



Report - EF2240 - 2018-11-22

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):

Tomas Karlsson, tomas.karlsson@ee.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 general goal is to give an overview of the space environments in the solar system (and to some extent outside of it), and the plasma physics applications used in describing them.

The main material is presented in the lectures which applies basic plasma physics on a number of space phenomena. Simple quizzes during the lectures gives a first application of the material. In the tutorials more quantitative examples are shown, and the students can practice themselves in the mini.groupworks. The latter consists of randomized groups of three student, who will solve a hand-in exercise, which will give bonus points. The exercise are aimed at simulating exam questions, but with some more explicit clues.

For this year, the mini-groupworks were totally updated. I also introduced three mock-exams, which could be handed in and corrected, but which didn't give any bonus points.

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 students generally spend less time than this. As always, I assume that this is because of continuous examination, and on the relatively elementary mathematical level of the course. That is consistent with this student comment: "Very well organized in order to reduce the number of hours needed to study for the exam. You are 'forced' to study continuously and i think it's very positive"

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?

Only one F. This is quite normal. The grade level was a bit higher than usual, because I had to change the grade levels due to a formality. (Need to check this until next year.)

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?

Most answers are around 6.0, so the students seem to be positive wrt these questions. Also informal comments during the course indicate this.



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?

Some students think that the course could be a bit more challenging.

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?

In general very positive comments. (Example: "It was very great and interesting. I would like to compliment with Tomas. I had a very good impression, he really cares about teaching. He was always available and he has a good teaching method")

I have collected a few recommendations for improvements:

"Sometimes we waste our time in courses just to demonstrate concepts we do not really study after"

"It would have been nice if there was more time between tutorials and mini group works."

"Maths can easily help loosing attention if it just happens on the screen."

Some recommendations for other students:

"Focus on understanding and to get a "feeling" for the subject."

"Do the tutorials before the mini group work."

PRIORITY COURSE DEVELOPMENT

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

1) A few lectures need to be updated, I can probably remove some stuff that we don't really go into.

2) Some more short breaks, in the form of color-card votes, and questions to the students should be introduced.

On a longer time scale, the compendium needs to be updated. I have gotten the OK from Fälthammar to do this.

OTHER INFORMATION

Is there anything else you would like to add?

The mini-groupworks are very popular and are felt to be a good pedagogical tool.

The new mock-exams were also well received.

Kursdata 2018-11-22

EF2240 - Rymdfysik, HT 2018

Kursfakta

Kursen startar:	2018 v.35
Kursen slutar:	2018 v.43
Antal högskolepoäng:	6,0
Examination:	TEN1 - Rymdfysik, 6,0, betygsskala: A, B, C, D, E, FX, F
Betygsskala:	A, B, C, D, E, FX, F

Bemanning

Examinator:	Tomas Karlsson <tomask@kth.se>
Kursomgångsansvarig lärare:	
Lärare:	
Assistenten:	

Antal studenter på kursomgången

Förstagångsregistrerade:	0
Totalt registrerade:	36

Prestationer (endast förstagångsregistrerade studenter)

Examinationsgrad ¹ [%]	Det finns inga kursresultat inrapporterade
Prestationsgrad ² [%]	Det finns inga kursresultat inrapporterade
Betygsfördelning ³ [%, antal]	Det finns inga kursresultat inrapporterade

1 Andel godkända studenter

2 Andel avklarade poäng

3 Betygsfördelning för godkända studenter

EF2240 - Rymdfysik, HT 2018

Kursfakta

Kursen startar:	2018 v.35
-----------------	-----------

Kursen slutar:	2018 v.43
Antal högskolepoäng:	6,0
Examination:	TEN1 - Rymdfysik, 6,0, betygsskala: A, B, C, D, E, FX, F
Betygsskala:	A, B, C, D, E, FX, F
Bemanning	
Examinator:	Tomas Karlsson <tomask@kth.se>
Kursomgångsansvarig lärare:	
Lärare:	
Assistenter:	

Antal studenter på kursomgången

Förstagångsregistrerade:	0
Totalt registrerade:	6

Prestationer (endast förstagångsregistrerade studenter)

Examinationsgrad¹ [%]	<i>Det finns inga kursresultat inrapporterade</i>
Prestationsgrad² [%]	<i>Det finns inga kursresultat inrapporterade</i>
Betygsfördelning³ [%, antal]	<i>Det finns inga kursresultat inrapporterade</i>

1 Andel godkända studenter

2 Andel avklarade poäng

3 Betygsfördelning för godkända studenter

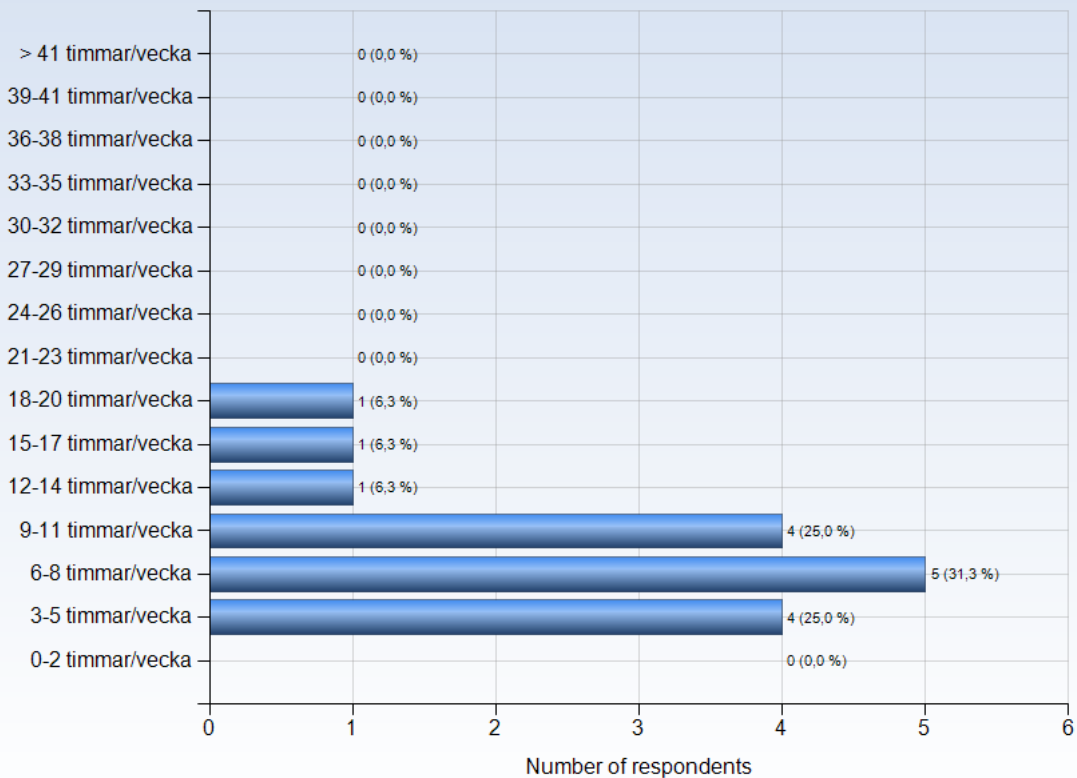


EF2240 - 2018-10-19

Antal respondenter: 43
Antal svar: 16
Svarsfrekvens: 37,21 %

ESTIMATED WORKLOAD

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



Comments

Comments (I worked: 3-5 timmar/vecka)

I had a collision in my schedule so I was unable to attend the lectures almost every week, but I was able to attend the tutorials.

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

It was the perfect amount of workload

I think I have to work more at home (read all the necessary literature) but during this period it was not possible for me.

