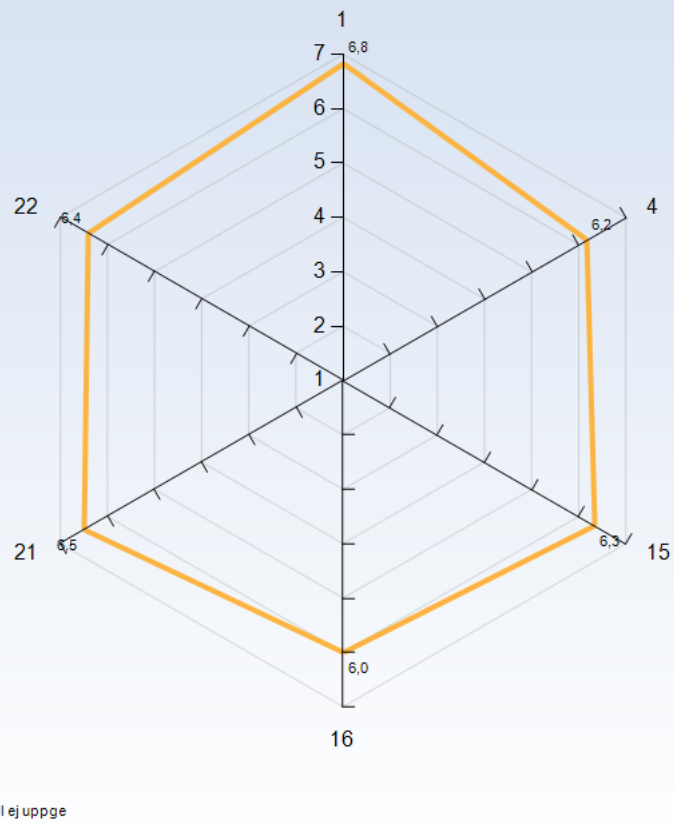
Comments

Comments (I am: Internationell utbytesstudent)

Even if we do not all have the same background I did not feel like I lacked any relevant knowledge compared to the others my basis were sufficient

The course allowed me to explore a field that isn't offered in my home university. The structure of the course was very different from most at my home university. There was definitely more industrial exposure to what was being taught in class. Also, a lot more time was allocated to tutorials, which is super helpful for students to clarify their doubts. I am also very thankful for the opportunity to mingle with local students during the randomising of the assignment groups!

Average response to LEQ statements - per disability



Comments



GENERAL QUESTIONS

What was the best aspect of the course?

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

Many interesting lectures, not too much information to process and not too little

Johan Spross! Han är en fantastisk pedagog och det märks att han brinner för ämnet! Kul med externa föreläsare med samma entusiasm!

The assignments helped me learn more and the course was quite practical

There were sessions given by engineers who were actually in the field, which highlighted the practical aspects of what we were learning.

What was the best aspect of the course? (I worked: 21-23 timmar/vecka)

The format of the course was really good.

I really appreciate the fact that many people from different companies came to explain their jobs.

The teachers were particularly nice with the students

The part of the course which treats practical design of underground excavation was helpful and interesting. The design of support systems and rating of ground with respect to geological behaviours using classification systems and the concept of ground reaction curve are the portions of the course which are decisive for my knowledge of rock engineering.

Learning a whole new subject with a lot of teachers from the field.

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

The issues were interesting and we had to think to succeed in the exercises and assignments.

The assignments with the technical reports was a very good part of the course, you learnt a lot. The structure of the workshops was very good.

What was the best aspect of the course? (I worked: 27-29 timmar/vecka)

Site visit and the examples in the assignment were always close to real life practical examples where we could learn a lot. Site visit and having a working different lecturer in every lecture is really helpful to know what companies and experiences are in the field.

What would you suggest to improve?

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

Learning outcome from the lecture did not sometimes fit the exercises which made it harder

Att man får gå ner i grottan på utflykten!

