

<b>Kursens namn</b>	Datorbaserade produktutvecklingsverktyg, grundkurs	<b>Kurskod</b>	ML1209
<b>Kurspoäng och poäng fördelat på examinationsform</b>	7,5hp CAD1 (inlämningar) = 3,0hp PROA (projekt) = 1,5hp DEXA (examination) = 3,0hp	<b>När kursen genomfördes</b>	VT2020-P4
<b>Kursansvarig</b>	Mark Lange (mlange@kth.se)		
<b>Examinator</b>	Mark Lange (mlange@kth.se)		
<b>Övriga lärare</b>			
<b>Kursupplägg</b> <ul style="list-style-type: none"> <li>• Kort beskrivning över kursen upplägg och innehåll</li> <li>• Läraktiviteter inkl. antal timmar</li> </ul>	<p><u>English</u></p> <p>A basic course in the use of a computer-based tool in the design and documentation of product concepts using Creo Parametric 4.</p> <p>The course term is divided into five topic modules; 1) Reading Technical Drawings, 2) 3D Part Modeling, 3) Drawing Automation, 4) 3D Assembly Modeling and 5) Project.</p> <p>Each topic module is started with a lecture on the scope of the module (2-3 hours per week), which is supported with a teacher lead computer lab (3 hours / week). There is a second topic module lecture.</p> <p>The course literature (<u>CAD och produktutveckling Creo 4.0, Del 1</u>, by Peter Hallberg, in Swedish) is the primary source of course content, because it shows a step-by-step tutorials on how to use Creo Parametric. Lectures are intended to clarify how to execute assignments to fulfill the Learning Outcomes in the course. Computer labs give the students an opportunity to ask questions about assignments and receive guidance in the proper use of Creo Parametric.</p> <p>Canvas is used to deliver the course and a supplementary Canvas Sandbox exists with additional LEGO brick documentations for the project.</p> <p>There are three course blocks;</p> <p>CAD1 = four individual activities (i.e. quizzes and assignments) directly coupled with relevant topic module and Learning Outcomes in the course.</p> <p>PROA = the project task is a simple machine demonstrated with LEGO, design and documented in Creo Parametric 4</p> <p>DEXA = an individual examination in the computer lab, with three to five different tasks that need to be completed in a four hour period.</p> <p><u>Swedish (Google translate)</u></p> <p>En grundkurs i datorbaserade verktyg i design och dokumentation av produktkoncept med hjälp av Creo Parametric 4.</p> <p>Kursperiod är uppdelat i fem ämnesmoduler; 1) Läsa tekniska ritningar, 2) 3D-komponent modellering, 3) Ritningsautomation, 4) 3D-montage modellering och 5) projekt.</p> <p>Varje ämnesmodul inleds med en föreläsning om modulens omfattning (2-3 timmar per vecka), som stöds med en lärarledd datorlabb (3 timmar / vecka). Det finns ett extra föreläsning till varje ämnesmodul i kursen.</p> <p>Kurslitteraturen (<u>CAD och produktutveckling Creo 4.0, Del 1</u>, av Peter Hallberg, på svenska) är den primära källan till kursinnehåll, eftersom den visar en steg-för-steg handledning om hur man använder Creo Parametric.</p>		

	<p>Föreläsningar är sedan avsedda att klargöra hur man ska utföra uppgifter för att uppnå lärandemålen i kursen. Datorlabor ger studenterna en möjlighet att ställa frågor om uppgifter och få vägledning i korrekt användning av Creo Parametric.</p> <p>Canvas används för att leverera kursen och det finns en kompletterande Canvas Sandbox med ytterligare LEGO-tegelstenar för projektet.</p> <p>Det finns tre kursblock;</p> <p>CAD1 = fyra individuella aktiviteter direkt kopplade till relevant ämnesmodul och lärandemål i kursen.</p> <p>PROA = projektuppgiften är en enkel maskin demonstrerad med LEGO, design och dokumenterad i Creo Parametric 4</p> <p>DEXA = en individuell undersökning i datalaboratoriet, med tre till fem olika uppgifter som måste avslutas under en fyra timmars period.</p>		
<b>Antal registrerade studenter</b>	92	<b>Antal förstagångsregistrerade studenter (ffg) (ej obligatoriskt)</b>	84
<b>Prestationsgrad efter första examinationstillfället*</b>	79%	<b>Prestationsgrad efter första examinationstillfället för ffg (ej obligatoriskt)</b>	
<b>Examinationsgrad efter första examinationstillfället*</b>	61%	<b>Examinationsgrad efter första examinationstillfället för ffg (ej obligatoriskt)</b>	
<b>Svarsfrekvens vid kursvärdering</b>	LEQ enkät på KTH Social; 11/92 (12%)		
<b>Kursvärdering</b> <ul style="list-style-type: none"> <li>• Sammanfattning av kursvärdering</li> <li>• Sammanfattning av studenternas åsikter inklusive de öppna frågorna</li> <li>• Anser studenterna att dom arbetar i en omfattning som motsvarar kursens poäng?</li> </ul>	<ul style="list-style-type: none"> <li>• According to the course survey there are students that work according to the expected 20 hour work week and there are students that work twice that expected level. And, there are those that work much less (10 hours / week).</li> <li>• Participation in lectures IRL has been observed to be around 40% of the registered students. In labs, the level is about 30%. This year was effected by restrictions to the computer lab because of corona virus.</li> <li>• During VT2020, all lectures and labs were moved to ZOOM where participation was at about 30% of the registered students. More than this percentage started the course, yet disappeared after a week or two given difficulties in installing Creo.</li> <li>• With only 11 respondents, there is no value in summarizing the opinions presented in the survey.</li> </ul>		
<b>Sammanfattning av kursmöte</b>	---		
<b>Analys</b> <ul style="list-style-type: none"> <li>• sammanfattande synpunkter från kursansvarig</li> <li>• kursens starka och svaga sidor utifrån kursvärderingen och kurslärarnas reflektioner, även i förhållande till de förändringar som gjorts inför kursomgången.</li> </ul>	<b>About Student Workload</b> <ul style="list-style-type: none"> <li>• Reading the course literature can be time consuming if the student has reading dysfunctions. Setting the scope of the project to be larger than what is specified by the project task description will also consume a lot of time.</li> <li>• The course starts on the first day and if the student does not have the course literature available, the student will fall behind. Several students complained that they still did not have their literature after Easter vacation. The course literature is locally sourced in Sweden. The course literature is highly regarded by several Universities in Sweden.</li> <li>• The emphasis on the literature is to allow the student time to plan and execute learning the Creo interface and other topics in their own study</li> </ul>		

- Reflektion om hur kopplingen mellan lärandemål, läraaktiviteter och examination med målrelaterade betygskriterier fungerar i kursen.
- Förslag på eventuella förändringar av kursen med motivering.
- Finns det betydande skillnader i upplevelse av kursen mellan:  
Studenter som identifierar sig som kvinnor och män?  
Studenter med eller utan uppgiven funktionsnedsättning?
- Vad i kursen kan utvecklas på kort och lång sikt?

tempo. Then they can ask questions and provide insights to difficulties during lectures and labs. However, this plan has never truly been fulfilled in practice. Students typically wait until a lecture before they begin a task and they only read what is required to solve that task. Students even make a clear claim that they already know CAD and wait until the last minute to solve and submit course tasks and thereby declare that the task was too difficult for the scope of the course.

- This year students needed to install Creo Parametric on their own computers (at least 10 of the course registered have a Mac that requires an additional application to operate Windows software). Students complained about their computers not being configured to handle Creo. Access to the computer labs was a problem not solved by KTH until after Easter break (3 weeks into the course) when a Remote Connection application allowed students to connect directly to a KTH computer that they could operate remotely and use its installed applications.
- Student workload was effected by the fact that all communications in the course were realized with IT-solutions; Canvas, ZOOM and email. Or, with a telephone. It took the first three weeks for the students to learn that the primary communication channel with the course teacher, outside of ZOOM sessions (and a telephone), was through the Canvas Inbox.

