DD1354 VT22 Course Analysis
Modsim 6.0hp

DD1354 crosses mathematics, programming, visualisation and simulation. In order to pass the course, students must pass four lab assignments (P-F), complete a project that they specify themselves (A-E) and pass an exam (P-F).

Overview

Aspect	Feedback and action
Again, there were many positive comments in relation to the general philosophy of the course and usage of game technologies for visualising simulation methods and mathematics. The freedom to define and follow your own project was also appreciated in addition to the flexibility of the labs and exam. The *fun* aspect was highlighted by many students.	Thank you for the many positive comments. The methods in the course were nicely summarised by this anonymous comment in the evaluation: "Much more fun than just learning mathematical formulas and running them in Matlab"
Degree of difficult in the course. In relation to the lab work, some students found it too easy.	This relates to comments in previous years about the difficult of the lab work and the exam. The course questionnaire shows that there is a distribution of skills across the participants in the course, so those who enter the course with higher skill levels (especially those who have already used Unity) will likely get less from the labs but they seem important as "scaffolding" for those who have not used Unity before. We will seek ways of increasing the difficult of the labs without increasing the time/workload involved, since our main concern is time being taken away from the project work. For students that find the labs very easy, our main recommendation remains to use the additional time to extend their project specifications and projects: the structure of the course allows students to start their projects at any time and to obtain support.
Lab instructions confusing	Some comments noted confusing aspects of the lab instructions. For this reason, we created three feedback questionnaires, one for each lab to collect comments about typical misunderstandings in each lab. The comments received showed that lab 1 was very clearly explained and no comments were received for lab 3, so the problems seemed to relate mainly to lab 2. Next year, we will clarify the issues raised in lab 2 during the assignment introduction sessions and clarify the instructions.
Gender representation on the course	Male and female responses to the LEQ statements were again generally the same. This year, female participation in the course was at 30%. This year, we also made a step towards

	having a more gender-balanced team of course TAs (two males, one female) and hope to increase the numbers of female TAs further in future. A challenging issue in relation to this is often the general difficulty in finding any TAs who are previous students and have time to participate in the course.
Relationships of project and grades could be made clearer, clearer ILOs	This year, we provided more examples of previous project work – 10 examples from 2021 alone and 43 examples in total. Verbal assessments of good and bad aspects, as well as grade ranges for the work were provided. The grading scale was also clarified, to put a focus on the sophistication of the physics simulation approach as well as reporting aspects. Given the above, it may be that the that the project specification and execution process is very similar to thesis work that students are starting to become engaged in, so in future we will link the course criteria to categories from the Master thesis grading form. Beyond that, the feedback about this issue may indicate that the current ILOs of the course may need to be clarified to better reflect the key concepts and focus of the course.

Details

Feedback was similar this year in relation to students appreciating the fun and practical nature of the course. Reactions were mixed in relation to the complexity of the lab tasks, which likely relates to the number of students that are already experienced in the use of Unity.

Despite changes made to the explanations and grading criteria for the course, the three lowest scores on the LEQ remained the same: for 11 (understanding of key concepts), 7 (ILOs) and 4 (challenge level).

As last year, it has been noted that much of the workload/depth in the course relates primarily to the project component, in which students have freedom to choose the degree to which they investigate the subject. While the course team reinforce this message, it is possible that it does not reach all of the students. The challenge, as before, is also being careful not to reduce the time available for students to set their own goals and level of challenge via the project specification and completion process – since starting the project too late is another issue that can arise in the feedback. One solution to this might be to go through the labs stage of the course faster and start the project stage sooner.

As before, another question on the LEQ that was rated lower was question 7 in relation to the clarity of the tasks asked of students. This likely relates to the project component of the course, which students themselves must define, specify and conduct their own projects on a topic of relevance to the course. Despite the project specification and feedback process, students are still not clear communication of grade requirements. Usually, this is not possible because students have not created a specification of adequate detail and either do not check ideas with the course team or only seek feedback in the early stages of the specification process. They also struggle with grading criteria that are somewhat abstract, an issue that also occurs at Bachelor and Master level theses. Overall, despite these feelings of uncertainty, the outcomes of the course suggest that the majority of students nevertheless end up

receiving grades close to what they were expecting to get for the project, so some of this feedback may just relate to the feeling of uncertainty inherent when engaging in this type of project work.

As last year, the course team conducted a drive this year to try to obtain feedback from as many participants as possible getting a total of 51 responses which provides a very good representation for the cohort this year. These efforts appear to have worked well and will be adopted in other courses, since it is always difficult to know how representative the evaluation results are when the sample size is very small.

LEQ Course evaluation data follows:

DD1354 - 2022-03-30

ESTIMATED WORKLOAD

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

| Hours/week	Respondents
> 41 timmar/vecka	0 (0%)
39-41 timmar/vecka	0 (0%)
36-38 timmar/vecka	0 (0%)
33-35 timmar/vecka	0 (0%)
30-32 timmar/vecka	0 (0%)
27-29 timmar/vecka	0 (0%)
24-26 timmar/vecka	0 (0%)
21-23 timmar/vecka	1 (3.6%)
18-20 timmar/vecka	1 (3.6%)
15-17 timmar/vecka	1 (3.6%)
12-14 timmar/vecka	5 (17.9%)
9-11 timmar/vecka	4 (14.3%)
6-8 timmar/vecka	6 (21.4%)
3-5 timmar/vecka	7 (25%)
0-2 timmar/vecka	3 (10.7%)