Tutorials and Lectures are well balanced so there is not too much own work. Very appreciable when one follows several other classes.

Good

Comments (I worked: 9-11 timmar/vecka)

4h = lecture

2h = tutorial correction + minigroup

2h = studying the content of the lecture

3h = solving the tutorials

work load was okay

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

Very well organized in order to reduce the number of hours needed to study for the exam. You are 'forced' to study continuously and I think it's very positive



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:

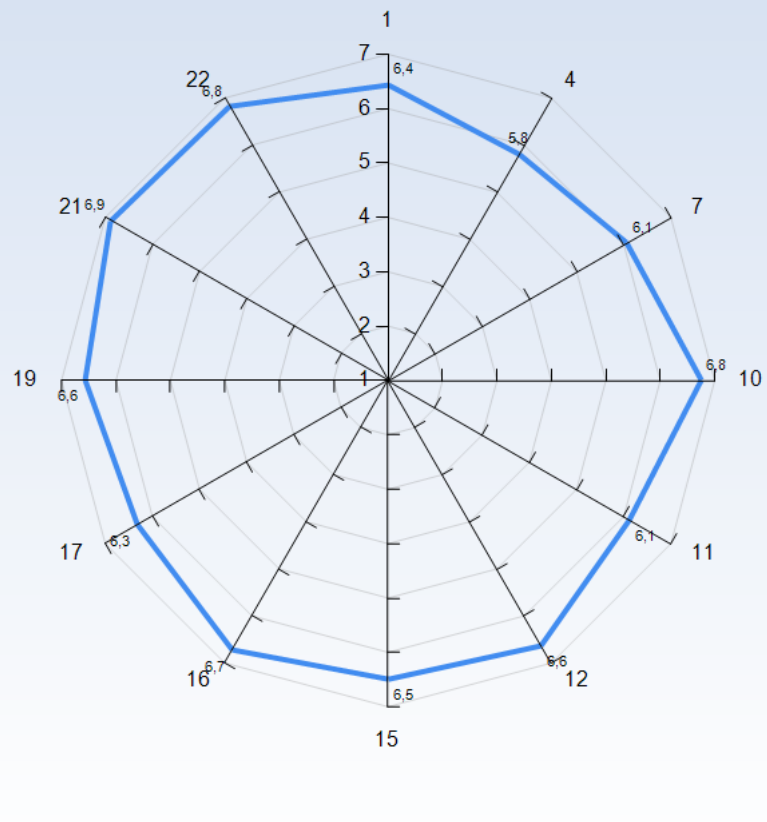
1 = No, I strongly disagree with the statement

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.

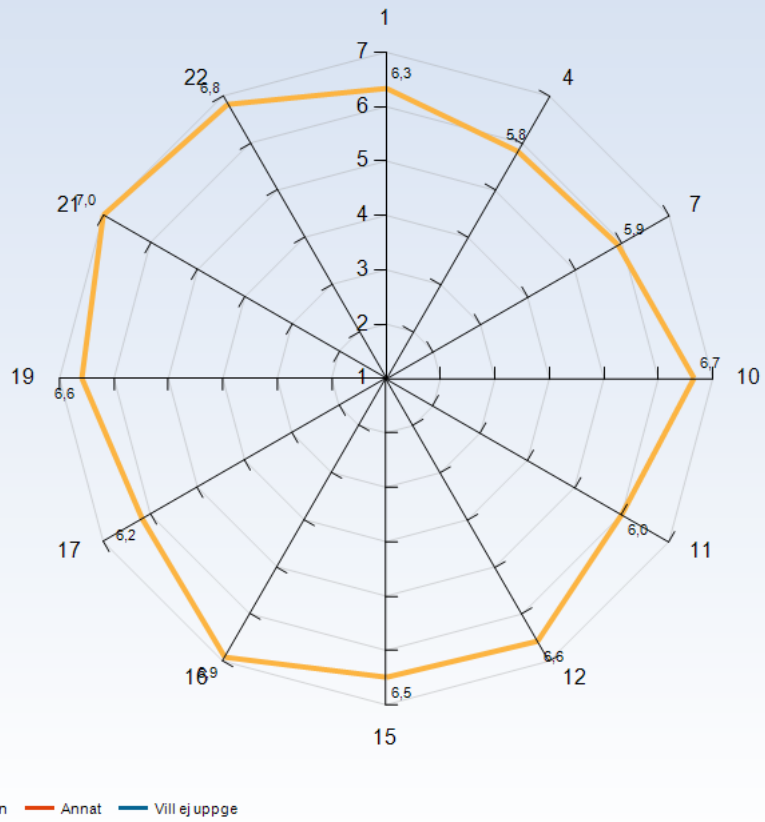
Biggs J. & Tang, C. (2011). *Teaching for Quality Learning at University*, Chapter 6, pp. 95-110. Maidenhead: McGraw Hill.

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.

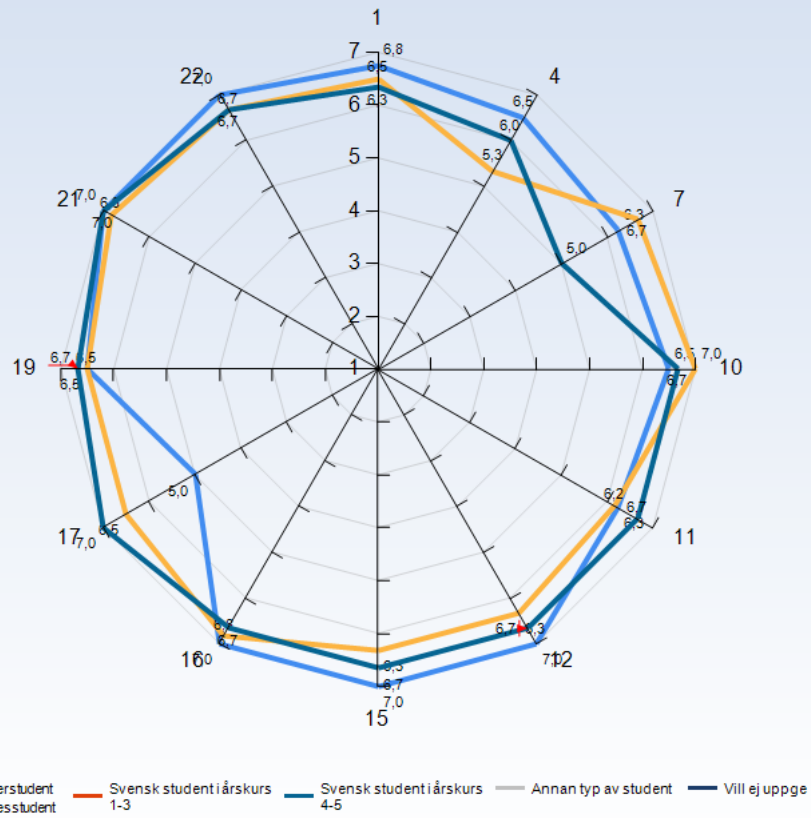
Ramsden, P. (2003). *Learning to Teach in Higher Education*, Chapter 6, pp. 84-105. New York: RoutledgeFalmer.