### **About the Project (PROA)**

- 84% of the students successfully completed PROA
- In previous years KTH Södertälje provided students with LEGO kits that allowed them to physically explore the different simple machines that could be designed and document according to the task instructions. Given the closure of KTH facilities, this resource needed to be provided by the students themselves; they had to find their own set of LEGO bricks. Several student teams did not bother.
- Project groups were created randomly using Canvas. The students had a clear problem reaching out to each other to start the project, using the information found in Canvas for the project assignments. Some students took several weeks to reply to requests. Other students did not reply to requests. And on occasion, students got angry when the difference in ambition level manifested itself during the execution of the project. Then there were the students that cheated in their execution of the project by getting someone else to do their work.
- A lot of time was spent re-arranging the students into active groups, by the course teacher, so that they could begin.

### **About the Examination (DEXA)**

- 76% of the students successfully completed DEXA.
- The final examination is always delivered as a digital exam in the KTH Södertälje computer labs. Every time this exam is presented there are always a minority of students that demonstrate that they do not know how to use a KTH computer and Creo Parametric on that computer; they cannot create the "creo4cad" start-up folder and they cannot setup and manage a Working Directory. They also demonstrate a difficulty in reading the instructions for logging into the Examination Account.
- This year's final examination was also delivered in the KTH Södertälje computer labs. The Remote Connection application was required to access a computer in the lab. ZOOM was required to observe the student executing the examination. A practice session was provided students that registered in

the examination (there were less than 5 students that did participate in this activity).

- New for this year's examination was the time limitation on the three tasks in the examination; 50 minutes with a 10 minute break. The task time limitation was a challenge, but there were several students that correctly and completely executed all the tasks in the exam. However, there is a significant number of students that demonstrate that they do not remember much of what they did for the LEGO project.
- New for this year was the creation of a unique examination activity in Canvas, where only those that registered in advance for the examination were allowed access. There is no information link between the normal Canvas course and the examination activity, so that students could see their progress in the course.

#### **About the Assignments (CAD1)**

- 79% of the students successfully completed CAD1.
- There are quizzes for the Reading Assignments from the course literature. Students can complete CAD1 without completing the Reading Assignments, but that decision pushes down their success level in CAD1.
- Students complain that these assignments take too much time. And, they also complain that the description of the project task is not clear enough to understand.
- The course literature is used by many different universities around Sweden where Creo Parametric is used for CAD courses. It has a good critical reputation.

#### **About the Course**

- Every year, even after eight years of delivering this course, I find that it triggers a very strong reaction from the students. The reaction is positive and/or negative.
- This course is also a decisive course for the students; those that do well continue with the IoD specialization and those that don't do well continue with the IEP specialization.
- The Learning Outcomes for this course are relevant to the basic TIMAS educational program, regardless of the specialization that the students have available to choose from.
- LEGO is a highly systematic and accessible means of designing conceptual systems of mechatronic products. More of LEGO will be utilized in this basic CAD course.
- A scheduled Course Meeting needs to be incorporated in the course, where the Mentimeter survey tool is used to record student opinions of the course.
- The start of this year's course was clearly hampered by the restrictions placed by KTH on the accessibility of the computer labs. There are a significant number of students that do not have the resources (computers and telephones) necessary to participate and complete this course. Closing the computer labs, literally shut out students from participating in the course, which is in-fact discrimination by KTH.

#### **ADJUSTMENTS TO BE IMPLEMENTED IN THE EXECUTION OF THE COURSE**

- Revise the Reading Assignment quizzes to be self-correcting, to give the students a direct feed-back on their understanding of their reading the course literature, which includes the self-published compendium.

	<ul style="list-style-type: none"><li>• Move the compendium into Canvas, instead of being a separate downloadable pdf. Implement a quiz directly into the compendium.</li><li>• Use the results of the project (PROA) as course assignments (CAD1). Currently there are two CAD1 assignments from the course literature, these should instead be connected to the tasks associated with the project.</li><li>• The project should be executed according to the KTH Södertälje project template, which requires toll gate (i.e. BM / BP) submissions that clarify progress in the project.</li></ul>
<b>Övrigt</b>	Nothing in this section.

\*Med "prestationsgrad" avses antalet presterade högskolepoäng efter första examinationstillfället (för samtliga examinerande moment) för samtliga studenter dividerat med antalet möjliga högskolepoäng för alla registrerade studenter.

Med "examinationsgrad" avses antalet studenter som klarat alla moment i kursen efter första examinationstillfällena dividerat med antalet registrerade studenter.



## ML1209 - 2020-05-05

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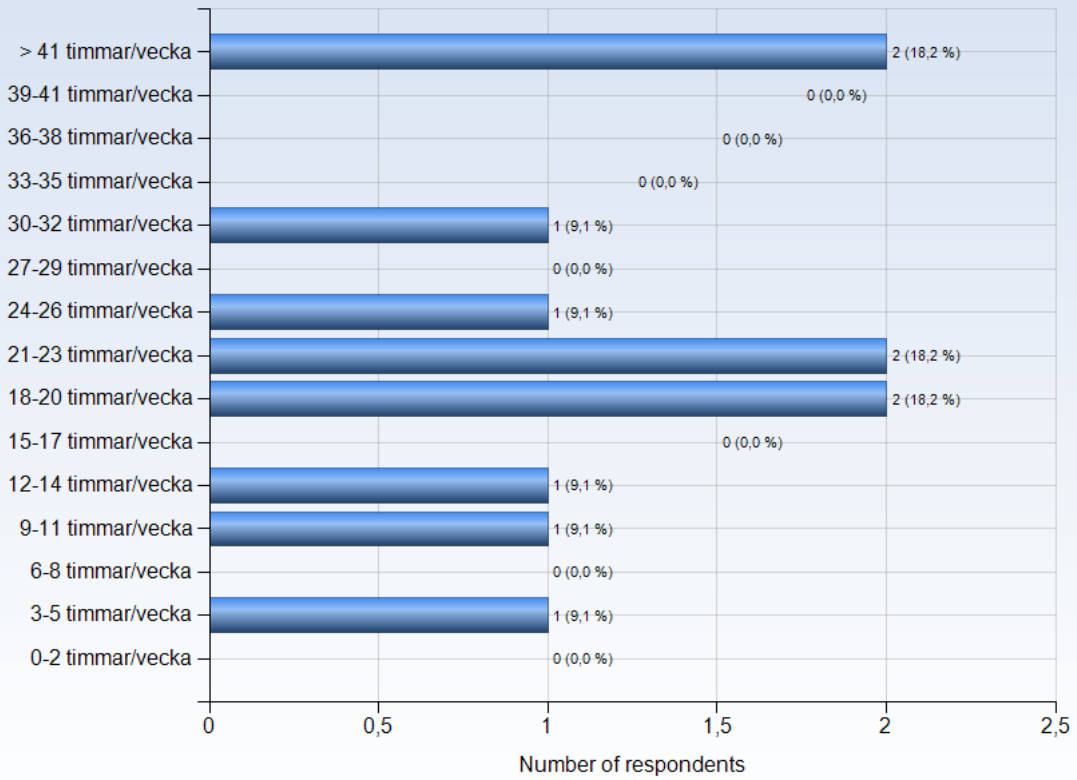
Antal respondenter: 90  
Antal svar: 11  
Svarsfrekvens: 12,22 %

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## ESTIMATED WORKLOAD

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





## Comments

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

Behövdes mycket tid att lära sig programmet samt att utföra alla uppgifter

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

Mycket tid behövde läggas för att uppnå goda resultat i denna kurs.