Number of respondents
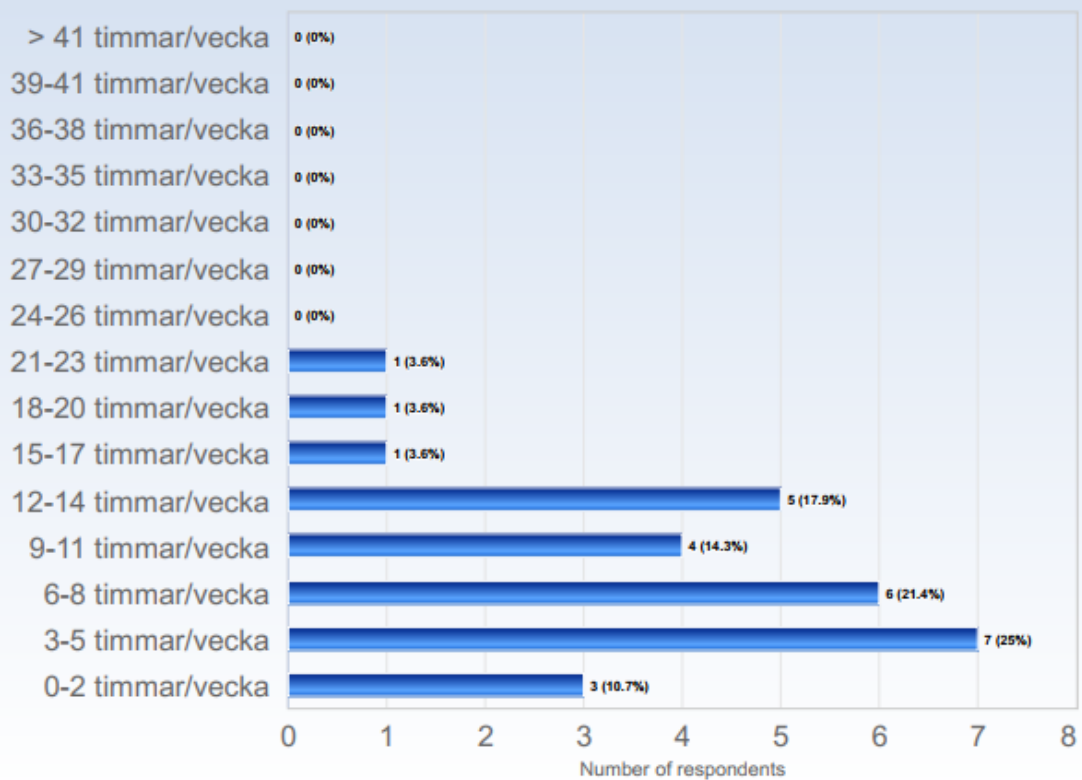
LEARNING EXPERIENCE

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
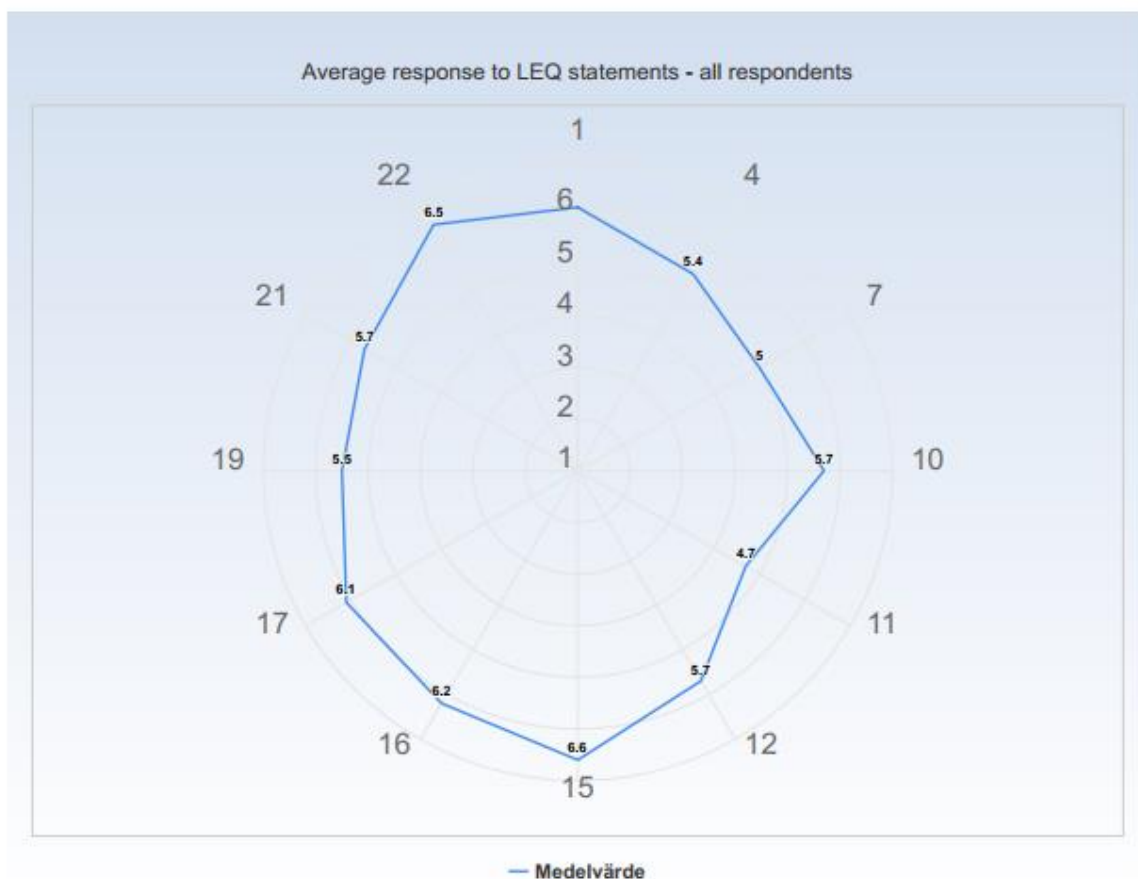
KTH Learning Experience Questionnaire v3.1.4