Average response to LEQ statements - per gender



Comments

Average response to LEQ statements - per type of student



Comments

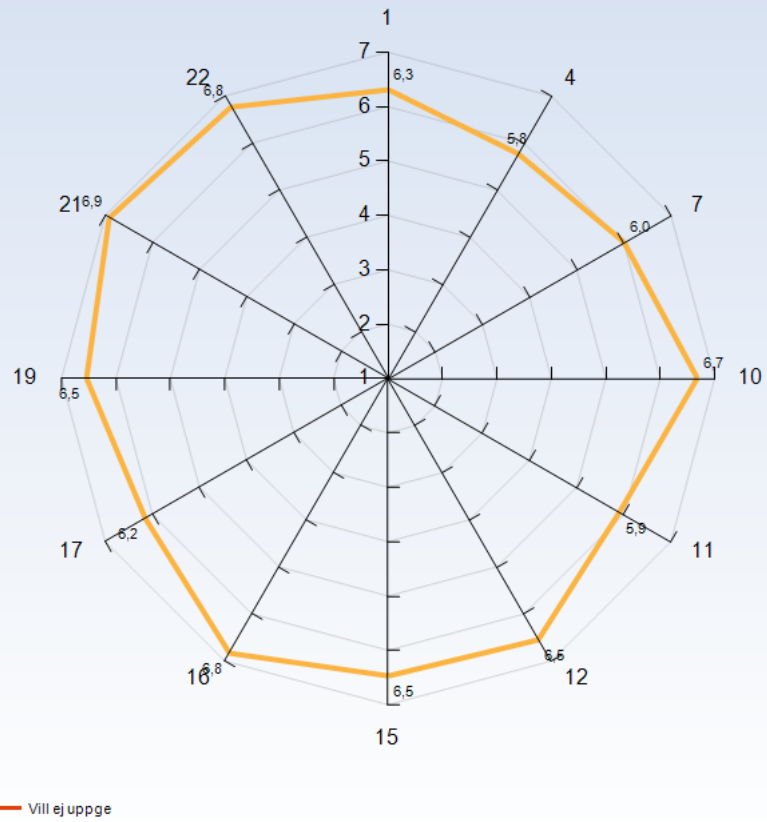
Comments (I am: Svensk student i årskurs 4-5)

I felt that this was a good course to compliment my physics education, suitable for me as an optional course.

Comments (I am: Annan typ av student)

I am an international double-degree student and so I am doing this master in 1 year.

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: 3-5 timmar/vecka)

I liked the minigroupworks, they gave us an opportunity to collaborate and solve problems of the same character as the ones on the exam. This was very important for me since I was unable to attend the lectures so this gave me an opportunity and motivated me to catch up.

Interesting topics and close to real live work

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

The minigroup work helped a lot To understand what has been taught in the lectures and it was great To know the classmates

Mini-group works

Very nice having tutorials and mini groups! The teacher really took care that students understand (questions during lectures, One Minutes, ...)

Interaction with students and teacher

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

- Get a feeling of the magnitude phenomena with simple calculations

- Get a qualitative explanation (using also simulations videos) of the phenomena

- Alternating lecture with quizzes and minigroups was helpful because you feel stimulated to study step by step.

Tomas was overall very nice. I like when lecturers try to solve issues (like scheduling, missed exercises etc) instead of just ignoring it.

I also enjoyed having the minigroup work and mock exams to see how well I understood the material.

Mini group work

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

I had a positive experience with every aspect of the course (lectures, tutorials etc). A positive thing that differentiates this course from others is that it did not focus on memorizing formulas and other things by heart. Instead, it focused on understanding the key concepts.

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

The topics were very interesting and were also presented in a clear and stimulating way

What would you suggest to improve?

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

I can't think of anything.

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

The wasted time to demonstrate some very basic concepts, while some other new (and harder) concepts need it.

- No need to present several times the next courses on Space Physic (only one time is enough at the end of the course)

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

Design of the lecture slides, better structuring

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

Nothing in particular.

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

Maybe more old exams could be useful



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)

Attend the mini group works.

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

Take the course ! Interesting and very Well taught

You don't need a lot of physic background to understand this course.

- Do the tutorial before coming to class

Don't miss lectures because they are very interesting

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

- Study week by week and give your active contribute during the minigroups.

Attend everything.

Do the tutorials before the mini group work.

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

Focus on understanding and to get a "feeling" for the subject.

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

Try to do the tutorial before the correction

Is there anything else you would like to add?

Is there anything else you would like to add? (I worked: 3-5 timmar/vecka)

No.

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

Very nice having all the support online and printed at the first lectures !

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

SPECIFIC QUESTIONS

Vad tyckte du om föreläsningarna?

Vad tyckte du om föreläsningarna?

Since I was unable to participate during most of them I don't think I can give a fair assesment, but for those that I was able to attend I think that they did a good job of presenting the subject in a manner that was easy to comprehend.

Maths can easily help loosing attention if it just happens on the screen. More complex derivation however were done on the whiteboard. As I said, I liked the quizzes. The lecturer was clear and talked at a good pace.

Well paced and good explanations. A bit repetitive at times, but I think that is to get information to "stick".

They were great, no complaints

Concrete and interactive enough

Very clear, the teacher takes his time and that is great. He is always available for questions.

Interesting, maybe more equations could be presented and some exercices more advanced proposed for training and culture!

Interesting

I liked the detailed repetition at the beginning of each lecture.

Interesting and I like the quick questions in the lectures where every student can take a moment and try to calculate small tasks to keep them engaged.

The lectures were great, interesting and not too heavy. I think that Tomas has a very good teaching method.



Vad tyckte du om övningarna?

Vad tyckte du om övningarna?

A little stressfull at times but did a good job of preparing us for the examinations and minigroupworks.

Good that they had problems with increasing level of difficulty. Very useful to prepare for the exam week by week. Maybe the lecturer could have asked what problems should he correct in class.

Nice to see how to approach problems.

Good, no complaints.

Very good trainings for the exams

Not too long, it is appropriate.

I like the tutorials and mini groups: very nice and appropriate to learn

Good

It would have been nice if there was more time between tutorials and mini group works. The difficulty of the tasks was appropriate.

Very good and the teacher could explain all the problems in an easy/a good way.

Very useful. It's good for a student have the opportunity to exercise regularly and they were a good way to check what you had understood and what not

Vad tyckte du om minigrupperbetena?

Vad tyckte du om minigrupperbetena?

Very good, they provided me with an opportunity to discuss the subjects with fellow students and helped me stay motivated through the course.

Very stimulating and useful to train in a "exam-like" context. A good experience to cooperate with others when they have studied, a bit frustrating when you are doing everything by yourself.

Apart from getting one group I didn't work too well with, I think it's good to train how to solve problems.

I really liked them, a good way of learning since we could get help if needed even though it was part of the examination. This made you think a lot about the problem and realize your weaknesses, then you were pushed in the right direction.

Very interesting and fun

Very efficient, very interesting to discuss with the others to get another point of view of a problem.

Very nice and help from the teacher well balanced

Challenging

The mini group works supported the learning by discussing one specific topic.

Fun and different from what I am used to. Very good to train teamwork while also learning the content of the subject.

Useful. It's a good way to force you to study regularly in order to get some bonus points and give also the opportunity to work under pressure (good training for exam)



Vad tyckte du om tentamen?

Vad tyckte du om tentamen?

Without knowing if I passed, I think that the exam was a good one that tested things that we had prepared for during the course but still provided a challenge at times.

Fair and balanced in level of difficulty. 5 hours are more than necessary, also because your brain will burn at a certain point. Appreciated that the professor said he will mind the mistake on a data value in the problem text. Using materials from course during an exam can be misleading if you question it's easiness: it's always the student that has to make his choices, use it's intuition and adapt the method to each context, so I really appreciated that opportunity.

Nothing super unexpected, but also not identical to earlier exams. Felt like the examination was on the same level as the rest of the course. The last task, as announced after the exam, had some strange values. This made it a bit difficult to know if the result was reasonable.

Reasonable, not harder than expected.

All aspects of the course were there, and the exercises were very concrete and interesting

Not so long, it corresponds to the tutorials.

Surprising to get the wrong order of magnitude in the last exercise when the teacher is so careful with those!