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

Vissa uppgifter var tidskrävande

Comments (I worked: 30-32 timmar/vecka)

Videorna med föreläsningarna lades aldrig upp så jag var tvungen att googla upp allt själv. Vissa tutorials var inte fullständiga så var tvungen att försöka leta upp rätt sätt att utföra de olika uppgifterna på. Har även använt mig mycket av boken.

Min dator är inte anpassad för att ha Creo så den har varit extremt långsam och låst sig så jag har varit tvungen att starta om den flera gånger per dag, vilket gjort att hela kursen tagit mig extremt mycket tid att genomföra.

Comments (I worked: > 41 timmar/vecka)

it was difficult we have 50% for this kurs but it took my more time, and about take help it was hard to get help about everything i need because it was just the teacher and sometimes i asked my ferinds but they also dont know. not each student can get done work fast or to undersant by just reading the book, the book was not good

Väldigt tidskrävande uppgifter samtidigt som den rådande covid-19 situationen försvårar och sätter käppar i ekrarna för det tekniska momenten. Kursen var missanpassad till rådande situation.



## LEARNING EXPERIENCE

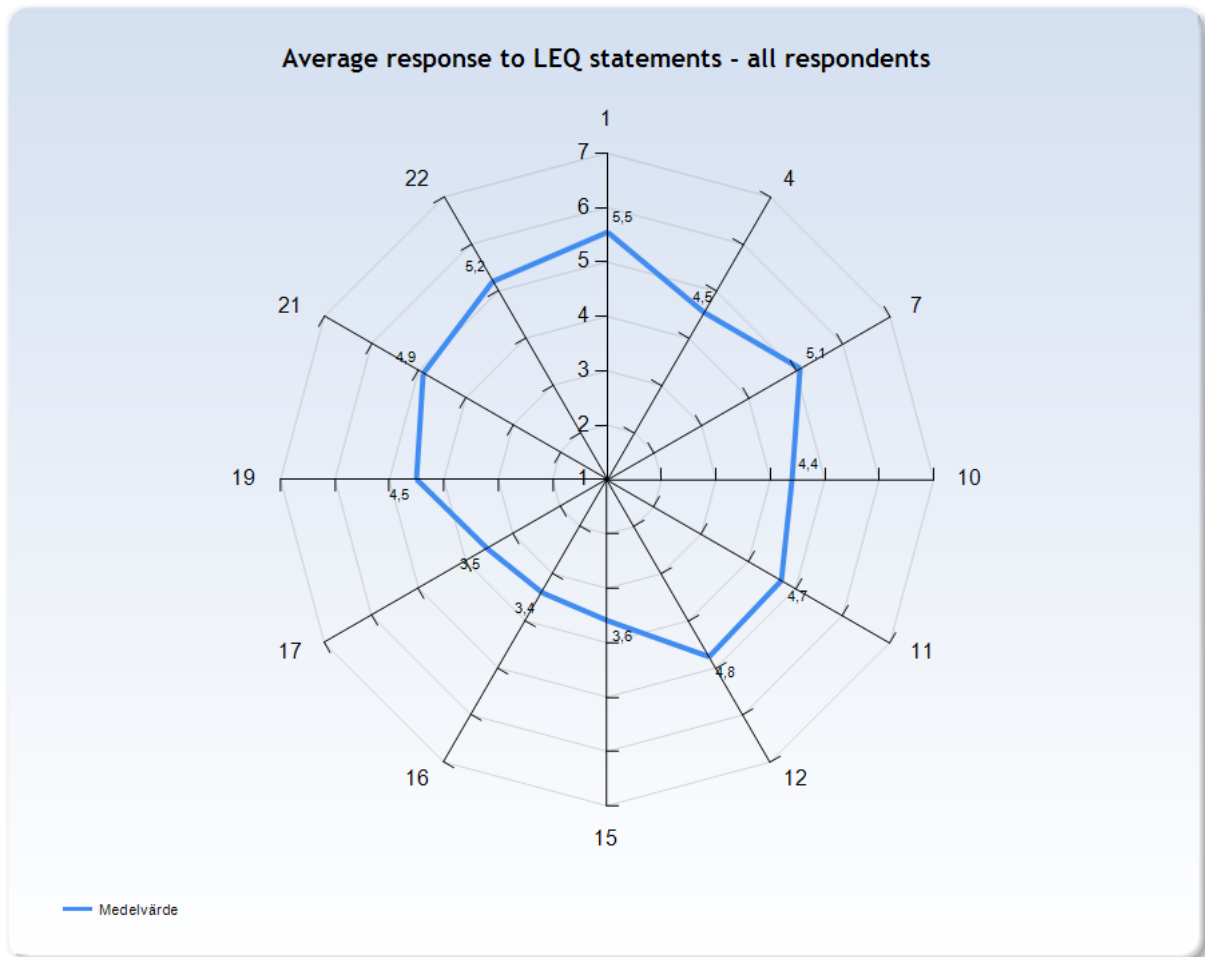
The polar diagrams below show the average response to the LEQ statements for different groups of respondents (only valid responses are included). The scale that is used in the diagrams is defined by:

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.

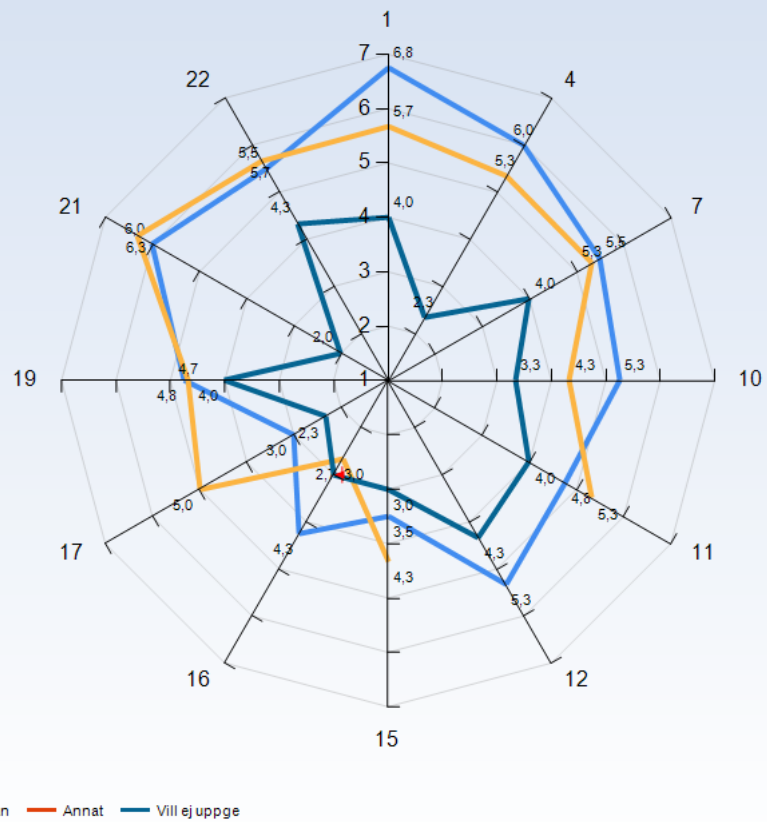
Biggs J. & Tang, C. (2011). *Teaching for Quality Learning at University*, Chapter 6, pp. 95-110. Maidenhead: McGraw Hill.

