



Report - SE1025 - 2020-01-10

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):

Erik Olsson, erolsson@kth.se

COURSE DESIGN

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

The course activities are 18 lectures, 8 tutorials, 2 mandatory computer labs and a 5 hour exam. It students are encouraged to do the three voluntary home assignments. They give up to five bonus points on the exam (exam is 25 points) as well as 1.5 hp if they are passed. They also give a good preparation for the exam.

No changes have been made in the structure since last year. The structure works well and judging for the course evaluation this year, and previous years, the structure is appreciated for the students as well.

THE STUDENT'S 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?

The course is 6 hp and occurs during the first half of the autumn meaning that it would be fair if the students spend 40 % of their time on the course or 16 h/week. According to the course evaluation, most students spend 10 - 17 h / week meaning that the course is rather well balanced.

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?

More students passed the exam this year (71 %) than the exam 2018 (57 %). Last year many students that did not follow the lectures and did not do the home assignments tried on the exam. This year, the number of such students was lower, showing how important it is to actively participate in the course.

OVERALL IMPRESSION OF THE LEARNING ENVIRONMENT

What is your overall impression of the learning environment in the polar diagrams, for example in terms of the students' experience of meaningfulness, comprehensibility and manageability? If there are significant differences between different groups of students, what can be the reason?

Overall, the points are high, the lowest is Question 15 with a value of 4.9 out of 7. That question is about practice and feedback without being graded. I think that the students spent quite a lot of time on the home assignments because they are demanding (but also rewarding in terms of bonus points and studying for the exam). Of course the students are very welcome to study problems on their own, we have a large set of recommended problems as well as old exams and I would be very happy to discuss these problems with the students. I don't want to add any extra activity in the course just to have no graded but scheduled activities. I think that the participation would be quite low.



ANALYSIS OF THE LEARNING ENVIRONMENT

Can you identify some stronger or weaker areas of the learning environment in the polar diagram - or in the response to each statement - respectively? Do they have an explanation?

One question where the points where rather low is question 19, possibility for the students to learn in different ways. I'm not surprised that this number is one of the lowest in the evaluation as the course is traditionally structured with theory on the lectures and problem solving on the tutorials. The course covers the details in FEM and after the course the students should know how a linear elastic FEM software works and I see no other way of learning this subject than do a lot of problem solving by paper and pen. For the students who want more hand on FEM work, there is another course after this one in the end of the autumn.

ANSWERS TO OPEN QUESTIONS

What emerges in the students' answers to the open questions? Is there any good advice to future course participants that you want to pass on?

It is very clear that the students think that it is important to solve problems during the course and spend time on the home assignments.

PRIORITY COURSE DEVELOPMENT

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

The labs should be improved and be more connected to the lectures/tutorials. I would be good if a simplified problem could be solved on the whiteboard and the students later solve the same problem with more and more elements during the lab.



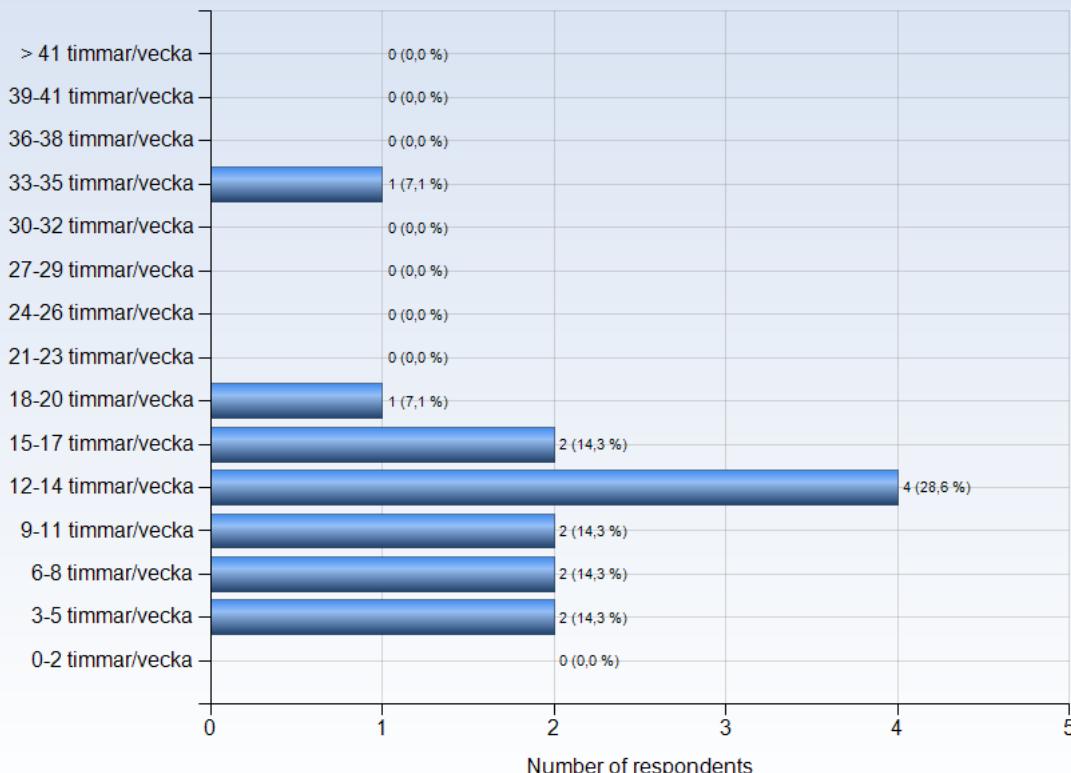
SE1025 - 2019-10-23

Antal respondenter: 58
Antal svar: 14
Svarsfrekvens: 24,14 %



ESTIMATED WORKLOAD

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



Comments

Comments (I worked: 6-8 timmar/vecka)

Det är nödvändigt att träna för att inte röra ihop det med alla matriser.

Comments (I worked: 12-14 timmar/vecka)

The work load was okay.

Comments (I worked: 15-17 timmar/vecka)

Reasonable

Comments (I worked: 33-35 timmar/vecka)

I reallt enjoyed this course, which made it easier to study. The home assignments were key to my learning.