Fair enough

The exam was fair and we had enough time to finish it. There was enough material for a good preparation.

Also very good. Some different levels of difficulty so that each grade is more challenging in a reasonable way. It is also nice to have enough time and to be able to have your notes from the lectures/tutorials.

Fair. I think that it wasn't too hard (but I should wait the result maybe) and it covers a large part of the program. Maybe there was too much time available (3 hours should be enough)

Vad tyckte du om Mock exam exercises?

Vad tyckte du om Mock exam exercises?

I did not do any of them, unfortunately, because I simply could not prioritise them due to the other courses that I was taking at the same time.

As the tutorials, they were taken from past exams, so they were not more or less difficult. They served to get an individual feedback to the person, and this I appreciated.

I like it. It gives people an introduction to the sort of problems that can appear on the exam.

I did not participate but still thought it was a nice thing to offer!

A good way to evaluate yourself

Good idea because it allows you to train without the pressure of being graded.

Nice! Maybe one each week could be done.

Very good idea

The idea is good.

Didn't participate in it but a good idea for more eager students.

Also these were useful. You were 'forced' to show what you did in order to receive a feedback so you have to apply more than for the tutorials

Vad tyckte du om kursen som helhet?

Vad tyckte du om kursen som helhet?

I liked it, I would have liked to be able to attend all the lectures because I think that would have made me feel more involved in the course.

Already said before, very happy with that. I might take energy research in plasma fusion as an elective to expand my knowledge on the topic of plasma!

Good

I enjoyed the topics and it was well presented.

I would highly recommend the course

It was quite clear, it is perfect with the literature.

Very interesting course.

This course was very interesting and stimulating for me

The lecturer was really committed. He explained all topics very well.

Very interesting and would recommend it to others.

It was very great and interesting. I would like to compliment with Tomas. I had a very good impression, he really cares about teaching. He was always available and he has a good teaching method



RESPONSE DATA

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

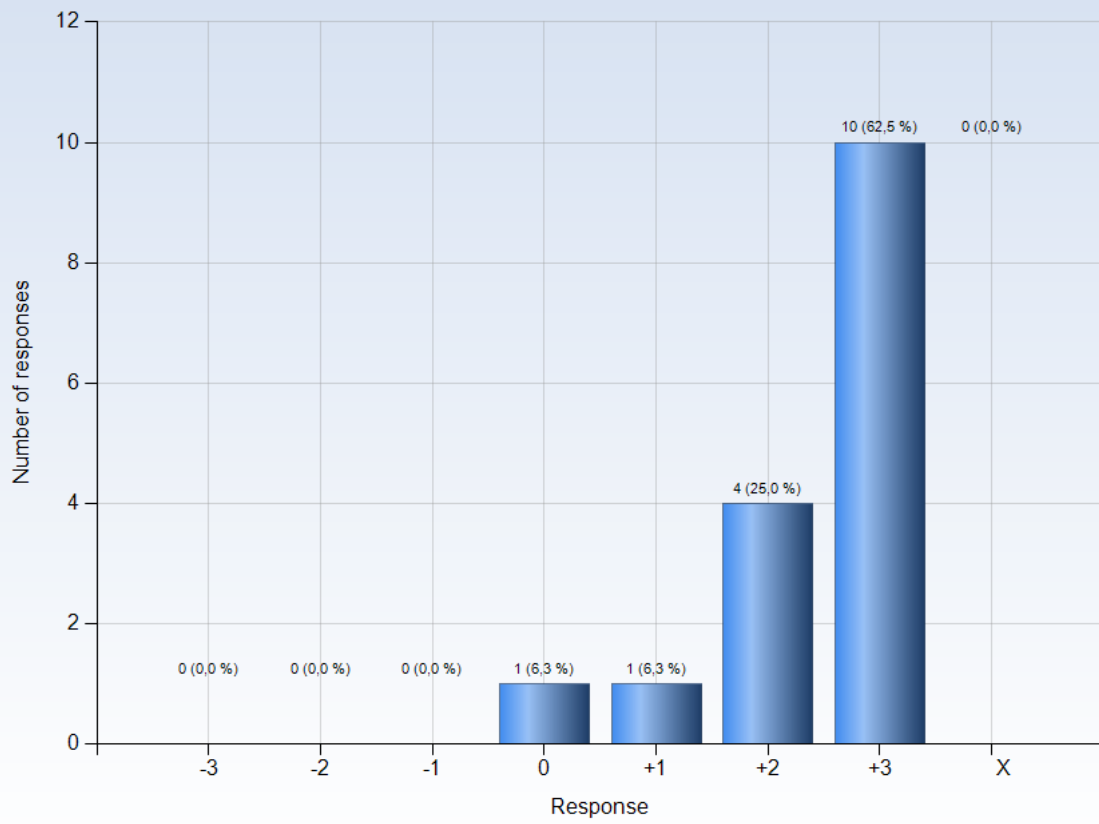
-3 = No, I strongly disagree with the statement

0 = I am neutral to the statement

+3 = Yes, I strongly agree with the statement

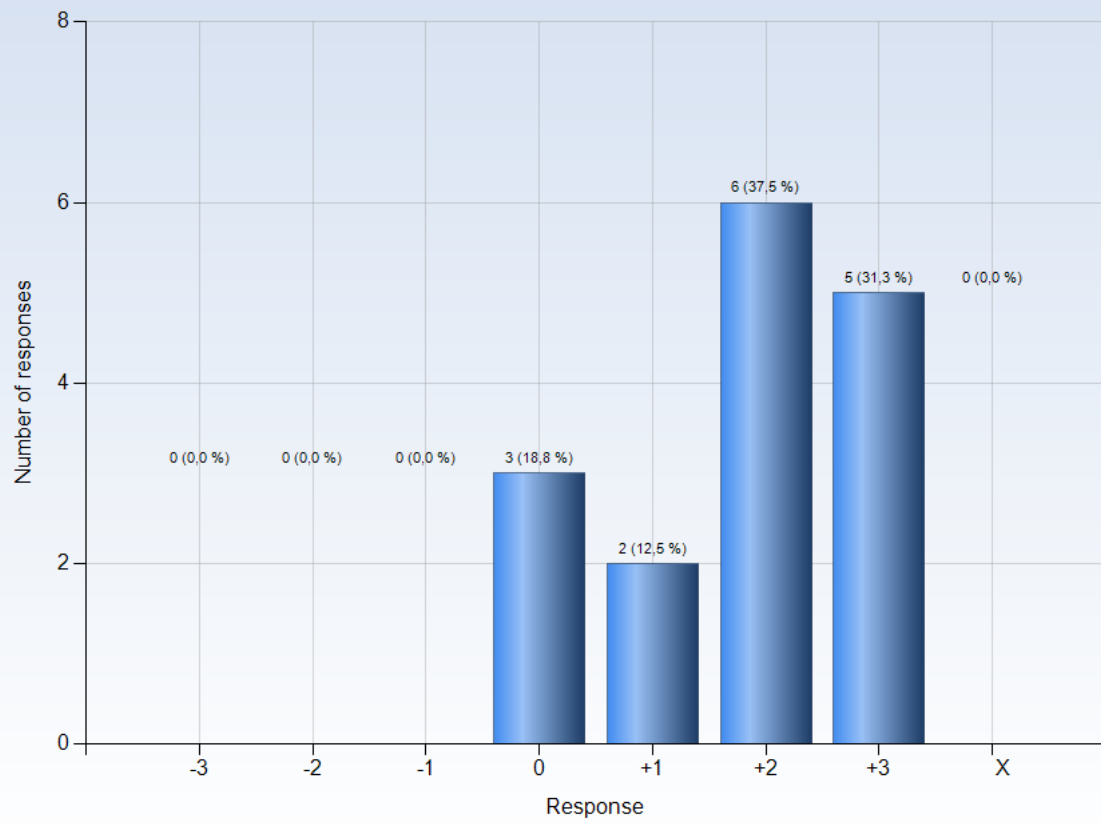
X = I decline to take a position on the statement