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



#### Comments

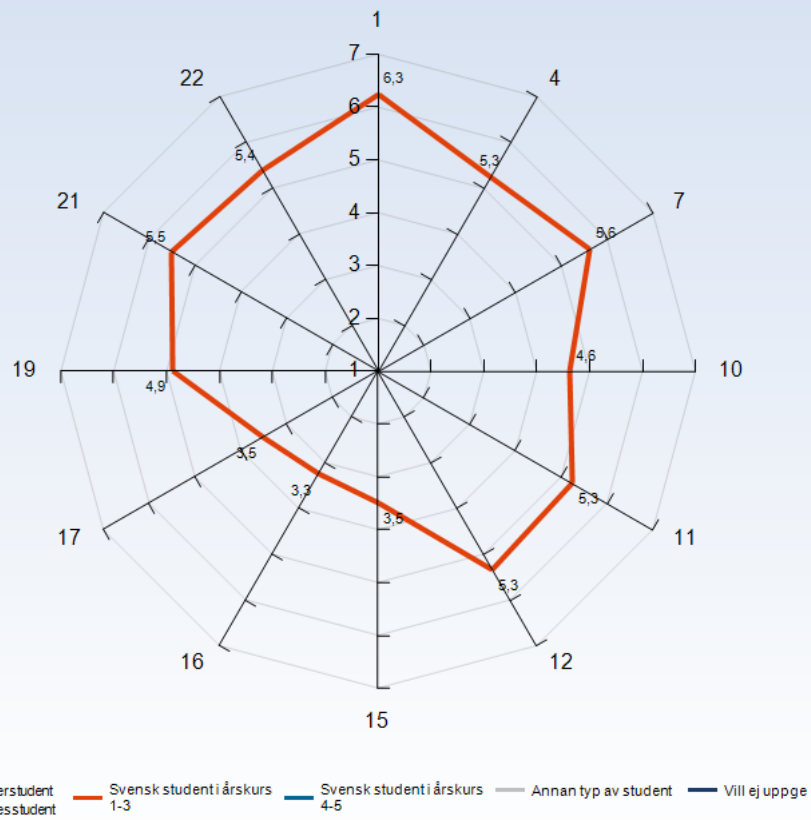
Comments (I am: Kvinna)

Mest uppmuntrande och trevliga kursen än så länge under utbildningen.

Comments (I am: Vill ej uppge)

Känns omodernt.

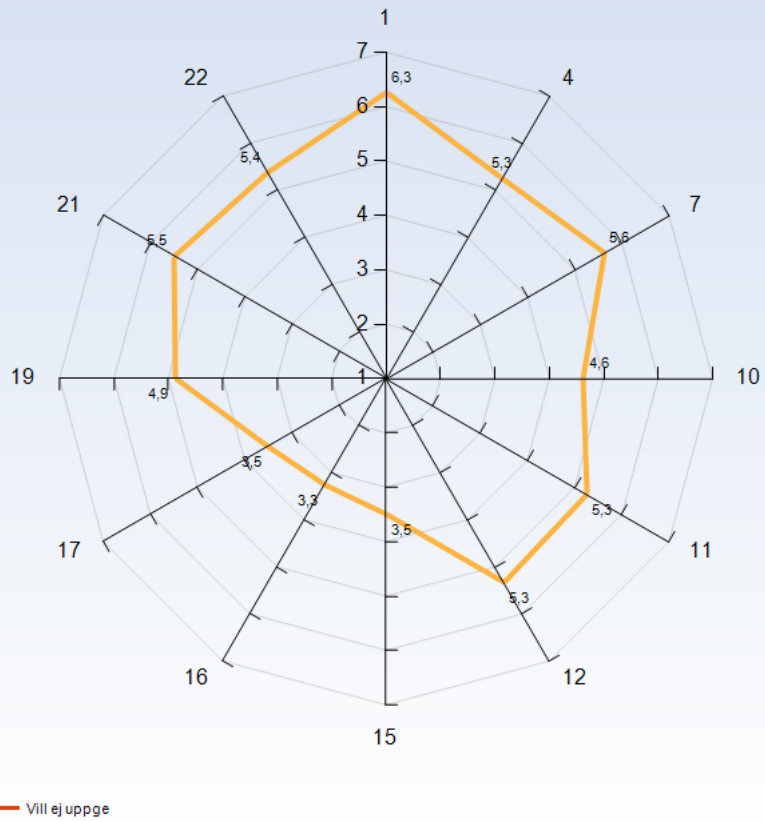
### Average response to LEQ statements - per type of student



### Comments

Comments (I am: Svensk student i årskurs 1-3)  
Förstaårsstudent

### Average response to LEQ statements - per disability



Comments





## GENERAL QUESTIONS

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### What was the best aspect of the course?

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

Bra planering och bra lärare

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

Bra att det fanns uppgifter längs kursens gång. Det blir lättare att hänga med

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

Att göra verkliga tillämpningar

PROA Grupparbetet. Det var mycket givande och jag kommer ta med det i framtiden.

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

Att kunna lära sig cada och få erfarenhet.

What was the best aspect of the course? (I worked: 30-32 timmar/vecka)

Legoprojektet. Det var roligast.

Sen var CADA övningarna bra, var till stor hjälp sen när jag skulle göra Lego.

What was the best aspect of the course? (I worked: > 41 timmar/vecka)

Is that i like it even it take much time.

Presentation av den slutgiltiga produkt man skapat och modulen med procentuell betygsnitt och poäng. Visar vad man kan och inte kan i tidig fas.

### What would you suggest to improve?

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

Uppdelningen av tentamen tid för varje del, då vid vissa delar krävs mer/mindre tid och kan då uppdelas annorlunda.

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

Inte lika många uppgifter. Just nu kändes det som väldigt mycket, då man samtidigt skulle ta sig tid att lära sig programmet. Vissa har aldrig använt ett liknande program heller och då är det svårt att komma igång. Det kändes inte som att tiden gick att fördela tiden mellan alla kurser, då uppgifterna tog fokus och tid.

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

Övningstenta behövs

Responser på Quizen skulle komma ut tidigare. Helst innan tentan, som en indikator på hur man ligger till i kursen.

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

Att läraren gör grupper i canvas. Som vi studentet kan gå själv och registrera oss i en grupp

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

Examinationen kunde förbättrats (jag är fullt medveten om att det planerades på detta sätt på grund av covid-19, men känner ändå att det kunde gjorts mycket bättre)

What would you suggest to improve? (I worked: 30-32 timmar/vecka)

Tutorials; bättre, tydligare och fullständiga.

Fler tutorials på olika saker.

Bättre struktur på de få föreläsningarna jag såg. De borde ha lagt upp föreläsningarna på canvas som var utlovat.

What would you suggest to improve? (I worked: > 41 timmar/vecka)

It hard to learn everthing about program from distant so i hope that univierste open.

Kursen skulle ha anpassats till COVID-19 situationen. Alla elever har inte samma förutsättningar digitalt. Det blev väldigt överväldigande med uppgifterna och den orättvisa slutexaminationen.



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

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

Inte ge upp i början, med övning blir man bättre

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

Läs boken innan uppgifterna påbörjas

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

Lägg mycket tid på PROA grupparbetet och var ute i god tid med det.

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

Få så snabbt kontakt med din grupp medlem och prata med varandra om ni ska läsa kursen seriöst eller kanske kommer att hoppa av

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

Planera ett schema så att ni hinner, det är inte enkla uppgifter om inte man har haft erfarenhet i att använda te.x. Creo (mycket frågande till föreläsare, klasskamrater och youtube). Men ge inte upp, ni kommer att förstå att det blir kul tillslut (även om det inte går bra, så lär man sig alltid något nytt oavsett vad det är)

What advice would you like to give to future participants? (I worked: 30-32 timmar/vecka)

Upplys om videorna till boken (!)

Jag såg dem precis i slutet av kursen. Hade sparat mig extremt mycket tid på att kolla på dem istället för att försöka leta upp egna videos på Youtube.

What advice would you like to give to future participants? (I worked: > 41 timmar/vecka)

About the project is to buy derickt from bricklink do not waite.

Bli familjär med programmet Creo innan och utanför,

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

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

Tack för en givande kurs!

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

Tack för ert hårda arbete under denna svåra tid med virus och distans! :)

Is there anything else you would like to add? (I worked: > 41 timmar/vecka)

Pga covid-19 it gets heard to meet my freinds for help or my partenr for project. The tenta has so much requirements in short time.