LEARNING EXPERIENCE

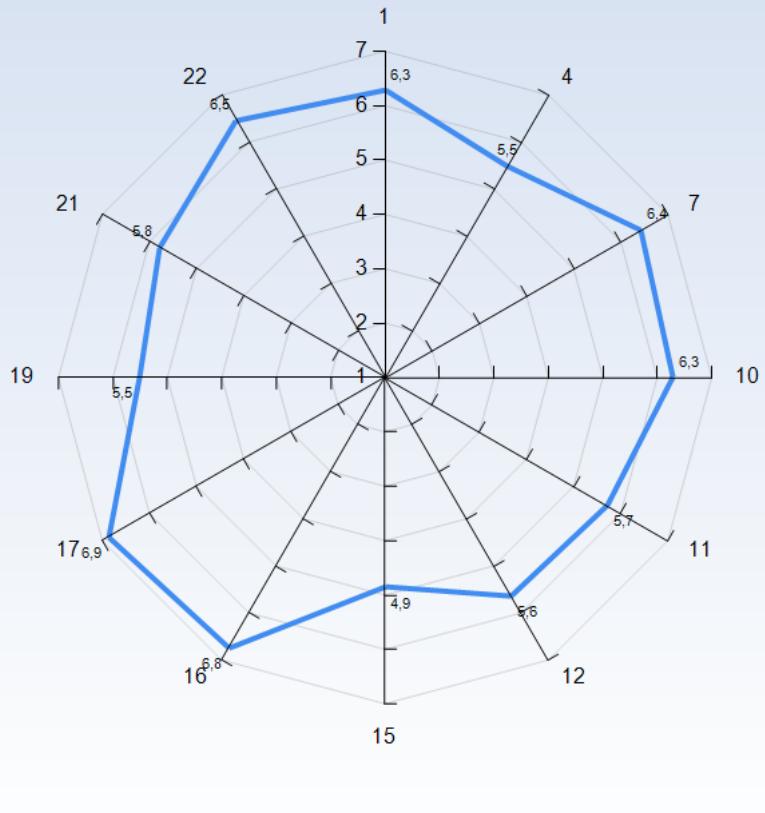
The polar diagrams below show the average response to the LEQ statements for different groups of respondents (only valid responses are included). The scale that is used in the diagrams is defined by:

- 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





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.

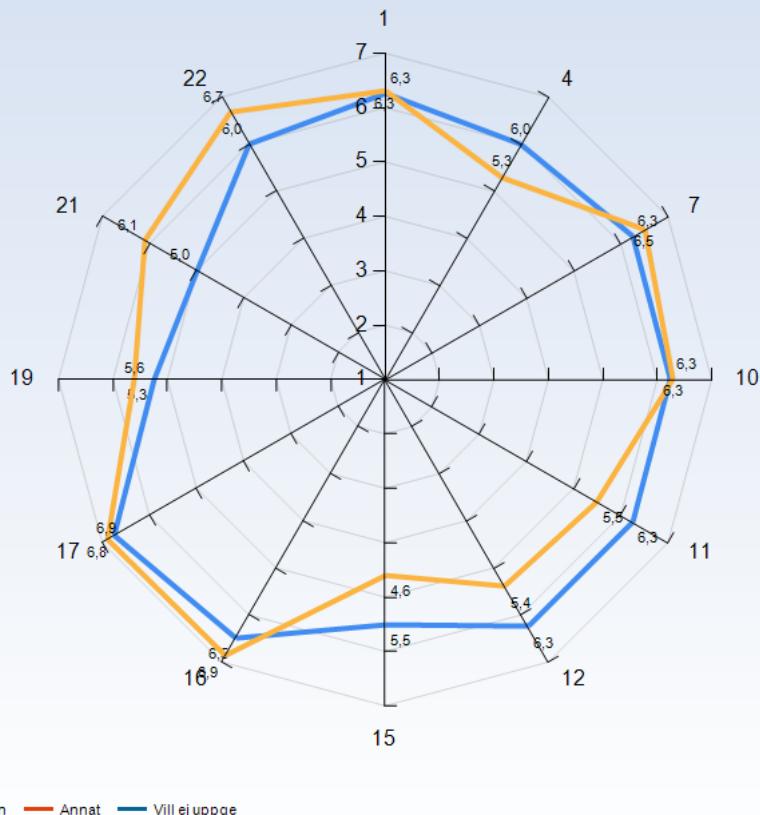
Biggs J. & Tang, C. (2011). *Teaching for Quality Learning at University*, Chapter 6, pp. 95-110. Maidenhead: McGraw Hill.

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

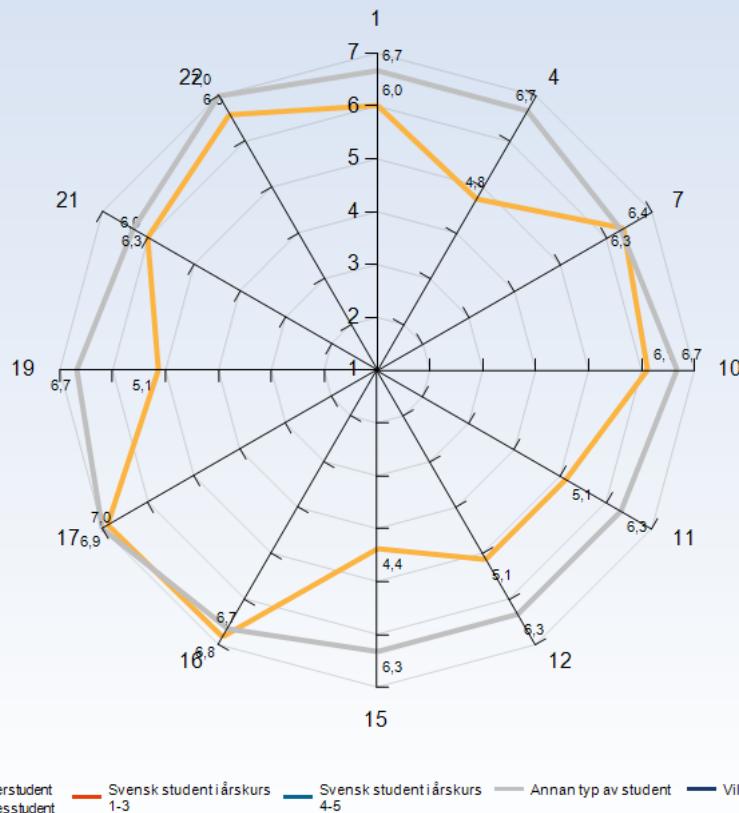
Comments (I am: Kvinnna)

Det känns skönt med en kvinnlig övningsassistent, just för att det är så extremt mansdominerat annars.

Comments (I am: Man)

I had no trouble following the course from my perspective.

Average response to LEQ statements - per type of student



Comments

Comments (I am: International exchange student)

I had already done a course close to this one in my home university so it was not difficult to understand but the KTH course was very helpfull to understand how FEM worked in a practical way.

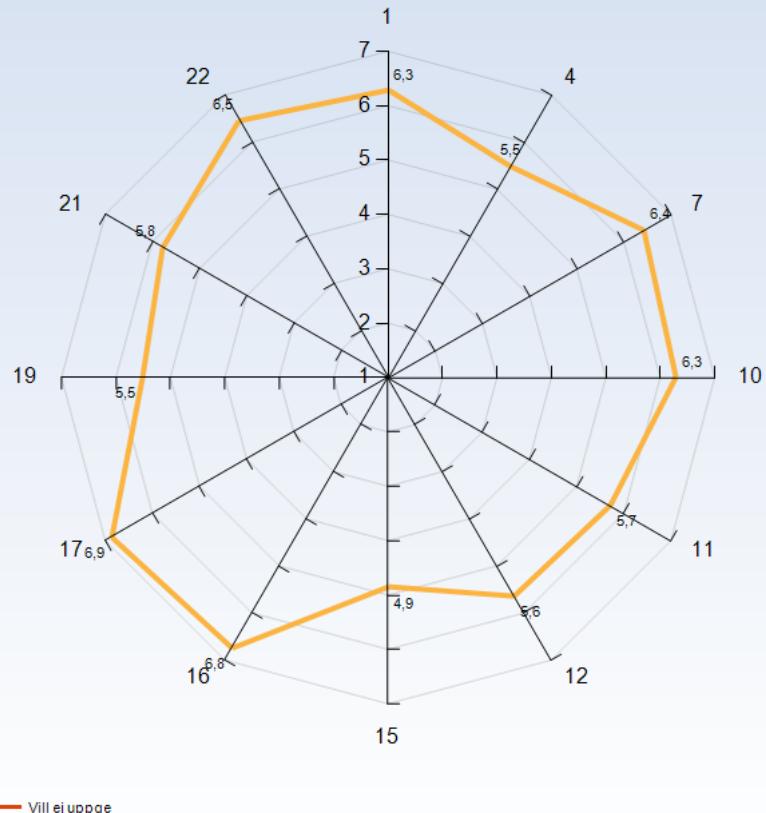
I had no trouble following the course from my perspective.