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

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
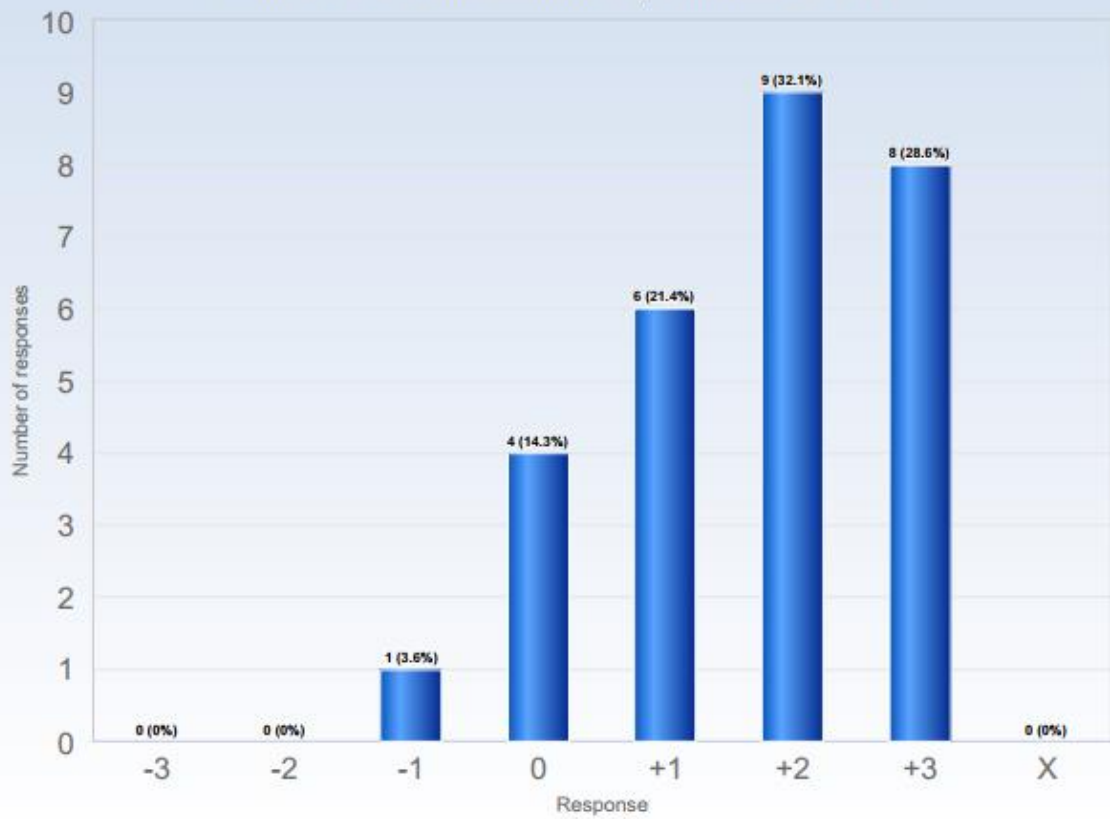
X = I decline to take a position on the statement