The assignment groups should be prepared by the teachers. This allows students to learn to work with new people and maybe create new friendships that they may be able to do if they are allowed to choose groups themselves

A lot of formulas were presented to us (especially during the ground reaction curve), but it would be nice if more time was spent explaining in greater detail the derivations of these formulas.

What would you suggest to improve? (I worked: 21-23 timmar/vecka)

Assistants could be a little bit nicer.

I hope the material which is extensive be more compact and be more relevant to help focused study.

Theory questions on the exercises.

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

Sometimes during the workshops (especially when we worked on an assignment in the computer room) there would only be one assistant which meant that it was necessary to wait quite a long time to get help

Nothing in particular.

What would you suggest to improve? (I worked: 27-29 timmar/vecka)

Having solutions for exercises after the workshop will be a good idea so students can compare their answers, as well as having all solutions for past exams is really necessary.



What advice would you like to give to future participants?

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

Lägg tid på alla delar på en gång för det kan vara svårt att lära sig dessa delar senare. Det är en hyfsat informationstung kurs.

Try to be in a different assignment group each other time. It will help you learn how to work with new people, but could also present opportunity to create long term friendships

Ask questions and dig deeper!

What advice would you like to give to future participants? (I worked: 21-23 timmar/vecka)

Do well the assignments

i advise them to read the material consistently and work on the exercises timely.

Try to really understand what you are doing

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

It is very important to practice with exercises and past exams when preparing for the exam because it allows to see different aspects of a problem (wedge failure for examples). It helps avoiding to fall into a trap at the exam.

Try to read a lot in the beginning of the course to get a good understanding of the subject.

What advice would you like to give to future participants? (I worked: 27-29 timmar/vecka)

Go to all lectures, and be active during the workshops and assignments

Is there anything else you would like to add?

Is there anything else you would like to add? (I worked: 18-20 timmar/vecka)

This was a great course, great excersises, I learned a lot and had a lot of fun. Would recommend this course to a friend.

More time needs to be added for the exam. The 4hours were not enough to be able to complete all the questions

The teaching assistants and professors were always more than willing to answer questions patiently. Thanks a lot for that!

Is there anything else you would like to add? (I worked: 21-23 timmar/vecka)

no

Thanks for the course! Really liked it.

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

No

Is there anything else you would like to add? (I worked: 27-29 timmar/vecka)

No

SPECIFIC QUESTIONS



Please comment specifically on the site visit. Trafikverket (the host) wants us to provide some input for how the visit can be improved from their side.

Please comment specifically on the site visit. Trafikverket (the host) wants us to provide some input for how the visit can be improved from their side.

It was really interesting to see the site. Maybe it would be great to do a workshop based on the site beforehand because it would be really exciting to relate directly to the site (even a very idealized situation that could still aim at practicing a notion in the lectures)

I found it interesting but I would have appreciated to go inside the tunnel.

The visit was great.

The visit was interesting as it gives knowledge on the practical side of the course and it motivates students to plan for career in rock engineering. However, the tunnel should be one that can be visited thoroughly. However, I was satisfied by the presentation of the engineers and I would like to encourage them to keep it up.

I hope next time they can let the students go into the tunnel.

The visit was generally good. However, we were not allowed to go into the tunnel, hence we couldn't see some of the things we learnt in class in practice.

The site visit was great, it was a fun to see a work site on the project "Förbifart Stockholm".