Comments (I am: Other student type)

I did not know anyone else taking the course and it was therefore not easy finding a partner for the homework assignments.



Average response to LEQ statements - per disability



Comments

Comments (My response was: Nej)

I had no trouble following the course from my perspective.



GENERAL QUESTIONS

What was the best aspect of the course?

What was the best aspect of the course? (I worked: 3-5 timmar/vecka)

The clarity of the lectures

The course was not really difficult yet quite interesting.

What was the best aspect of the course? (I worked: 6-8 timmar/vecka)

3rd project

Bra lärare som talade högt och tydligt, aldrig svamlade i oväsentligheter och lade fokus på det väsentliga.

What was the best aspect of the course? (I worked: 9-11 timmar/vecka)

Comparing FEM results with analytical solutions to see how accurate a proposed FEM model was. I found it to be very interesting and a good way to judge how well the model simulated the results.

What was the best aspect of the course? (I worked: 12-14 timmar/vecka)

From a pedagogical point a view there is a good chronology between Letures, excercises and Laboration, thus it's easy to understand the links between all.

It's also easy to understand the lectures thanks to all the examples we did and because there are explained in details by the teacher.

Also it's so convenient to find Teacher's notes on Canvas !

We tackled interesting problems.

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

The homework assignments as they required you to study by yourself and reflect on what was taught during the lectures.

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

It was clear, with good examples, and the laboratory computer were useful to understand the theoretical concepts

What was the best aspect of the course? (I worked: 33-35 timmar/vecka)

The lectures.

What would you suggest to improve?

What would you suggest to improve? (I worked: 3-5 timmar/vecka)

We should have opportunities to do exercices on our own.

Or we should have more time for the exercices sessions which were going really fast, and we did not have time to understand what was going on during the session.

What would you suggest to improve? (I worked: 6-8 timmar/vecka)

Lectures should be more dynamic

Mer tid för frågor.

What would you suggest to improve? (I worked: 9-11 timmar/vecka)

Everything was clear and well-defined. The only part that was really confusing was when the wave function was introduced. The concept was too abstract, and in addition to that, it was in the midst of a lot of theory. Since it was not required to understand and solve most of the problems, I would just recommend spending a bit more time on explaining it during the derivations.

Sometimes it wasn't exactly clear how to solve specific parts of the home assignments at that exact moment, resulting in quite a lot of work load via trial and error or because of uncertainty about the results. It kind of helped understanding the problem better but also felt unnecessary and unrewarding. Making the instructions on what to do when a little bit clearer in the lectures should help. Specifically, with a lot of mathematical operations in a row, one does sometimes lose the focus of what the result or the partial results of the calculation should be. Emphasizing a short "recipe" on the single steps of the calculations would really help, was mostly given but sometimes lacking and then leading to confusion.

What would you suggest to improve? (I worked: 12-14 timmar/vecka)

During the exercise sessions the exercises were gone over too quickly and the solutions were not on canvas.

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

Nothing, I thought it all was very well balanced.

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

The course is really extensive and at the end the exam have an extensive content. This should be separate at least in two exam, it is really difficult do all the course in only one exam.

What would you suggest to improve? (I worked: 33-35 timmar/vecka)

Nothing comes to mind



What advice would you like to give to future participants?

What advice would you like to give to future participants? (I worked: 3-5 timmar/vecka)

The homework assignments are useful to be sure you understand the course well.

What advice would you like to give to future participants? (I worked: 6-8 timmar/vecka)

Träna på räkneexempel tidigt, gärna dag ett.

What advice would you like to give to future participants? (I worked: 9-11 timmar/vecka)

Since the amount of formulae is overwhelming, make sure you understand how to obtain the correct formula from the general FEM equation for each type of element while studying every week.

Invest in the home assignments, they help a lot in the exercises and the exam.

Also test yourself on old exams.

Make notes on what to do when in the lecture slides to get a better overview of the different calculations.

What advice would you like to give to future participants? (I worked: 12-14 timmar/vecka)

Focus well on the Homework Assignments as they are a great way of learning the subject and give bonus points for the exam.

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

Put in a lot of effort in the homework assignments.

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

It will be studied every day, due to the course is very theoretical course

What advice would you like to give to future participants? (I worked: 33-35 timmar/vecka)

Do many exercises

Is there anything else you would like to add?

Is there anything else you would like to add? (I worked: 6-8 timmar/vecka)

Ovanligt bra lärare och övningsassistent.

Is there anything else you would like to add? (I worked: 9-11 timmar/vecka)

Nothing else to add. Thank you for this great and beneficial course!

Is there anything else you would like to add? (I worked: 12-14 timmar/vecka)

No

Is there anything else you would like to add? (I worked: 33-35 timmar/vecka)

None

SPECIFIC QUESTIONS

Utvärderingarna görs enligt en mall som jag inte kan påverka. För mig som kursansvarig är det viktigt att veta hur de olika momenten såsom föreläsningar, hemuppgifter mm fungerar och bör utvecklas. Kommentarer?

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The different parts of the course all worked well even though exercise solutions on canvas would be a good addition.

The homework was really good due to you can practice the topic for the exam and they had a medium level as well as the tutorial, they are very helpful.

See comment on suggestions for improvement

Jag hade behövt tid för frågor inför hemuppgifterna.