1. I worked with interesting issues
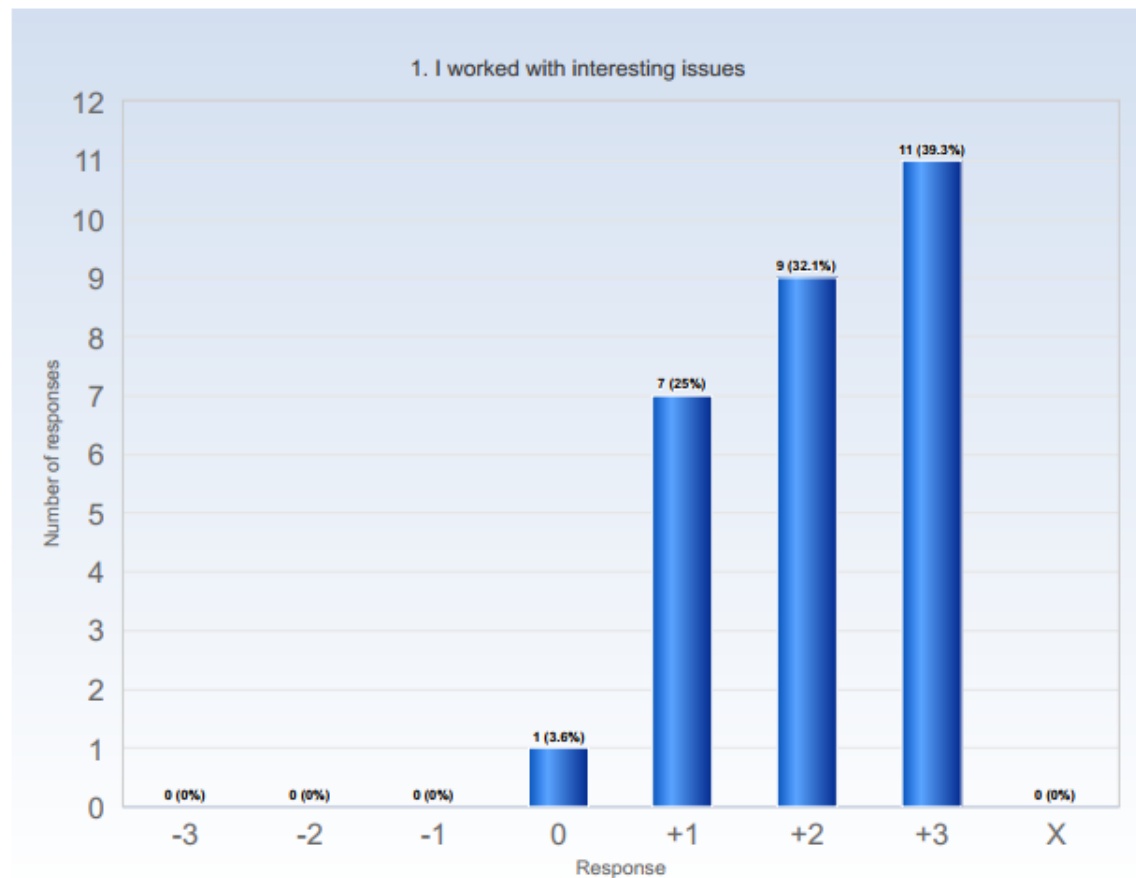
4. The course was challenging in a stimulating way
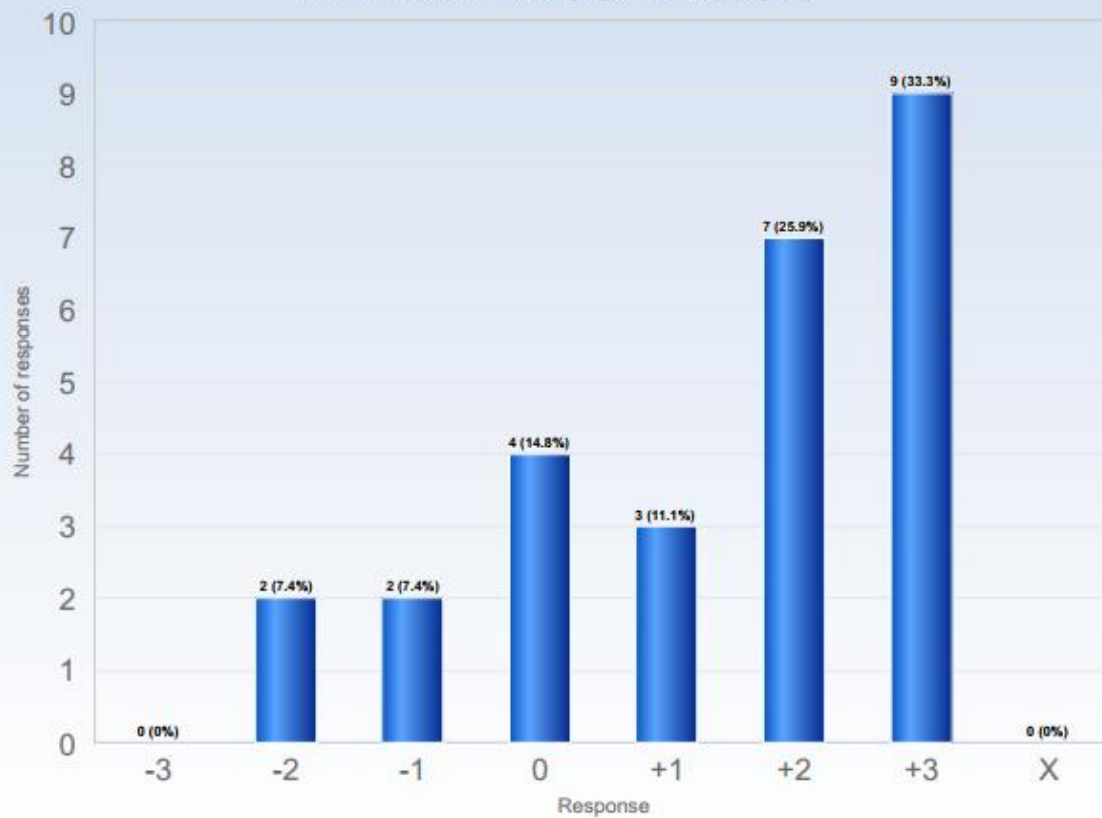
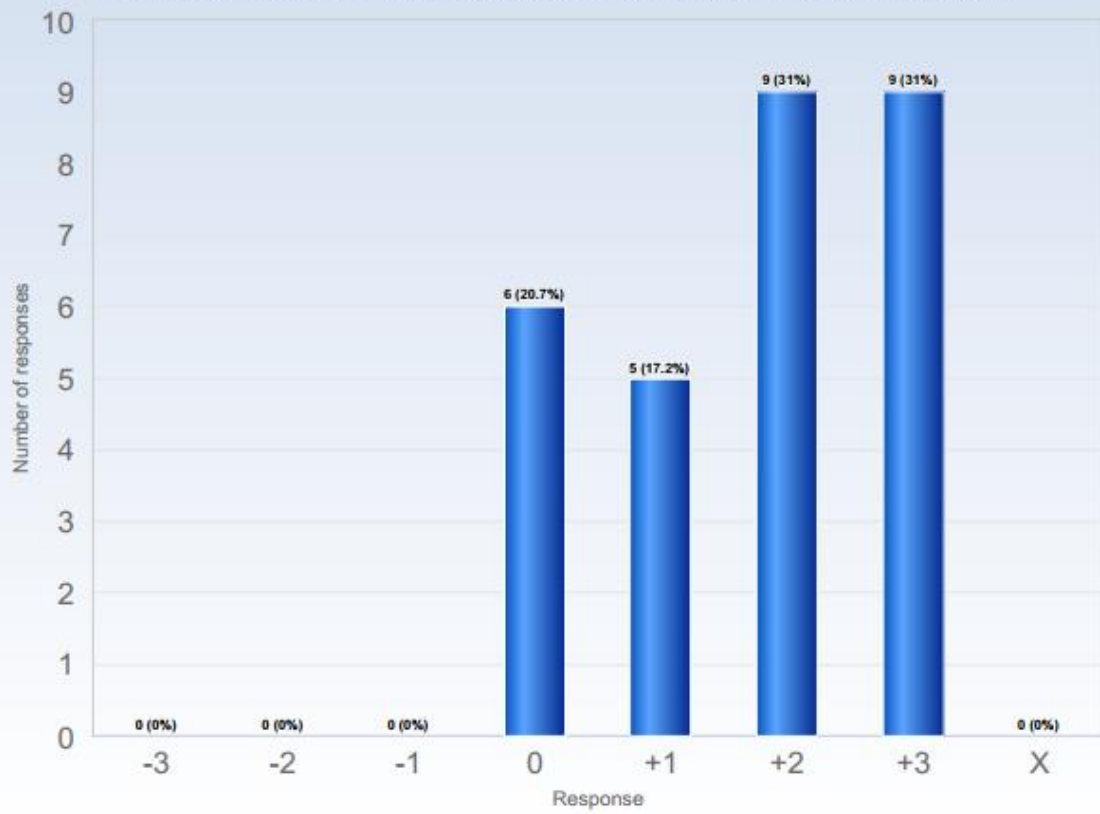7. The