Kursen var missanpassad till rådande situation. Modulens upplägg var bra. Examinationen var väldigt orättvis.

## SPECIFIC QUESTIONS



## RESPONSE DATA

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

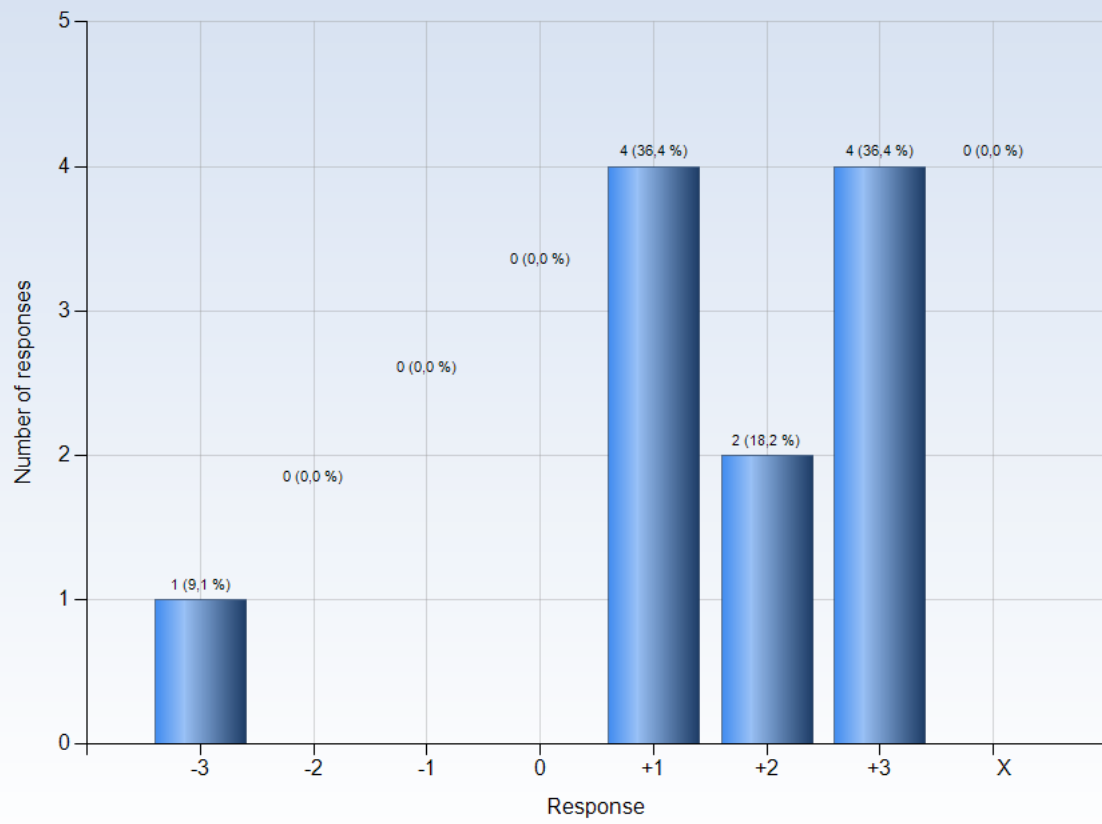
-3 = No, I strongly disagree with the statement

0 = I am neutral to the statement

+3 = Yes, I strongly agree with the statement

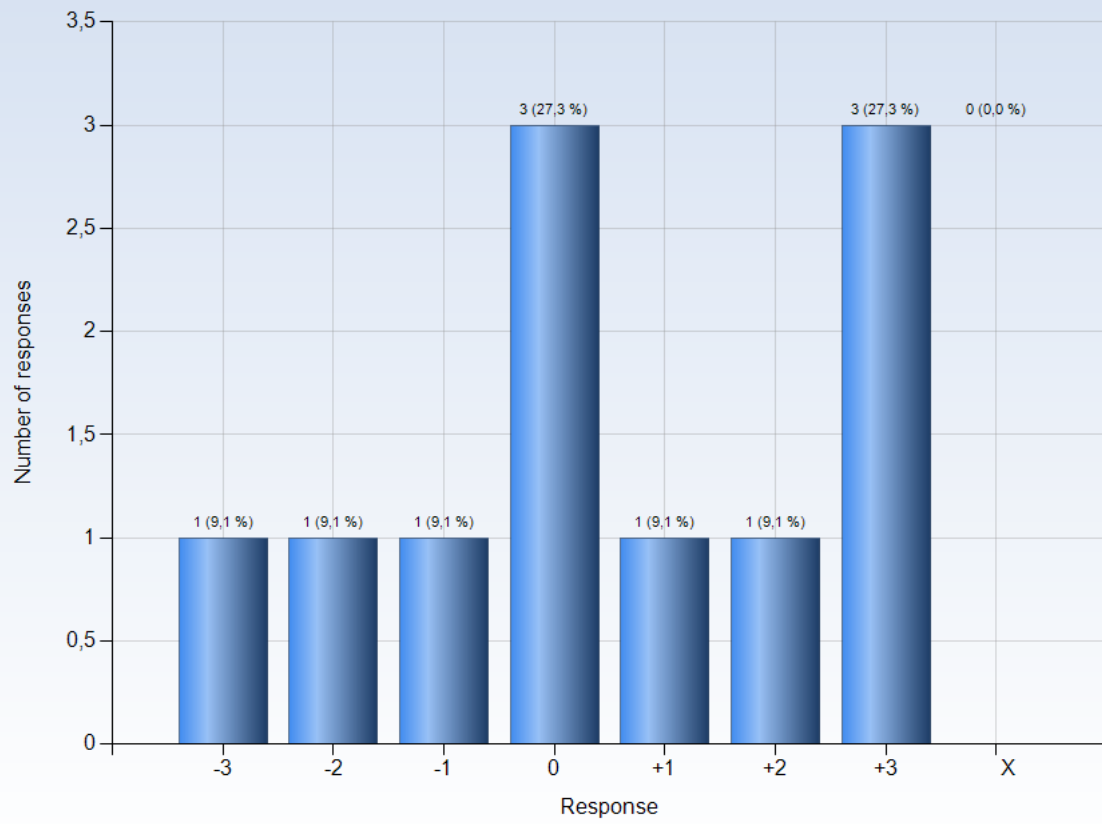
X = I decline to take a position on the statement