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

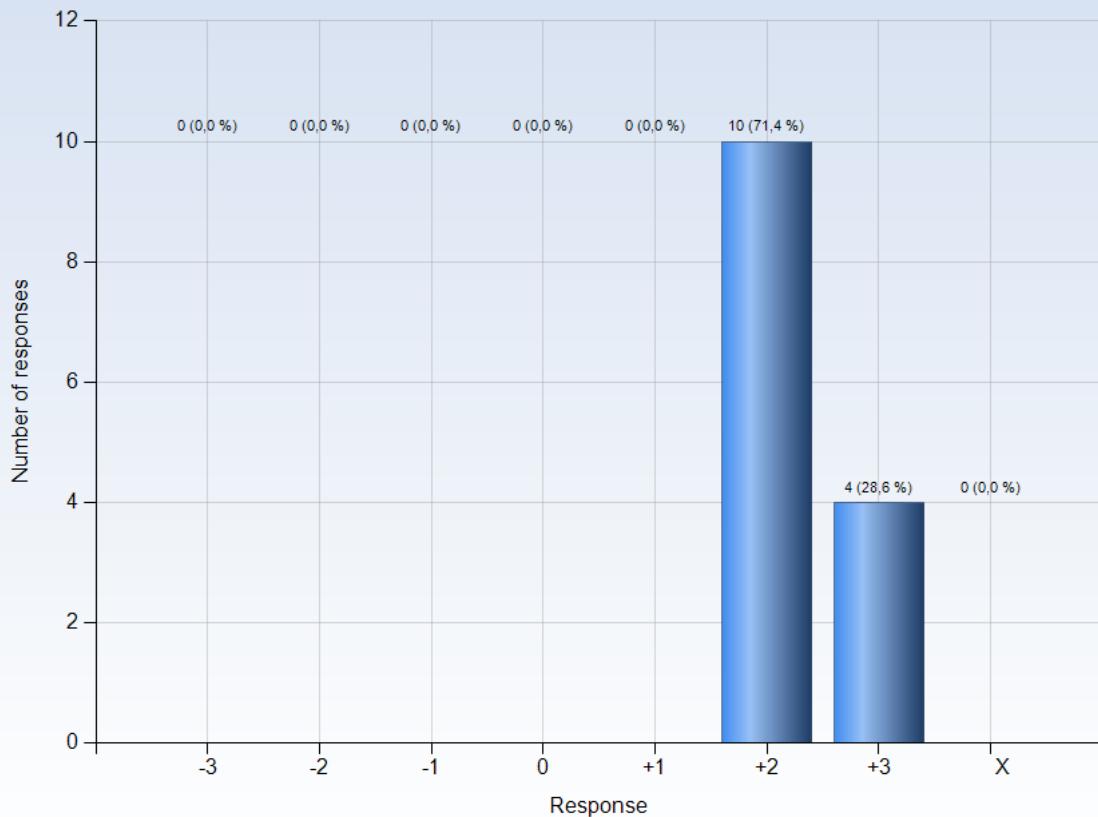
0 = I am neutral to the statement

+3 = Yes, I strongly agree with the statement

X = I decline to take a position on the statement



1. I worked with interesting issues



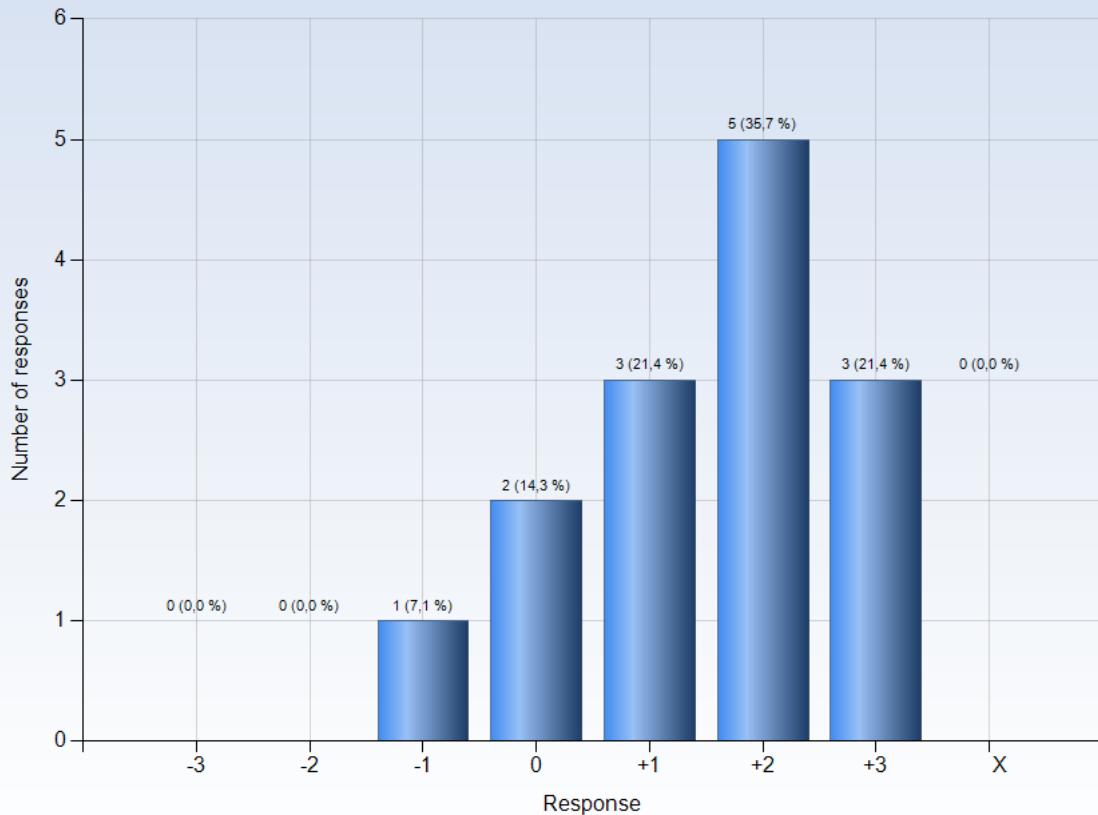
Comments

Comments (My response was: +3)

I found the course super interesting



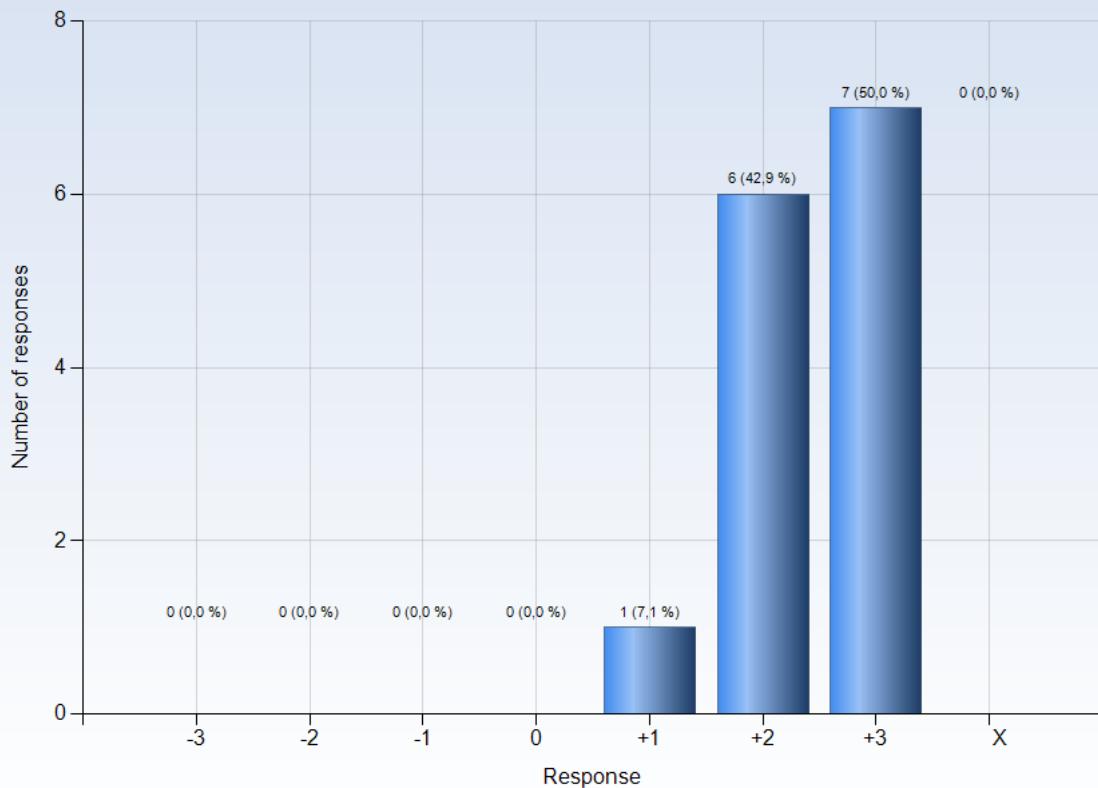
4. The course was challenging in a stimulating way