intended learning outcomes helped me to understand what I was expected to achieve
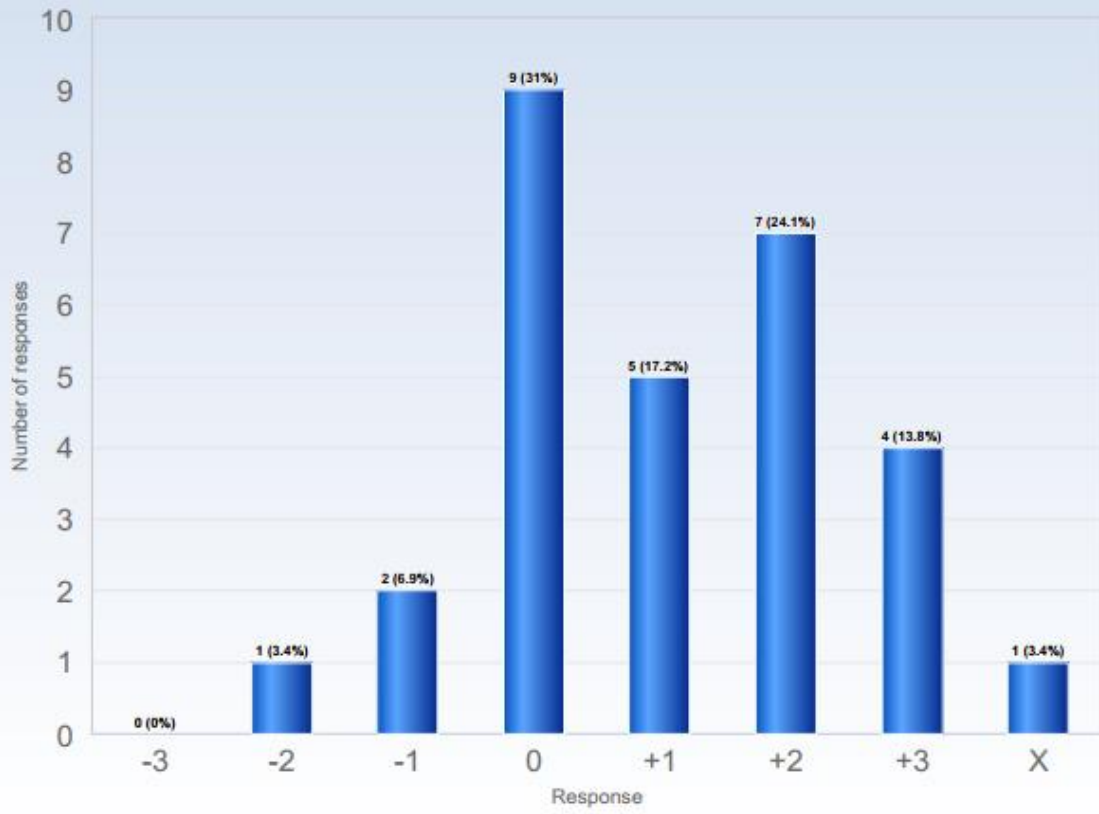
10. I was able to learn from concrete examples that I could to relate to