1. I worked with interesting issues



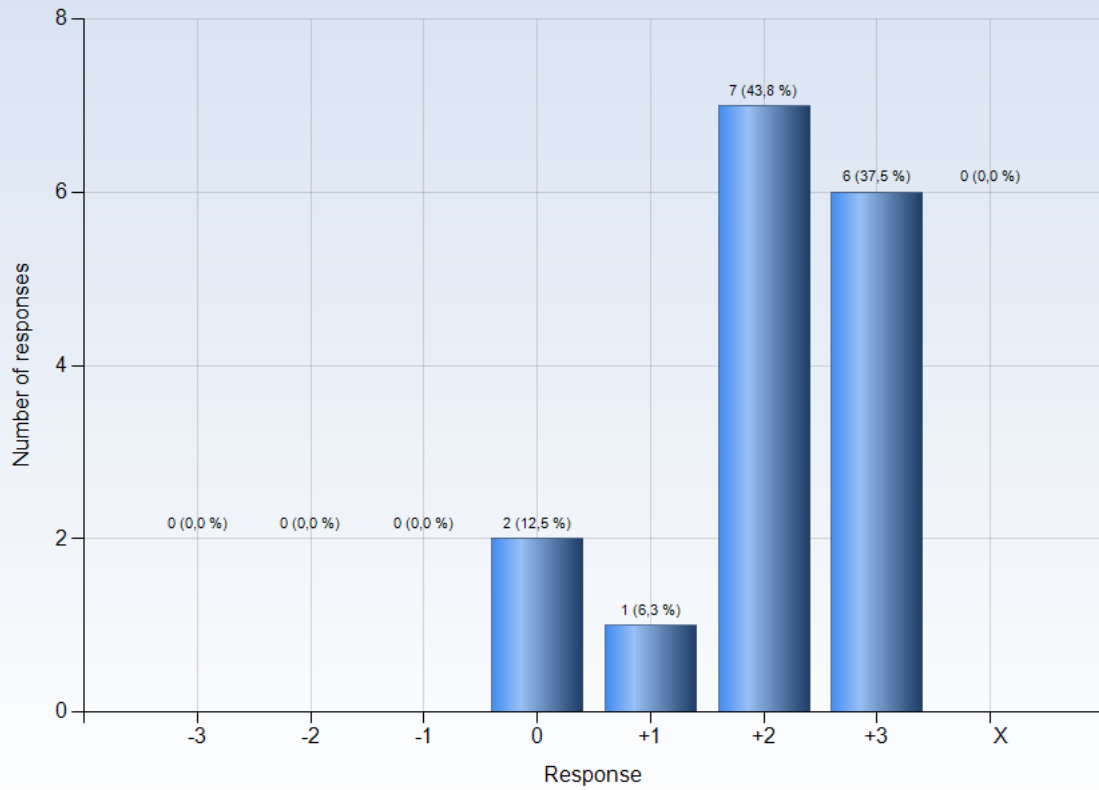
Comments

4. The course was challenging in a stimulating way



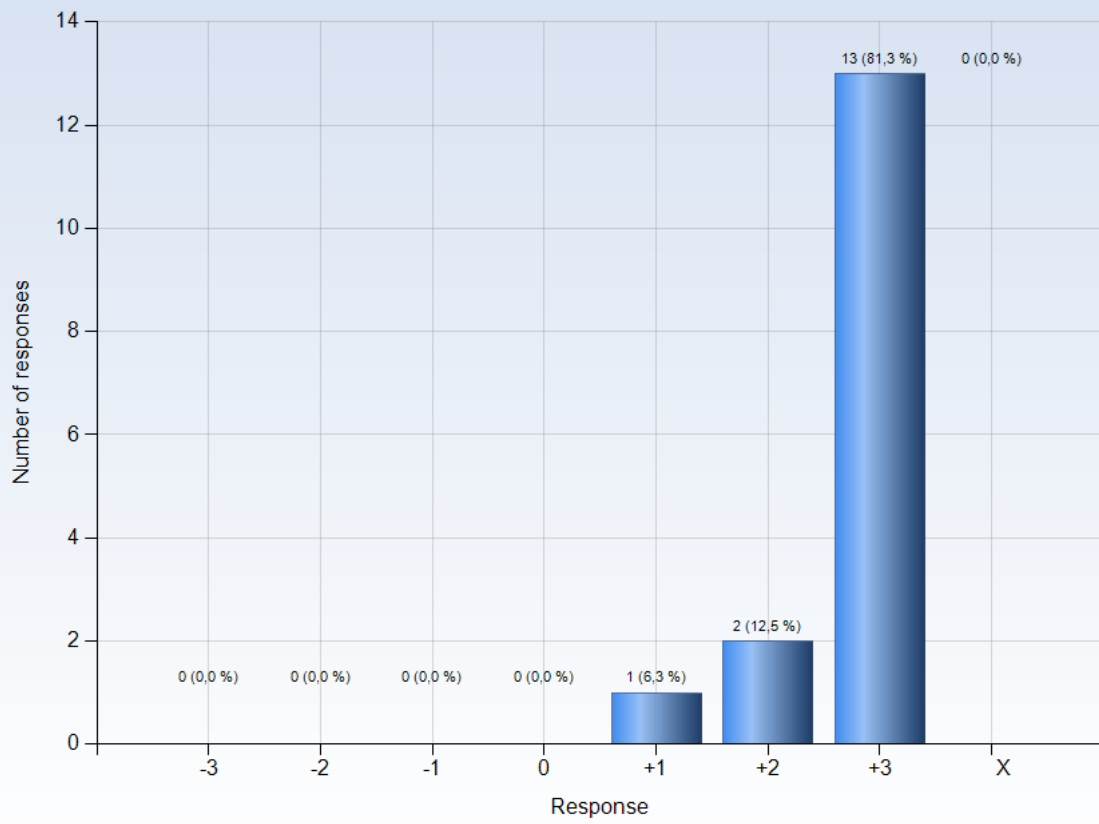
Comments

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



Comments

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

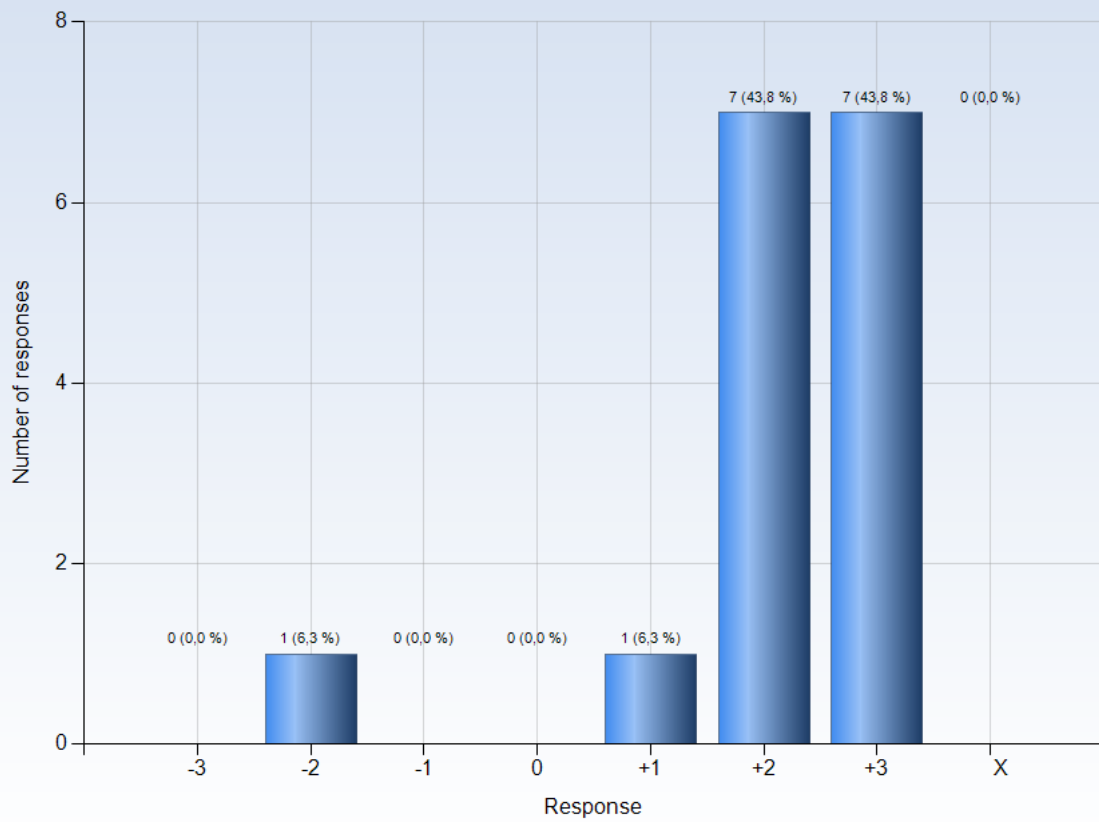