The site visit was an interesting experience, but it would've been better if we could get into the tunnel to see the actual inner workings in the tunnel construction. Additionally, the talk at the end of the site visit could have been more interactive or engaging. But it was very commendable that the engineers who brought us down to the construction site were very eager and patient in answering all our questions! :)

RESPONSE DATA

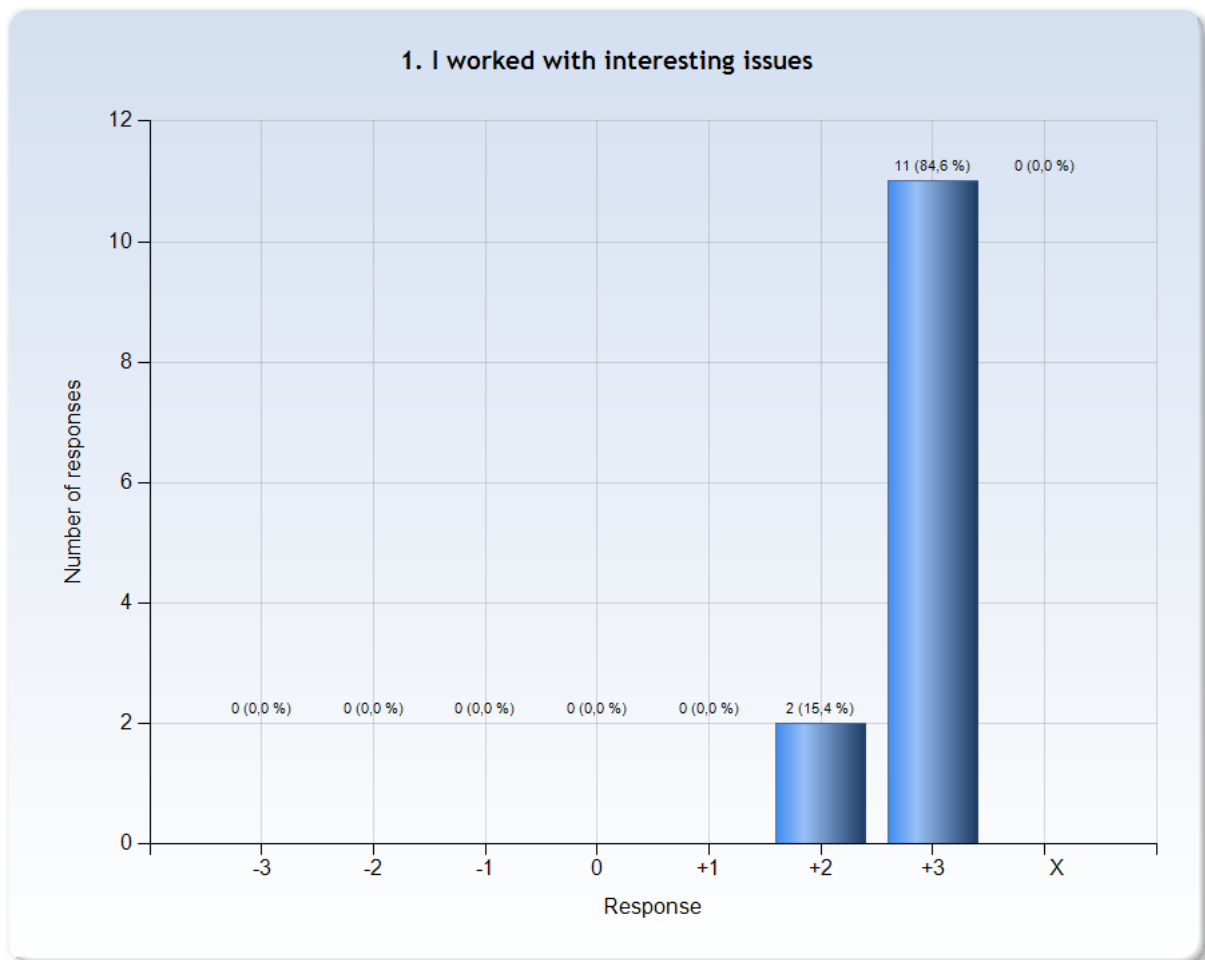
The diagrams below show the detailed response to the LEQ statements. The response scale is defined by:

-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

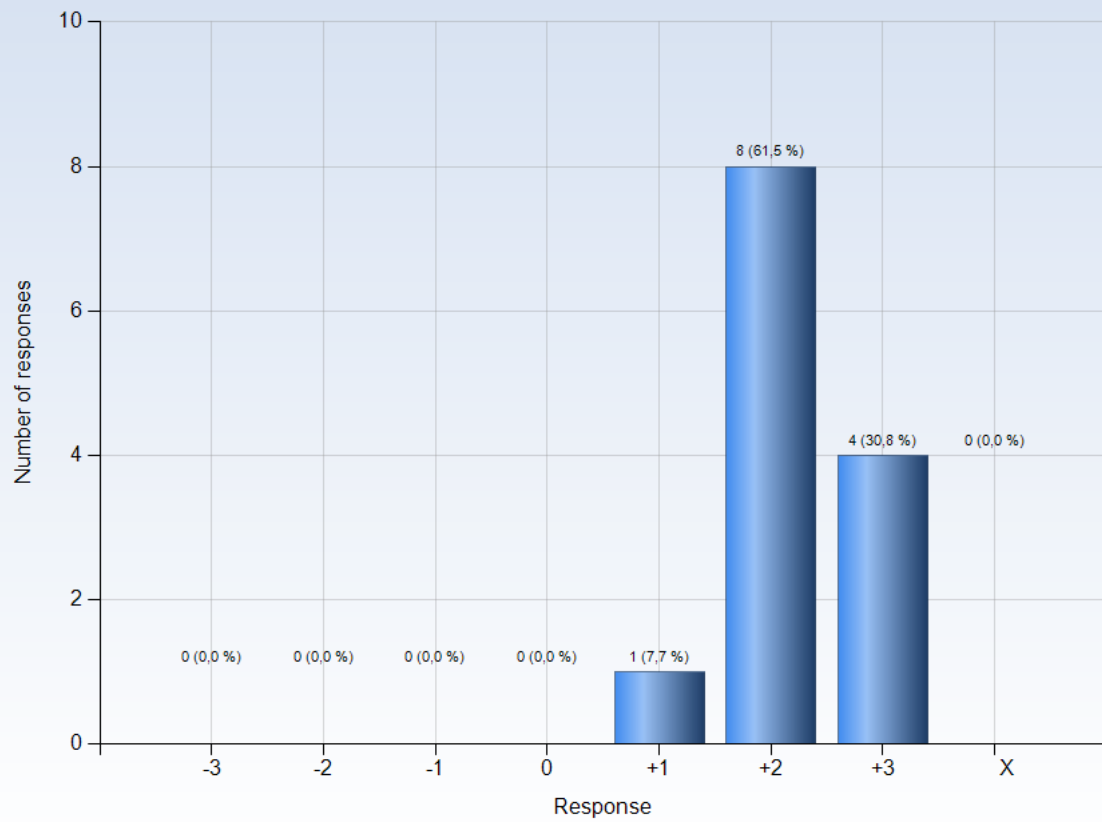


Comments

Comments (My response was: +3)

The course allows to work on different aspects of rock mechanics to have a broad overview of the issues