### 1. I worked with interesting issues



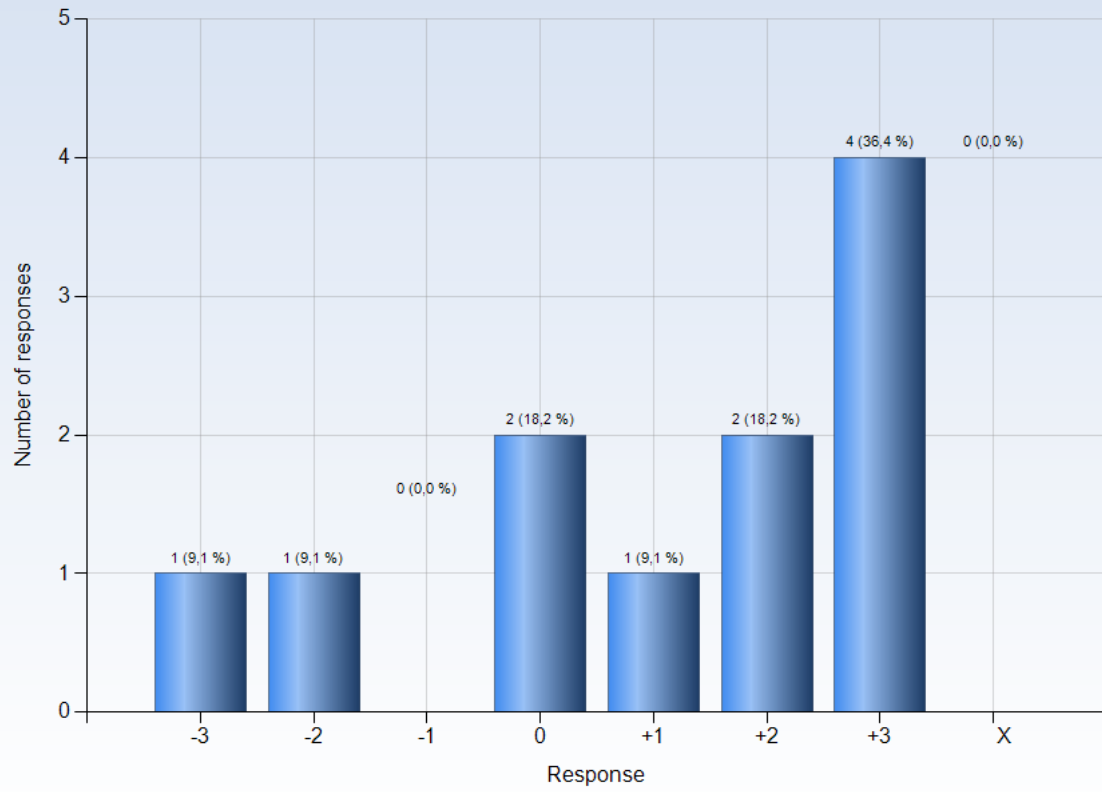
Comments

#### 4. The course was challenging in a stimulating way



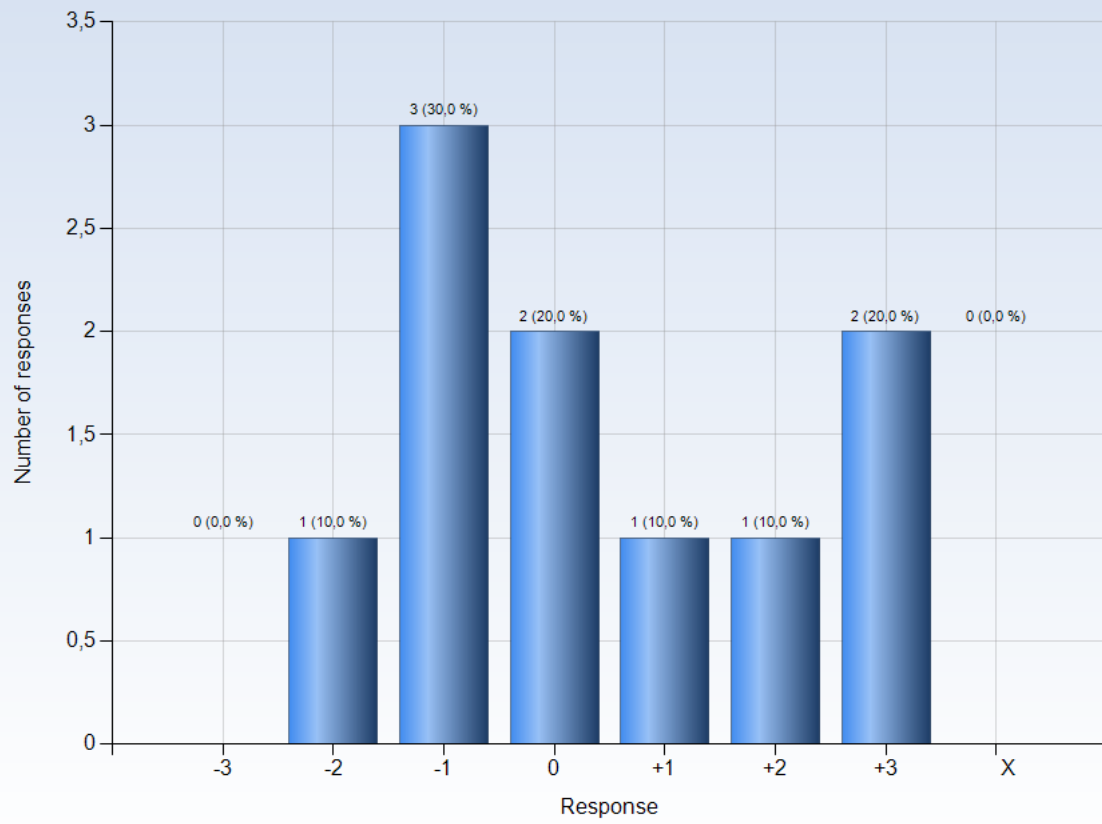
Comments

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



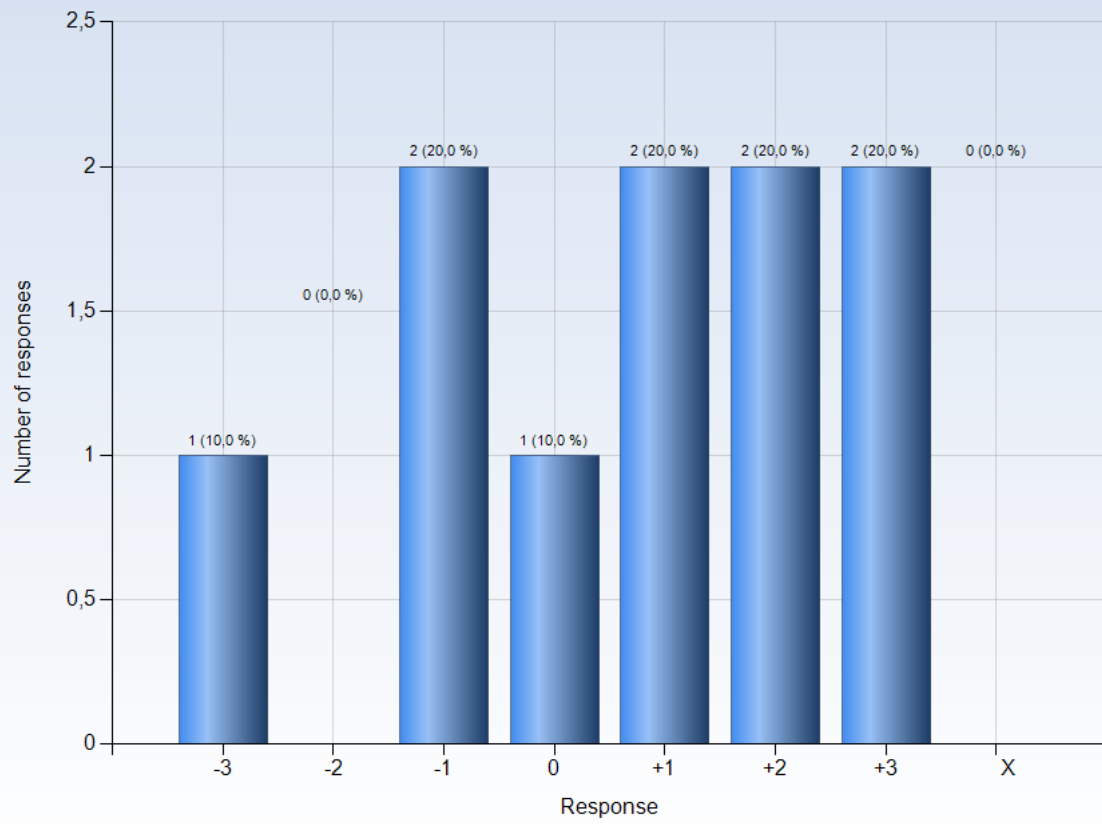
Comments

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



Comments

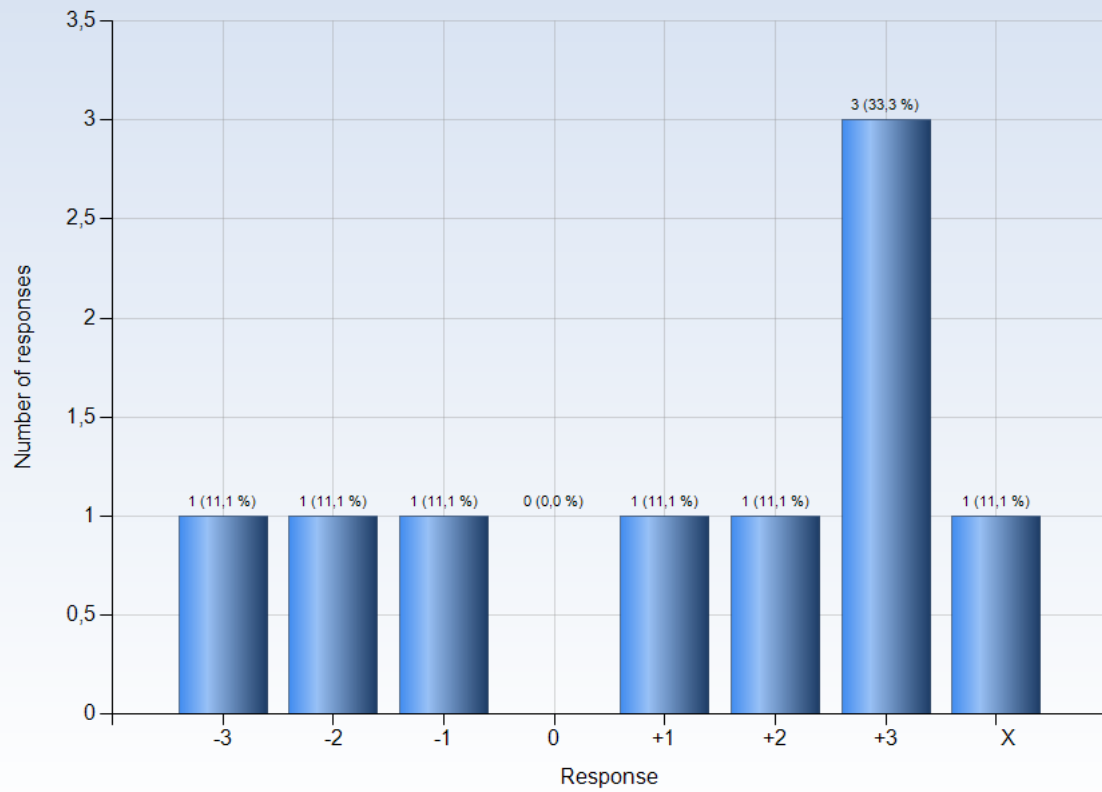