Comments

Comments (My response was: +3)

As much as one can relate to things in space

11. Understanding of key concepts had high priority

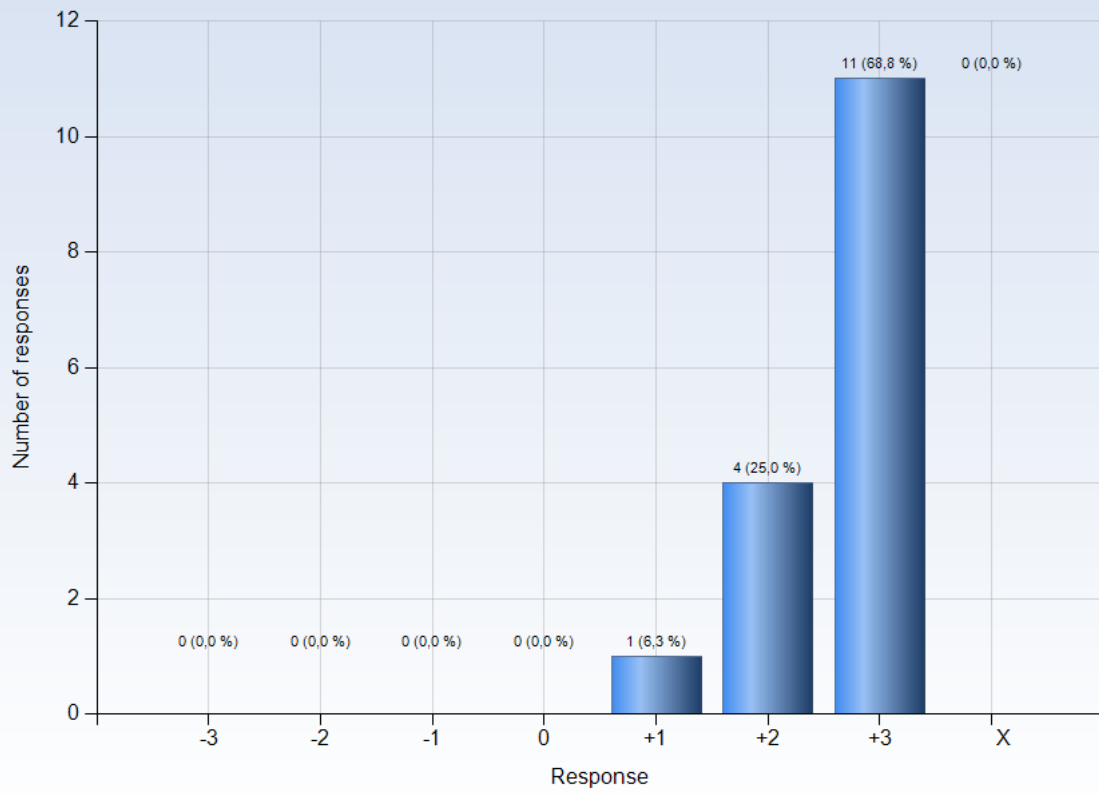


Comments

Comments (My response was: -2)

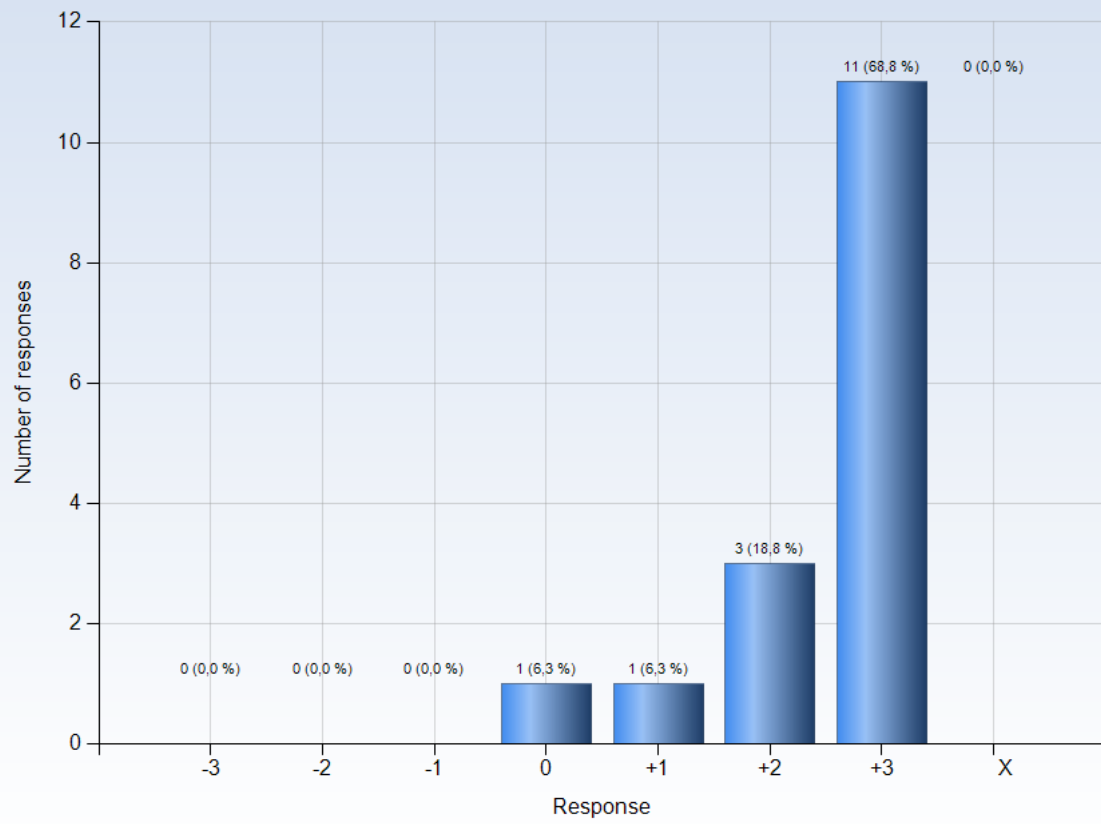
Sometimes we waste our time in courses just to demonstrate concepts we do not really study after