4. The course was challenging in a stimulating way

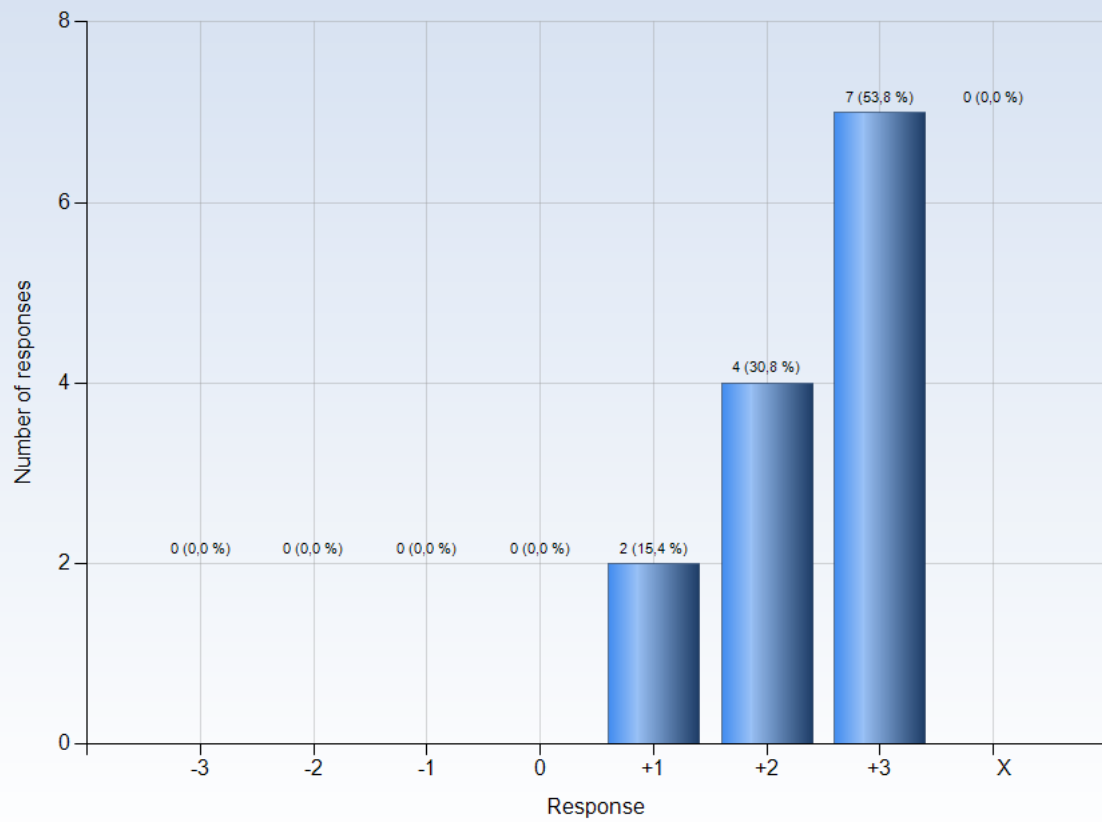


Comments

Comments (My response was: +2)

We had to solve problems that required thinking but it is also a lot of concepts that we have to learn