11. Understanding of key concepts had high priority
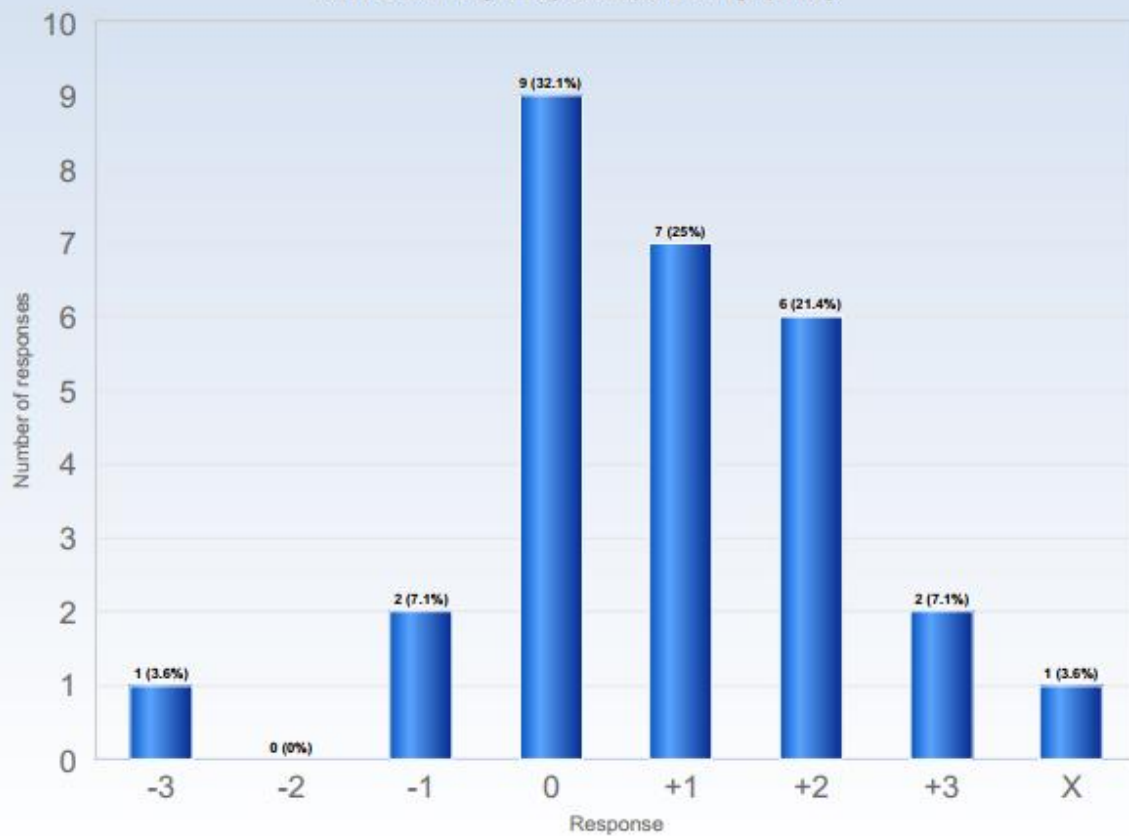
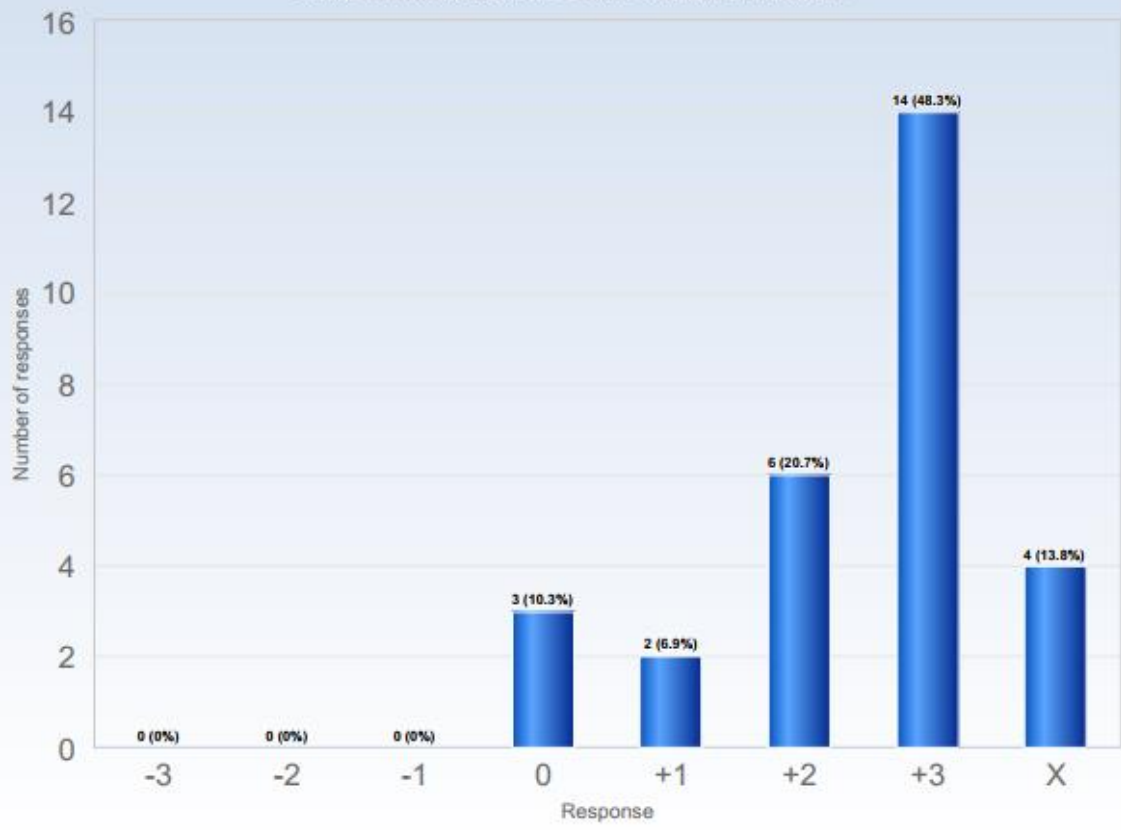