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



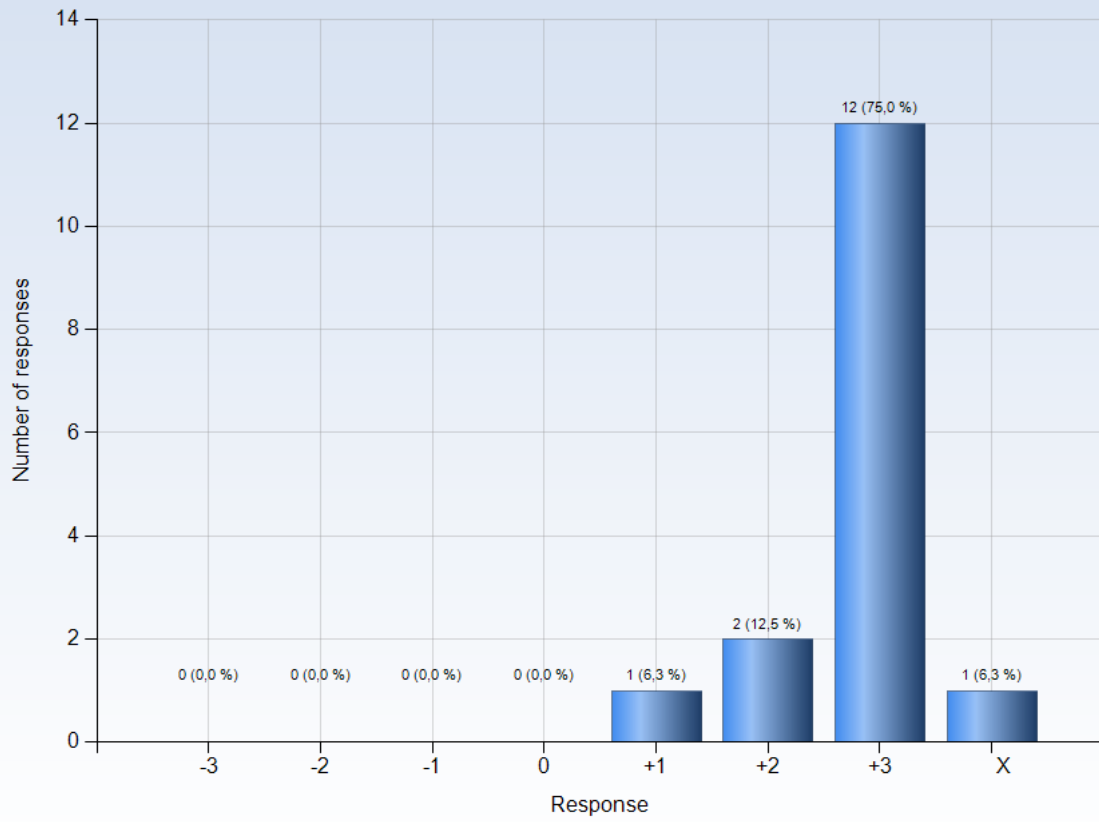
Comments

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



Comments

16. The assessment on the course was fair and honest



Comments

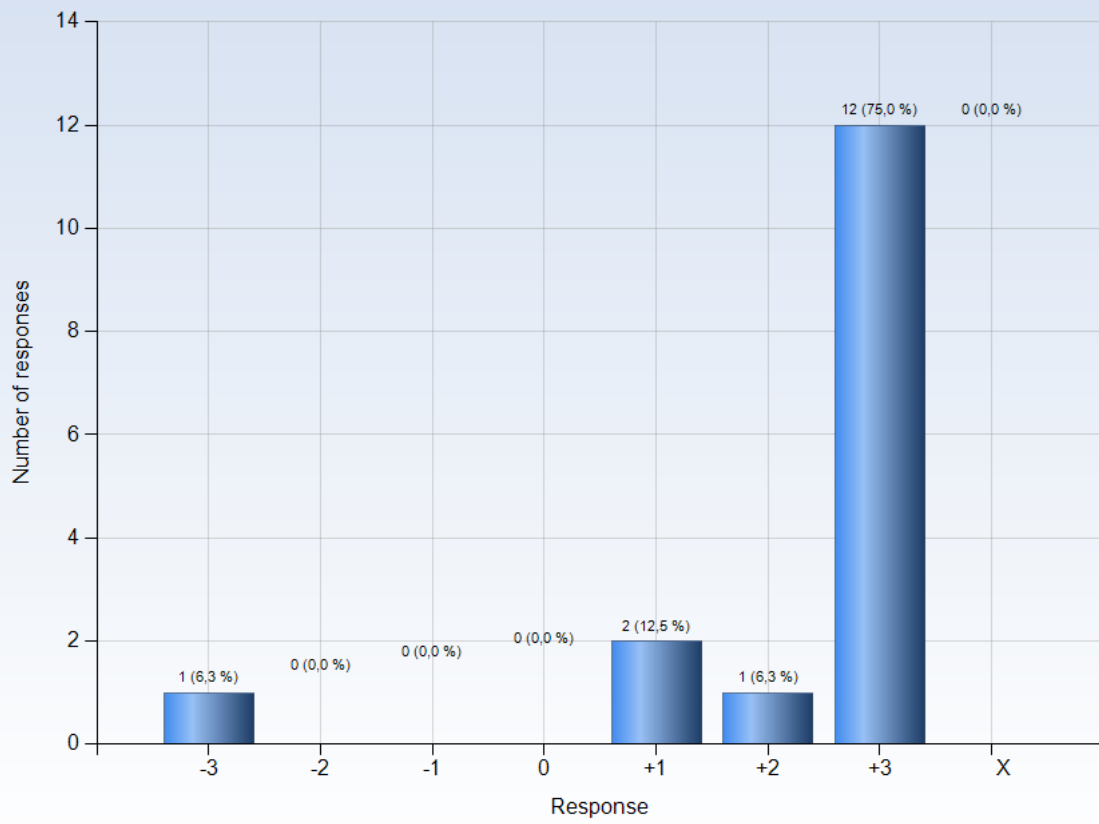
Comments (My response was: +1)

Did not like the group work- individual tests would be better- reflects your own performance

Comments (My response was: X)