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

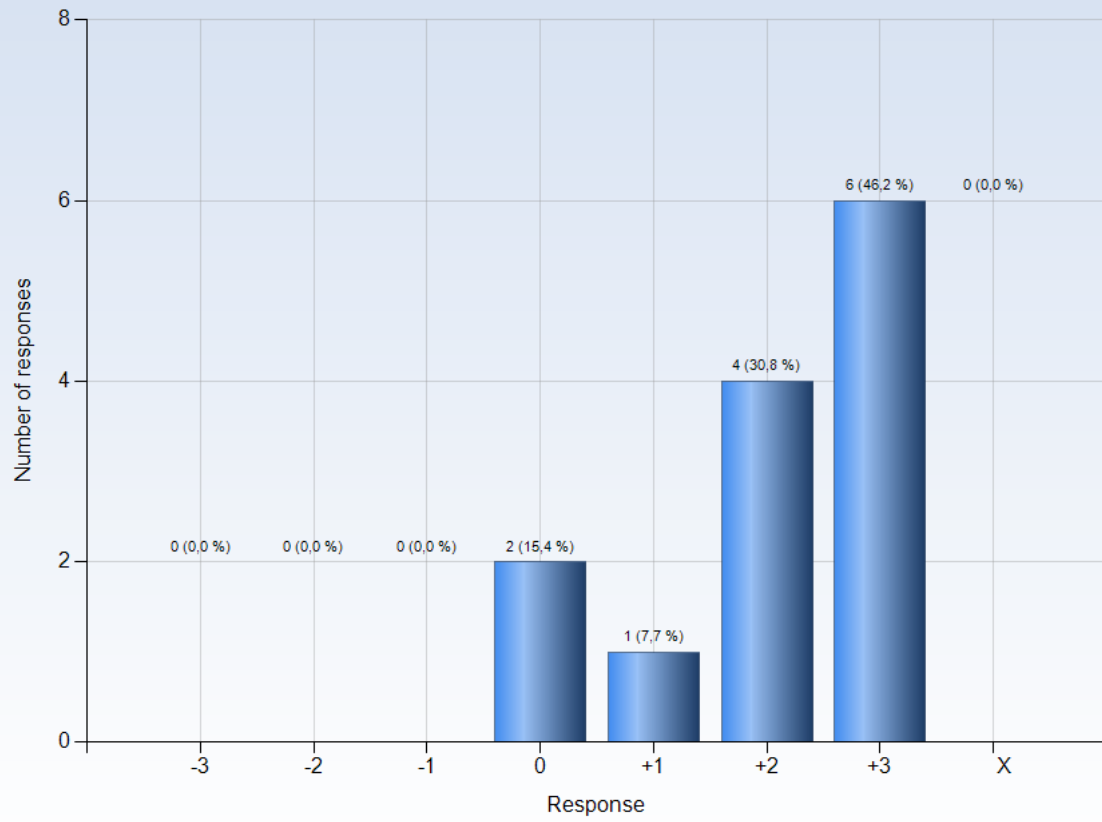


Comments

Comments (My response was: +2)

The exercises were a good way to do that and the assistants were of great help. However the past exams sometimes did not have the solutions which would be useful for an "auto" feedback

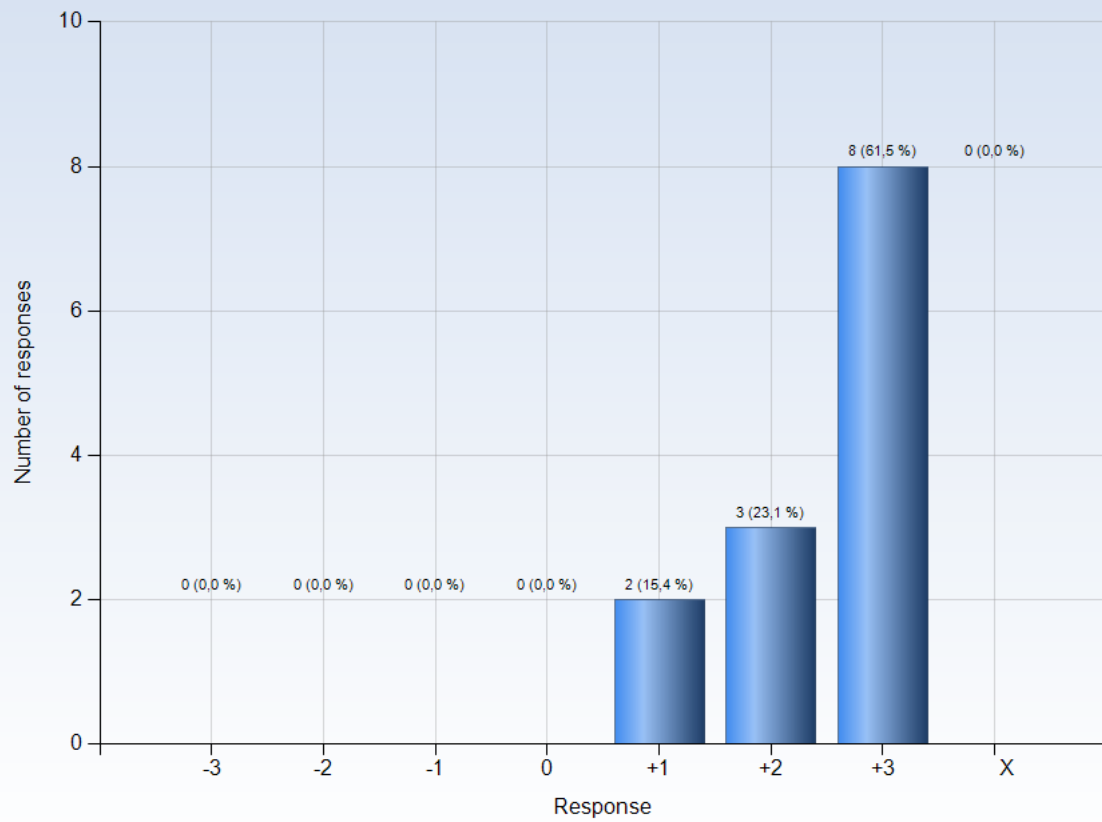
16. The assessment on the course was fair and honest