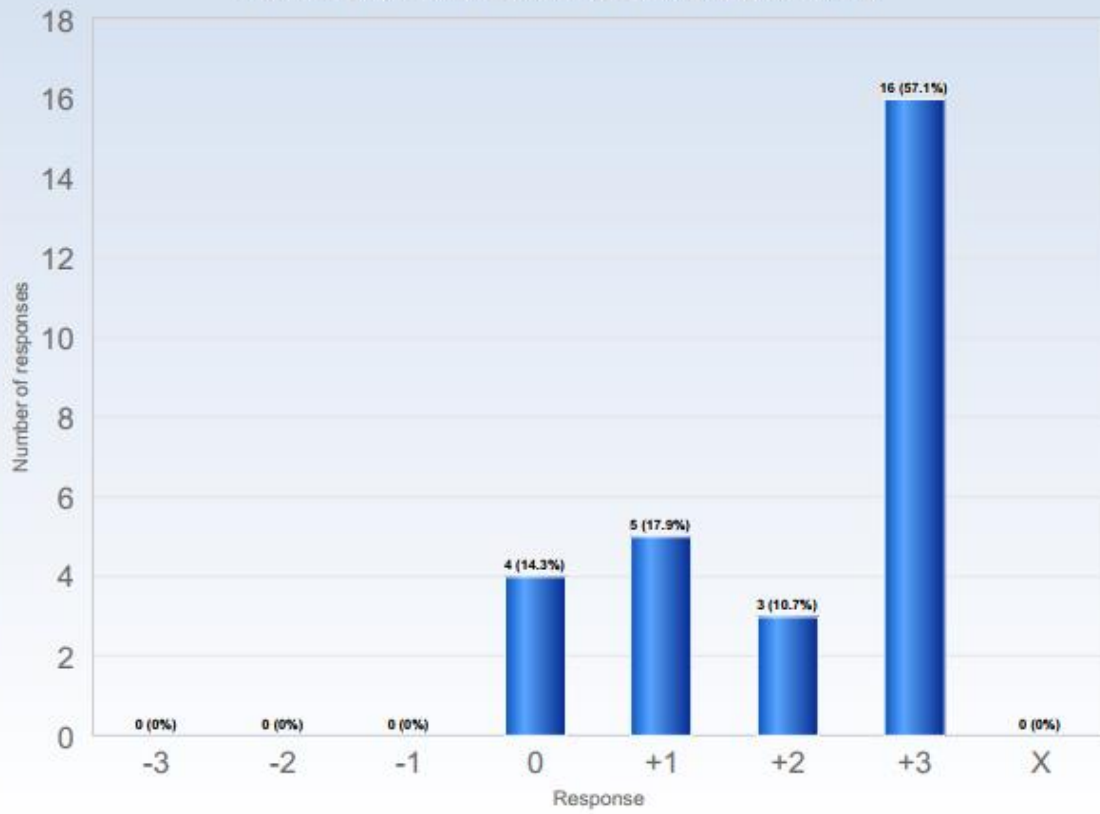12. The course activities helped me to achieve the intended learning outcomes efficiently