Comments



7. The intended learning outcomes helped me to understand what I was expected to achieve



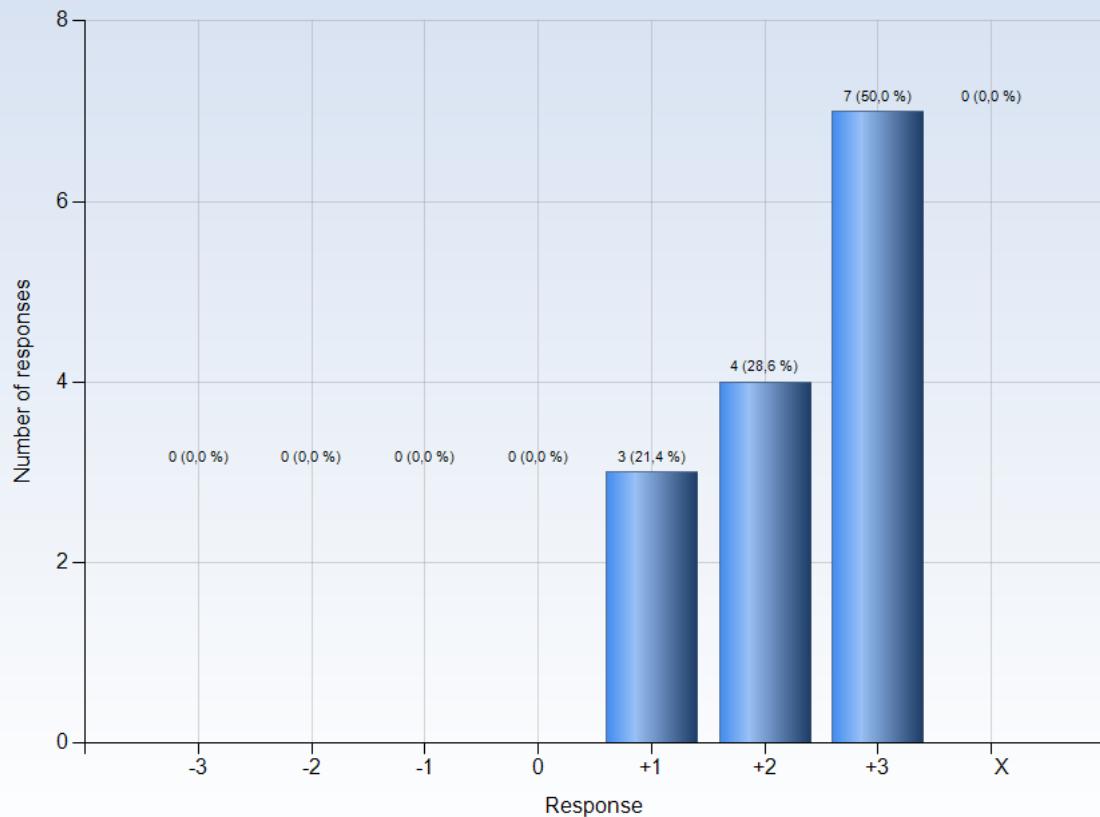
Comments

Comments (My response was: +2)

It is not like I knew the learning outcomes by heart



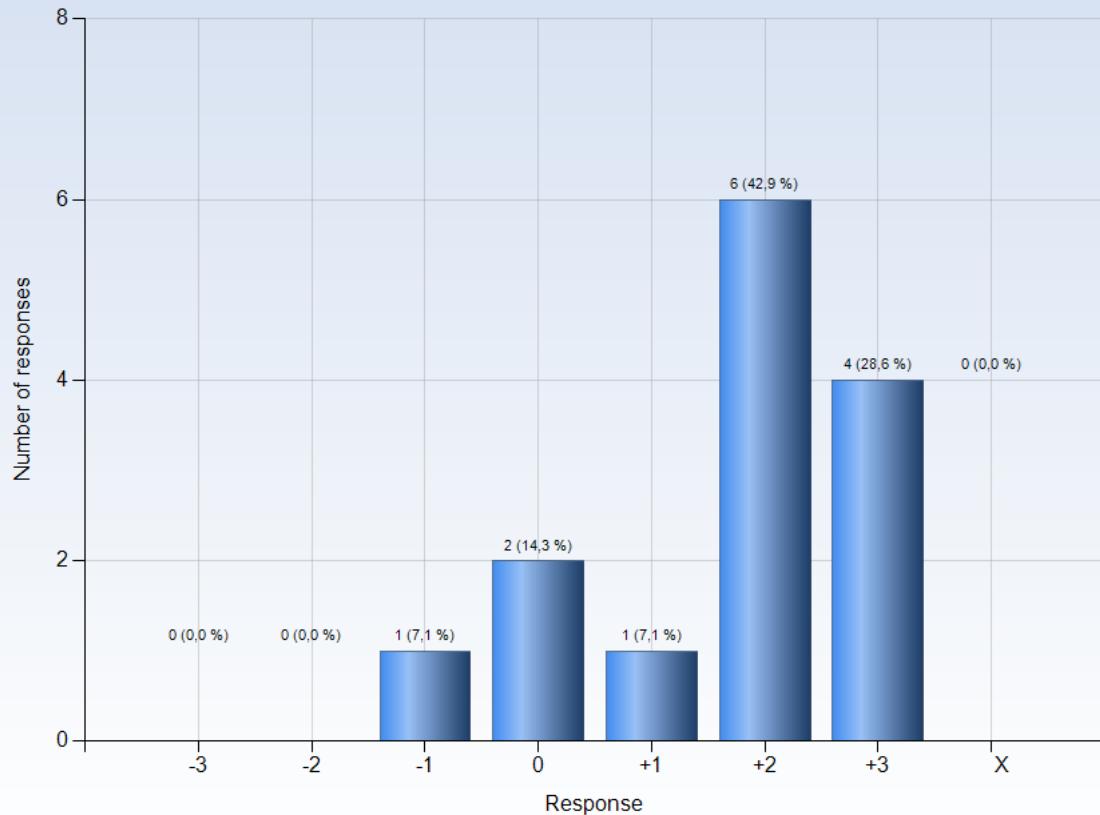
10. I was able to learn from concrete examples that I could relate to