### 11. Understanding of key concepts had high priority



Comments



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

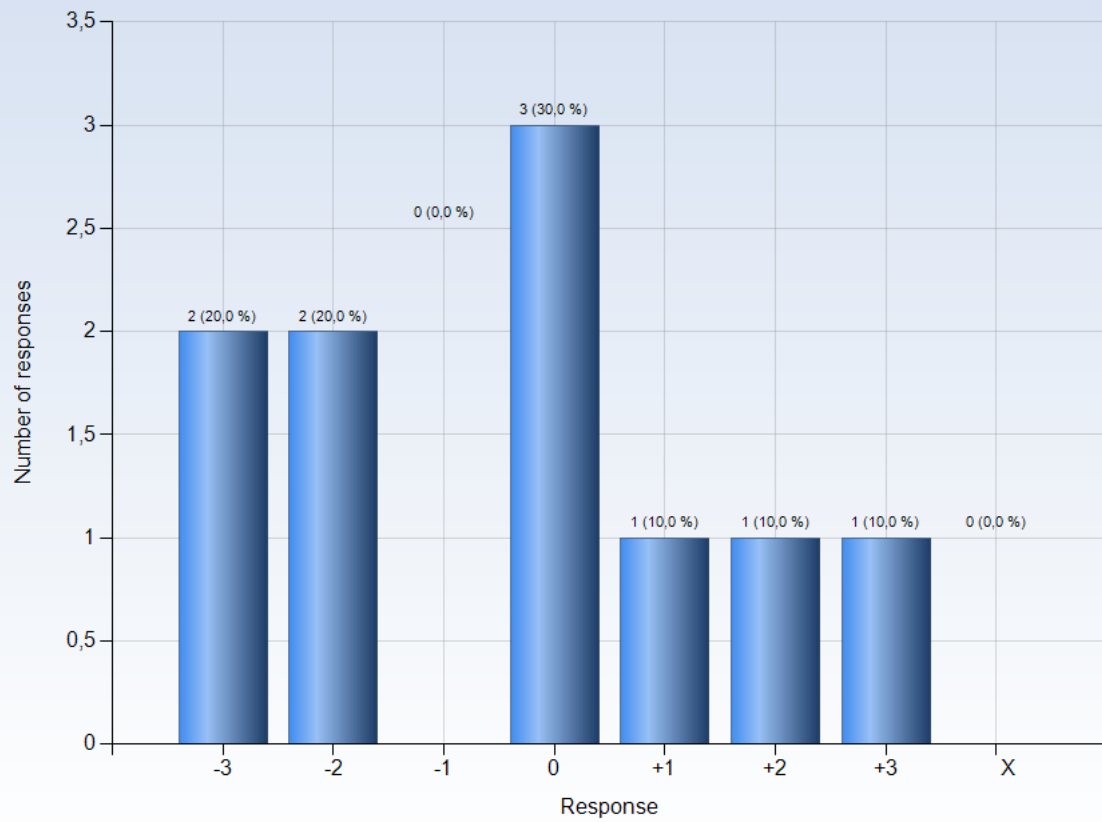


### Comments

Comments (My response was: -1)

Not so much

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



#### Comments

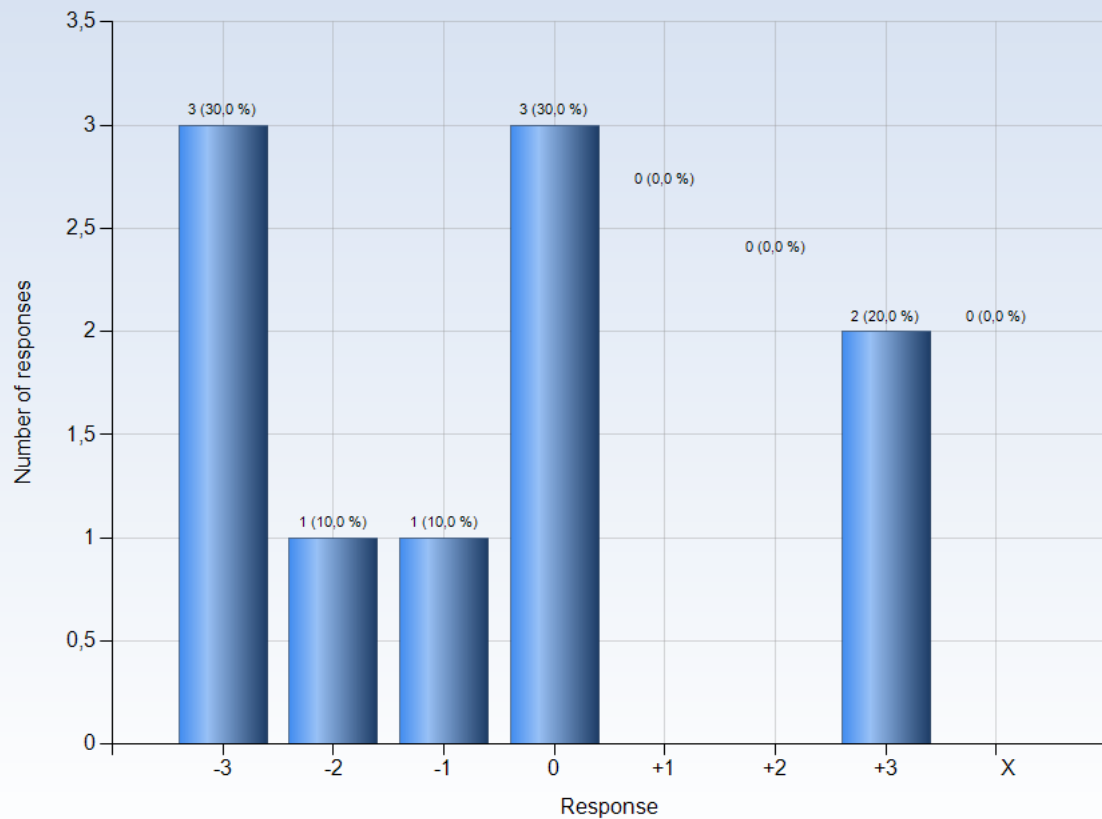
Comments (My response was: -3)

Fick aldrig någon feedback på någon uppgift. De flesta uppgifter är inte ens rättade än.