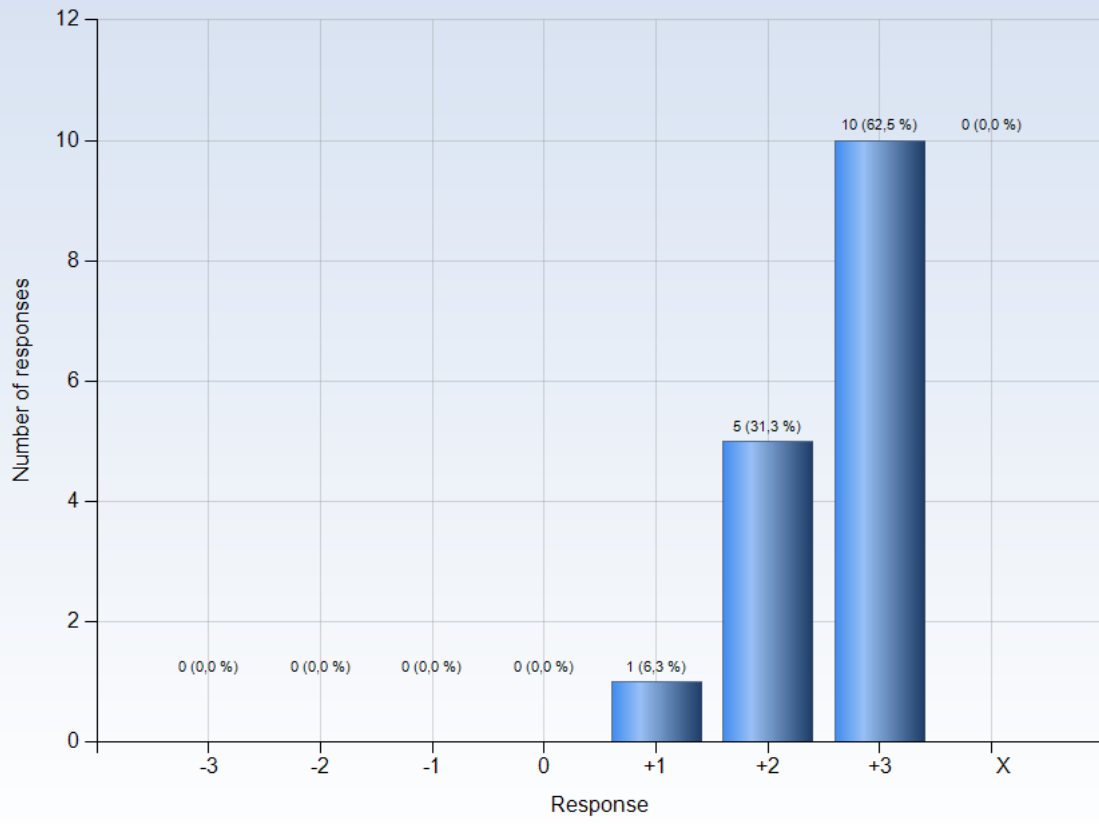
Waiting for exam results

17. My background knowledge was sufficient to follow the course



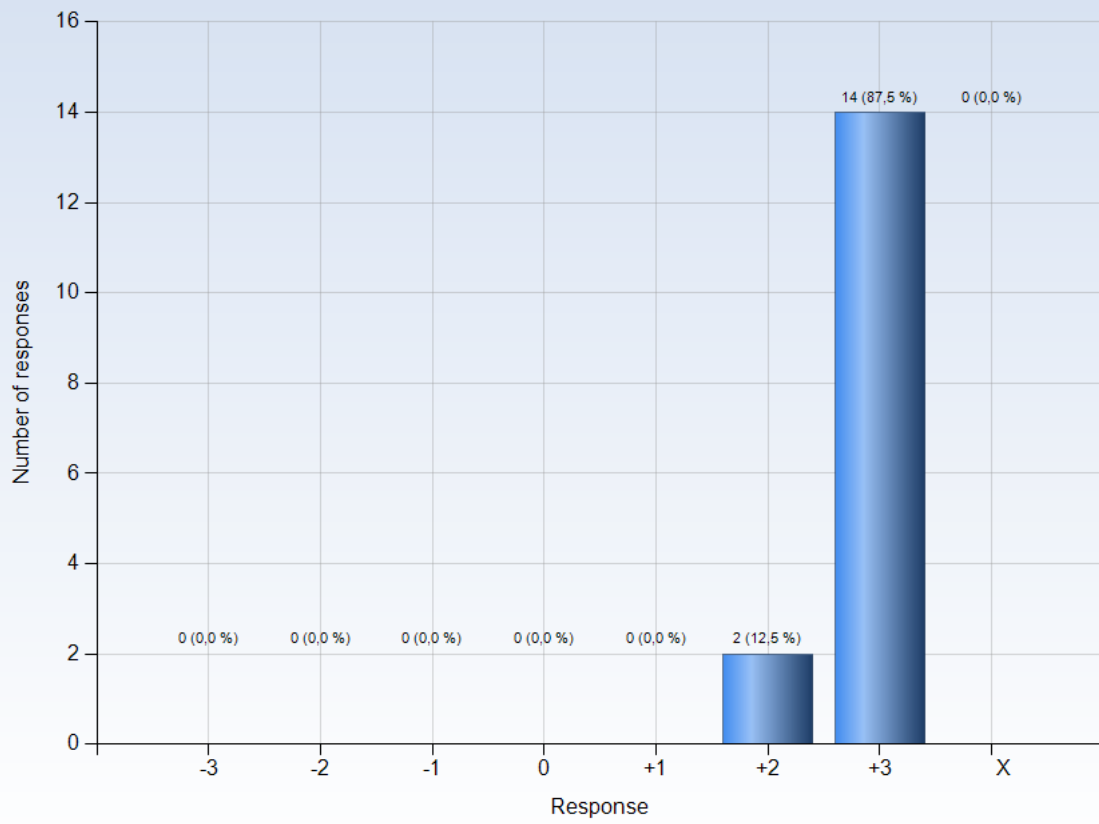
Comments

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



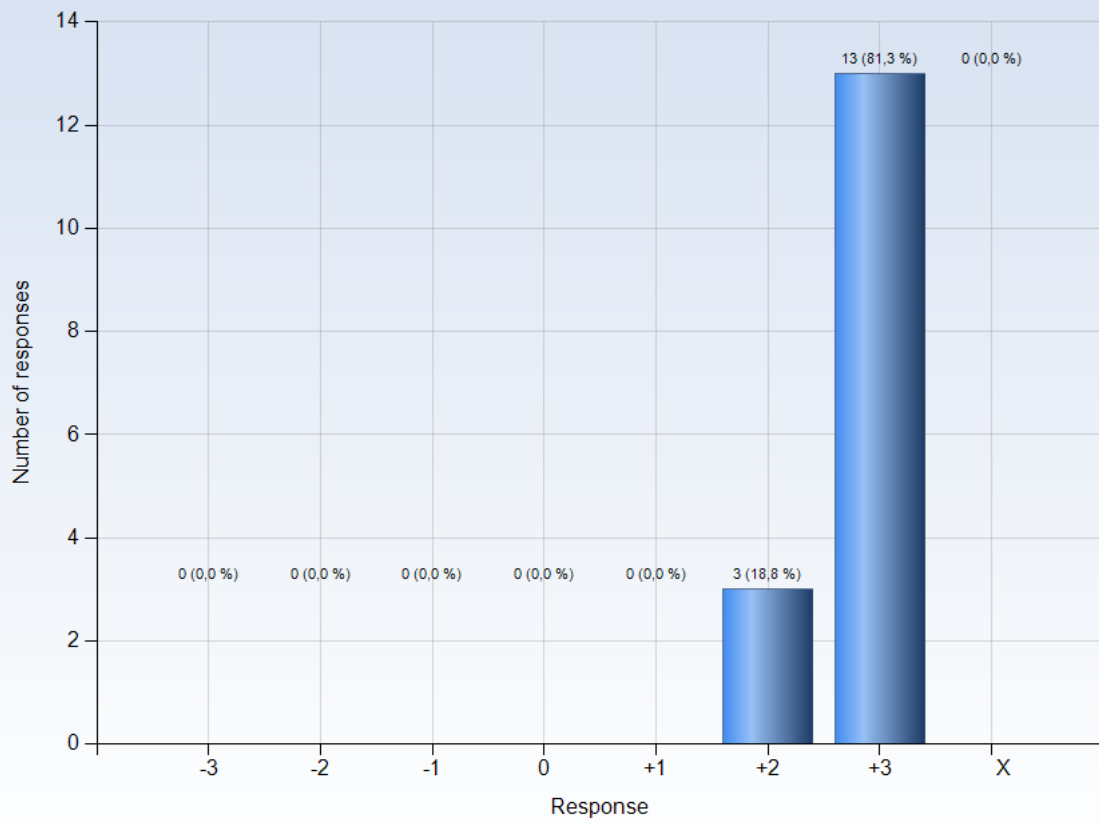
Comments

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