Comments



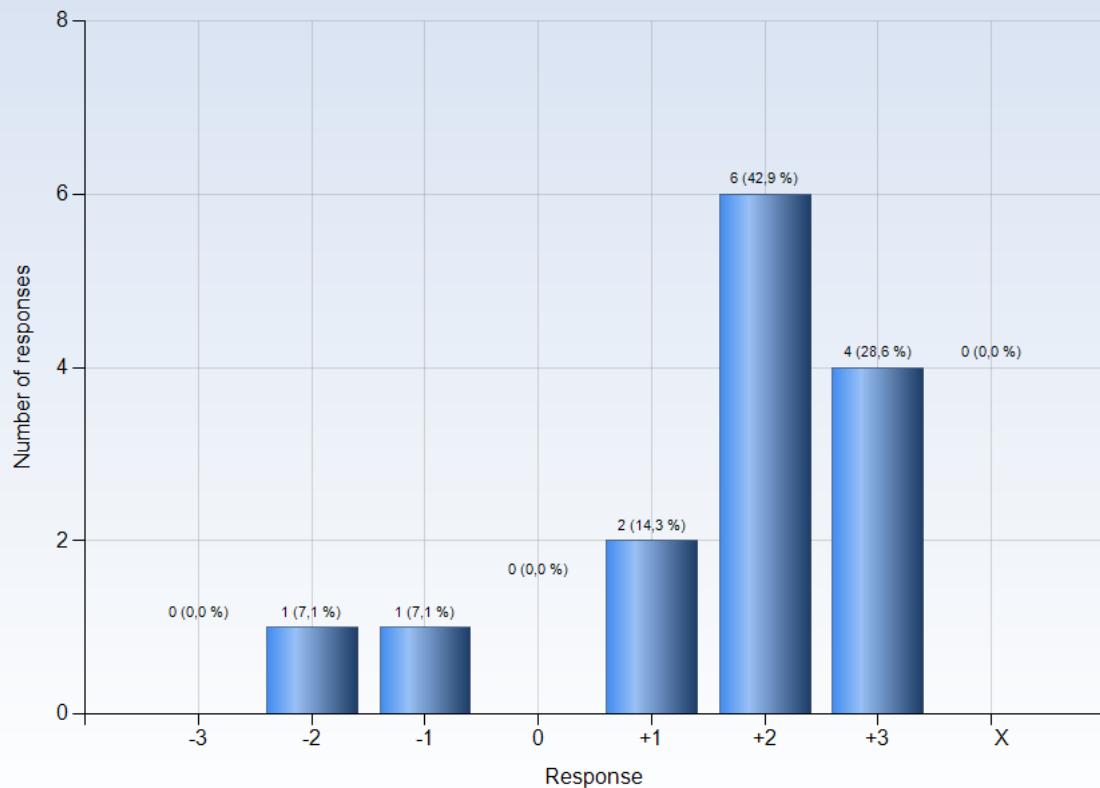
11. Understanding of key concepts had high priority



Comments



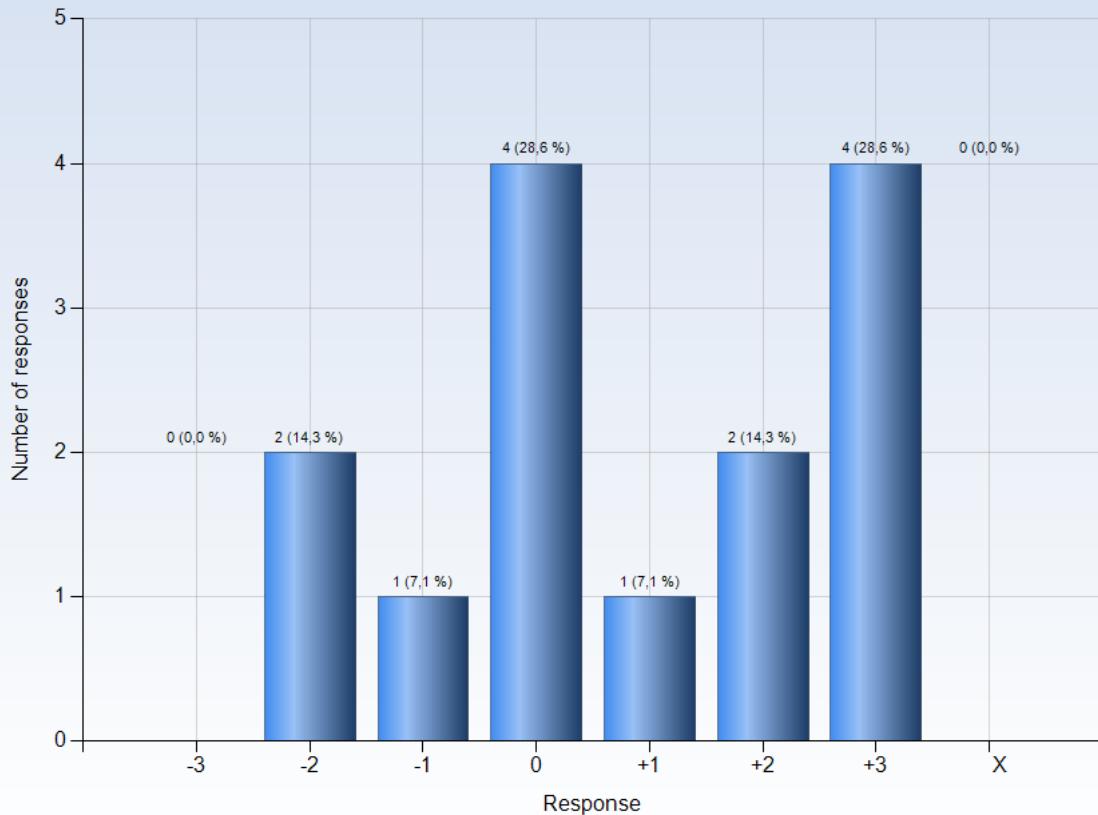
12. The course activities helped me to achieve the intended learning outcomes efficiently