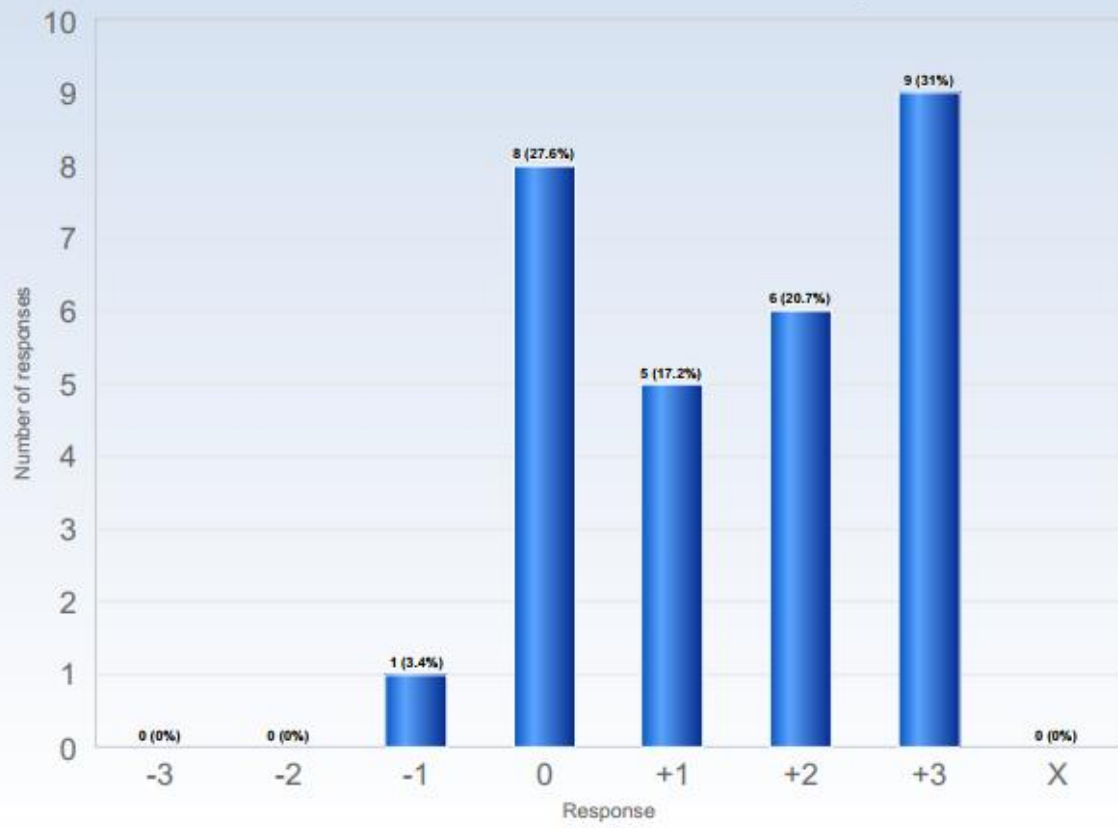15. I was able to practice and receive feedback without being graded
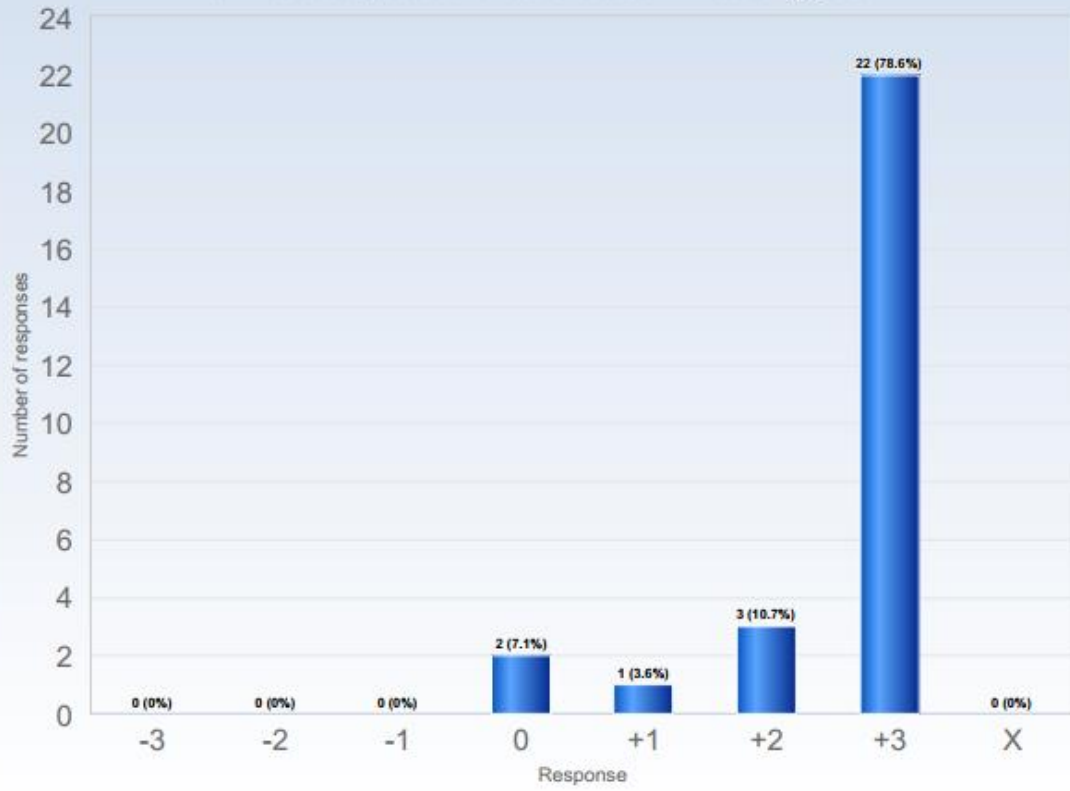
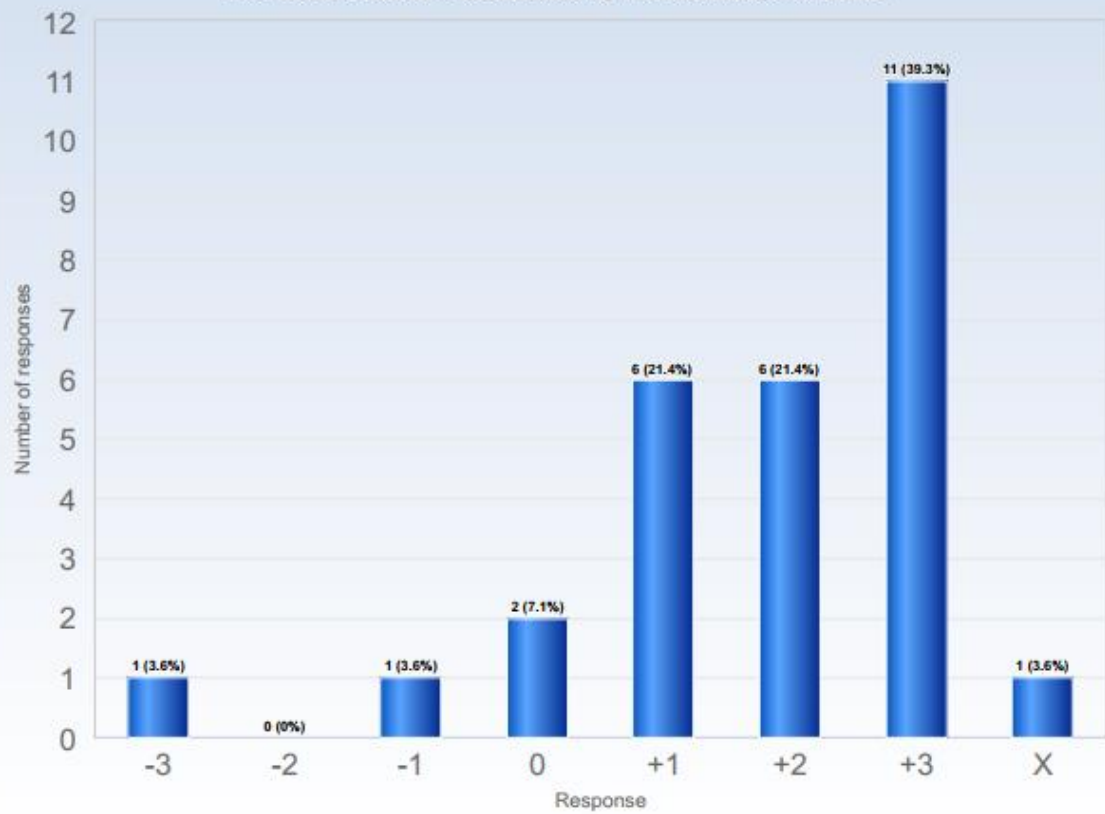16. The assessment on the course was fair and honest

17. My background knowledge was sufficient to follow the course

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

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

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