Comments

Comments (My response was: +3)
It was clear what was expected of us

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

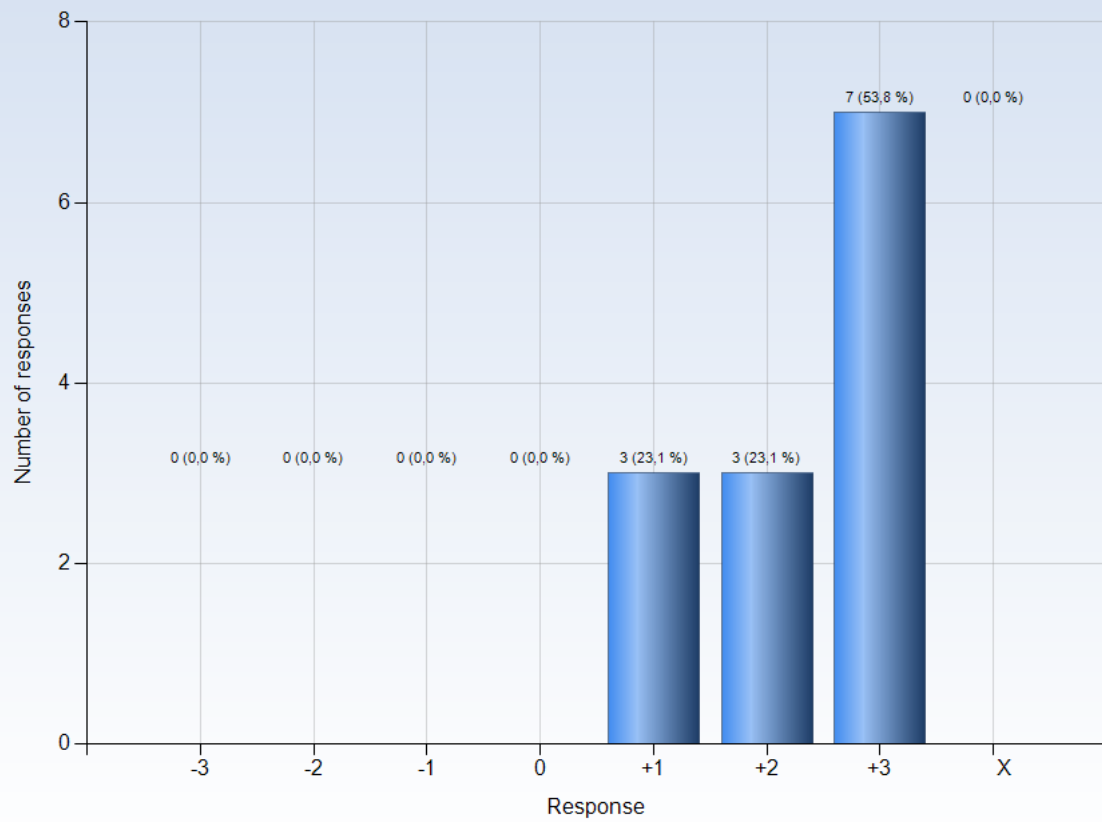


Comments

Comments (My response was: +3)

Speaking with other students and working with them on the assignments often allowed to understand the problem better

22. I was able to get support if I needed it



Comments

Comments (My response was: +3)

It was easy to ask the teachers or the assistants for any problem