Comments



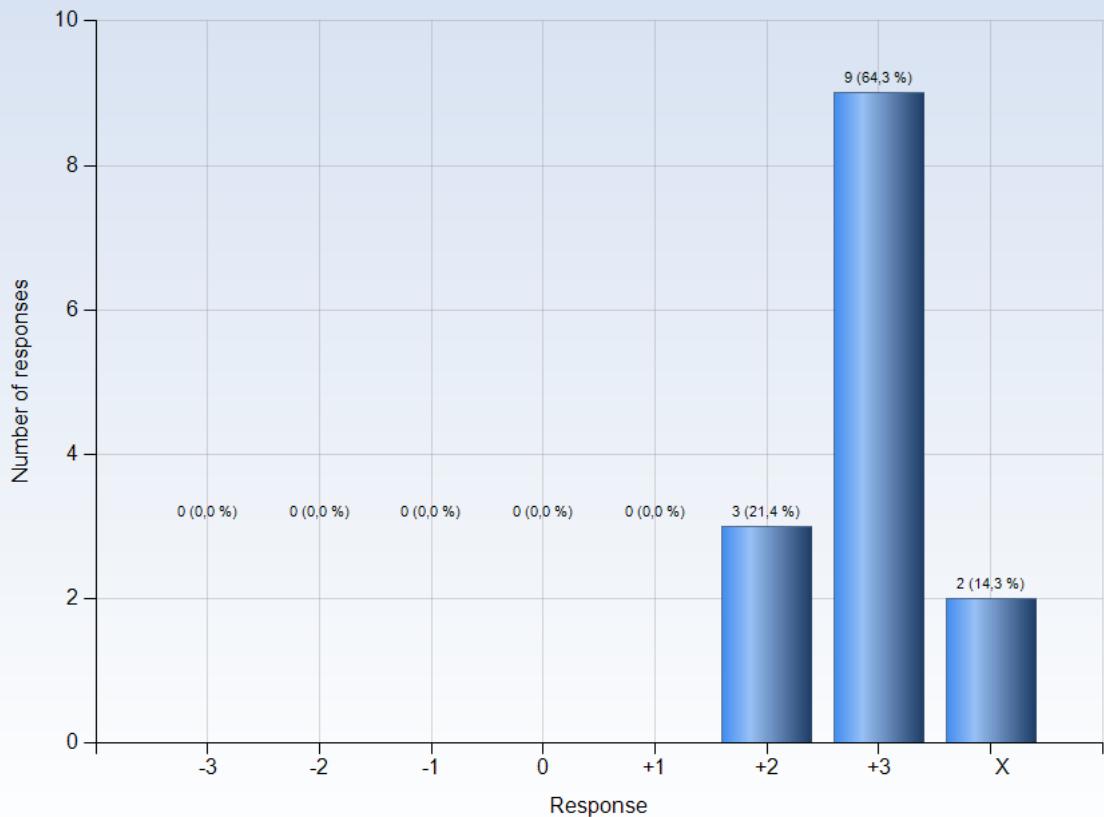
15. I was able to practice and receive feedback without being graded



Comments



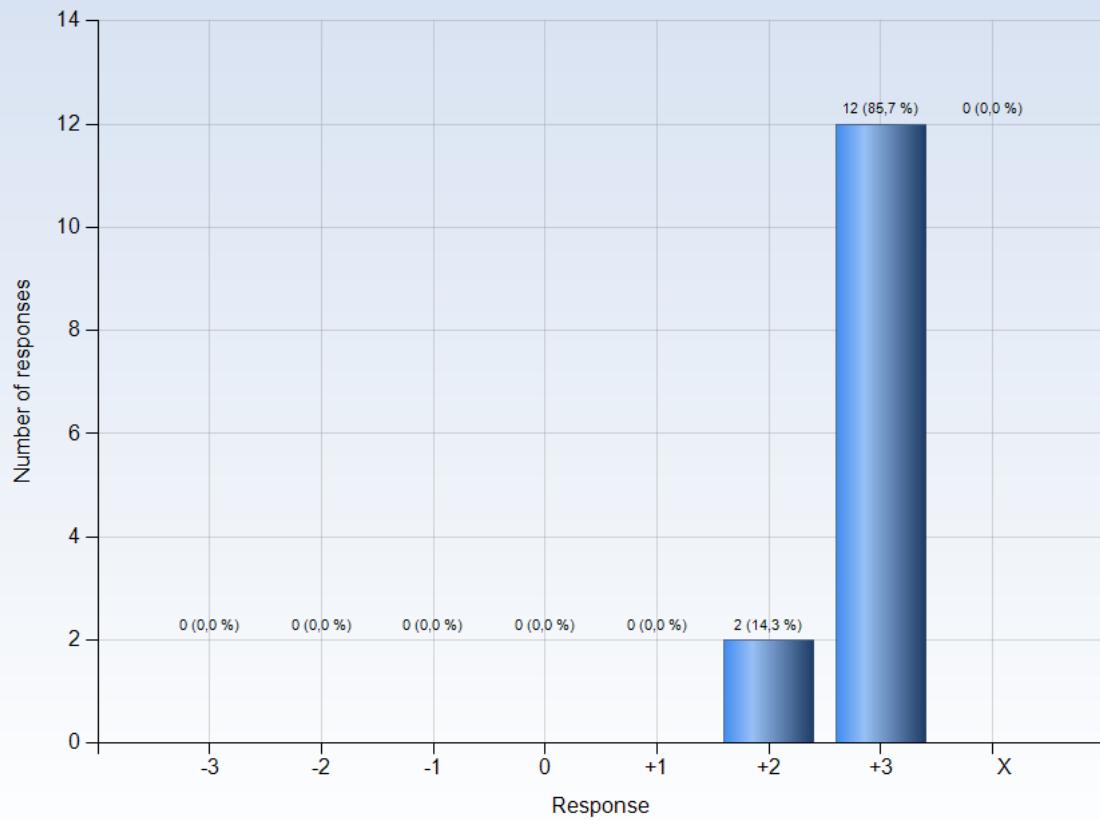
16. The assessment on the course was fair and honest



Comments



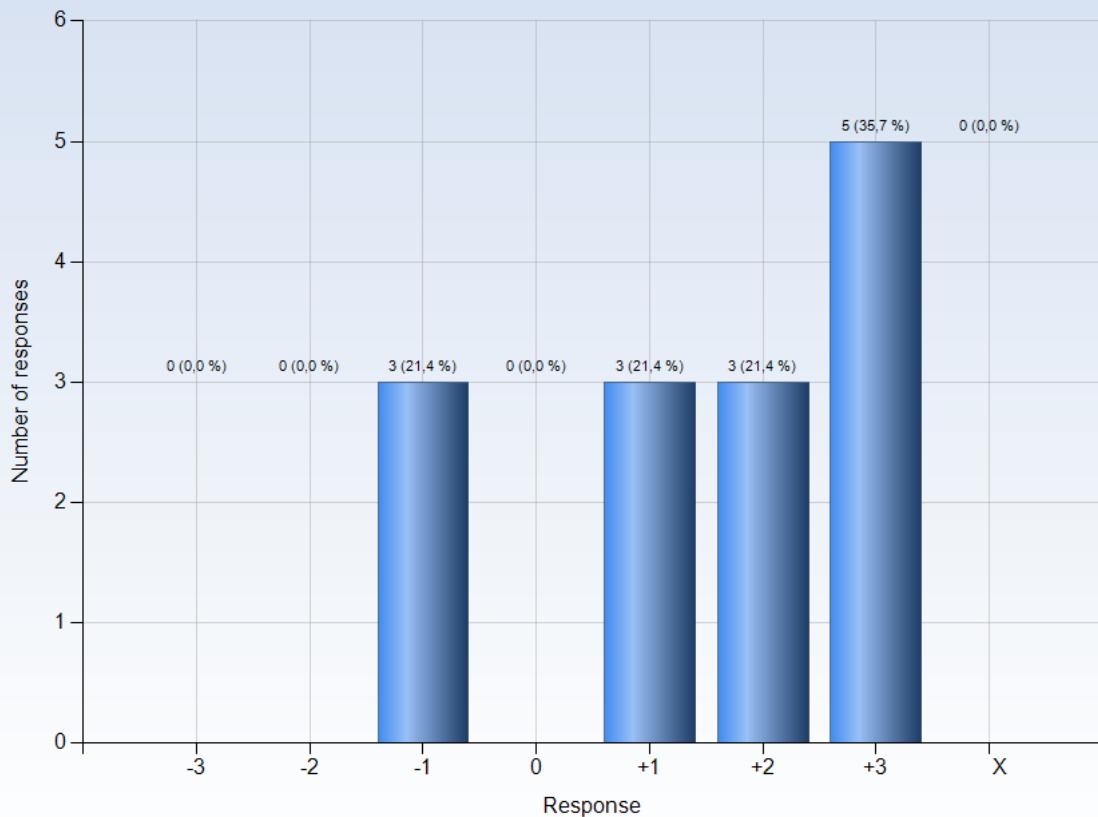
17. My background knowledge was sufficient to follow the course



Comments



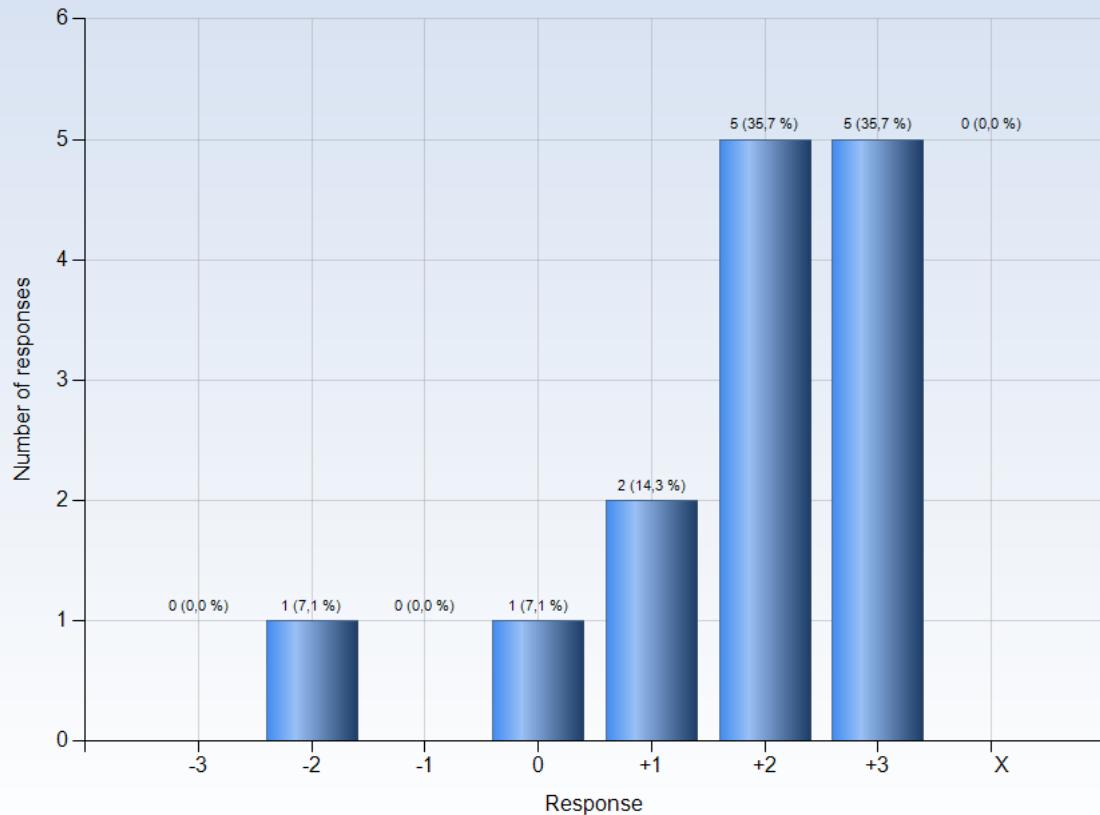
19. The course activities enabled me to learn in different ways



Comments



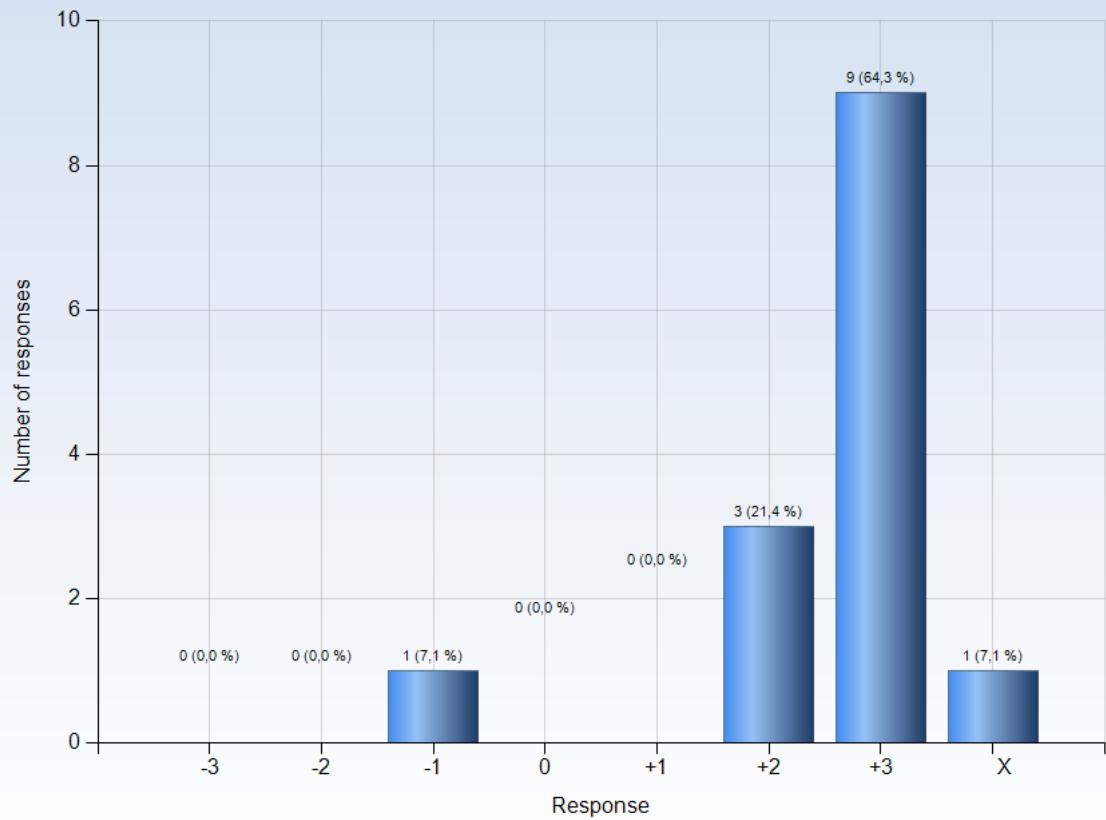
21. I was able to learn by collaborating and discussing with others



Comments



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



Comments