Comments (My response was: -2)

We did the tenta but before tenta we should have get feedback from project because it has has the same Requirements !

### 16. The assessment on the course was fair and honest



#### Comments

Comments (My response was: -3)

Känner att examinationen var dåligt panerad och det behövde utföras under otillräcklig tid

Som sagt min dator är inte gjord för creo. Hade svårt att läsa uppgifterna då skärmen hoppade konstant. Tyckte det var på tok för lite tid för uppgift 1 och 3. Jag kunde de mesta på alla uppgifter men det framgår inte i min dexa på grund av tidsbrist och teknikstrul. väldigt orättvis

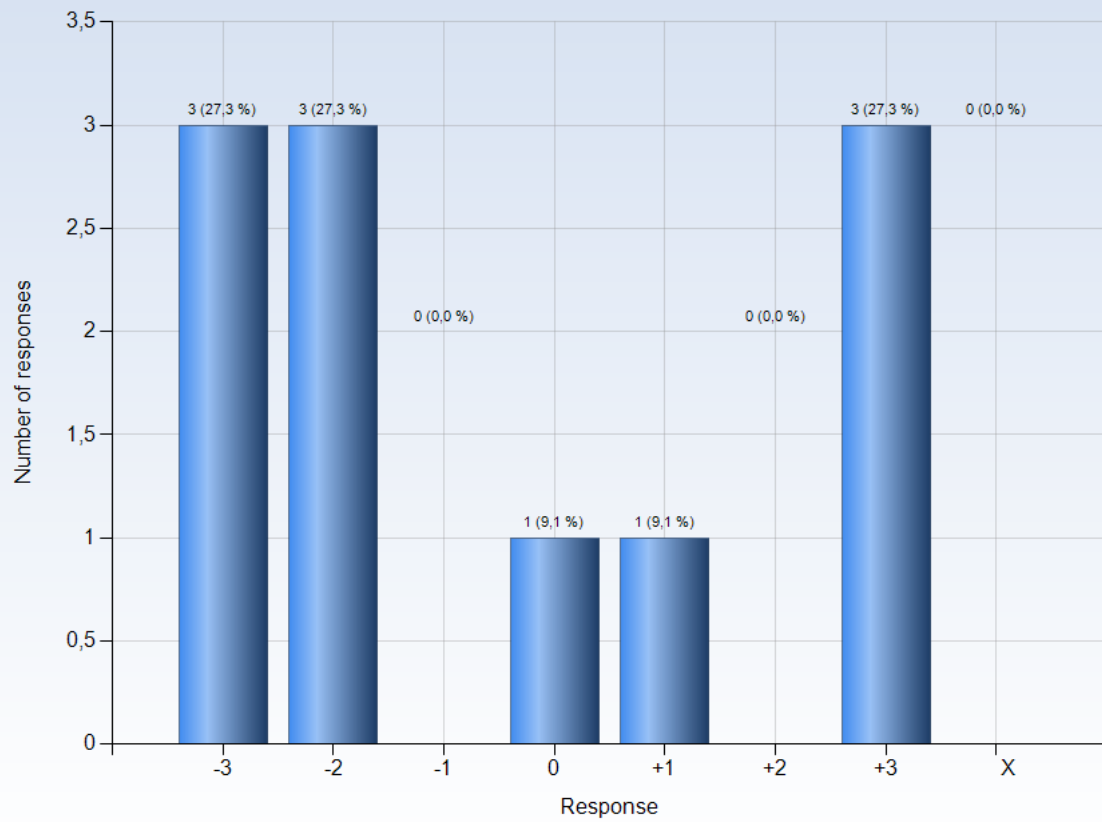
Comments (My response was: -2)

Not beause we didnt learn everthing in correct way my speed in tenta was not fast

Comments (My response was: -1)

Tidsupplägget på tentamen vad för kort. Eller så var uppgifterna för avancerade.

### 17. My background knowledge was sufficient to follow the course



#### Comments

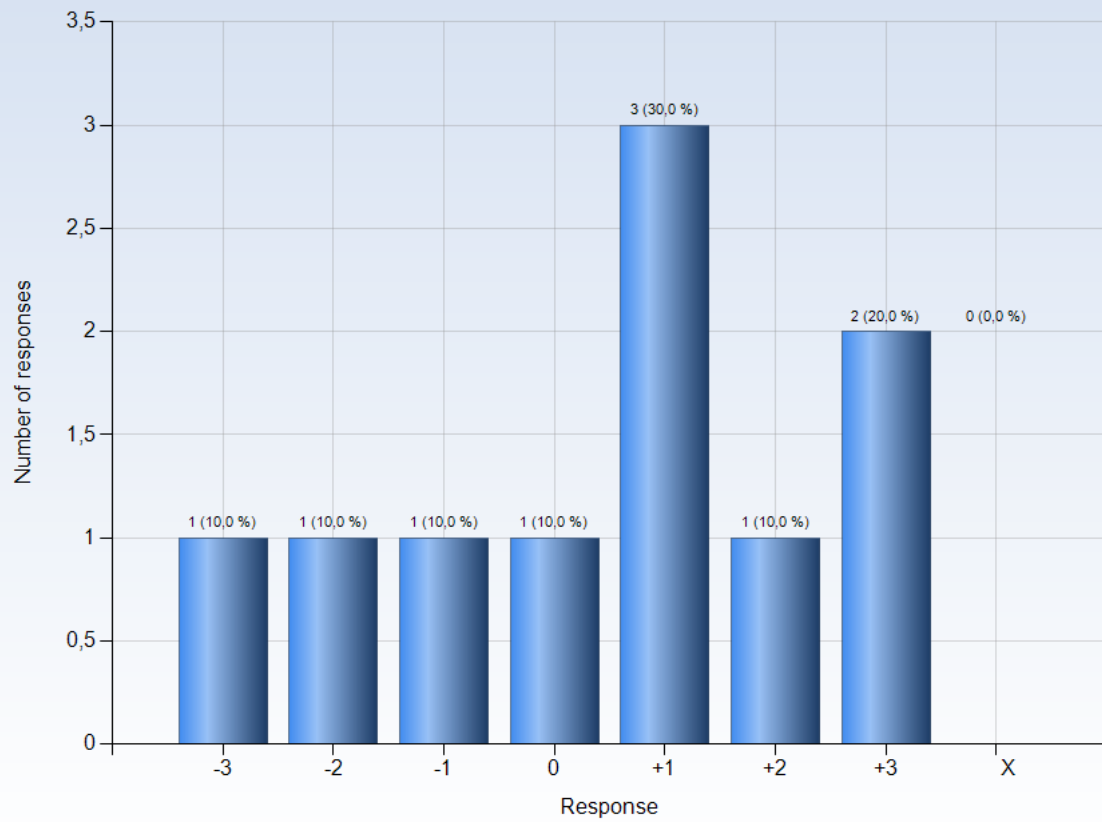
Comments (My response was: -3)

I hade zero kunskaper

Comments (My response was: -2)

Mina kunskaper inom teknik och förståelse hjälpte mig, men har aldrig arbetat med något liknande förut

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

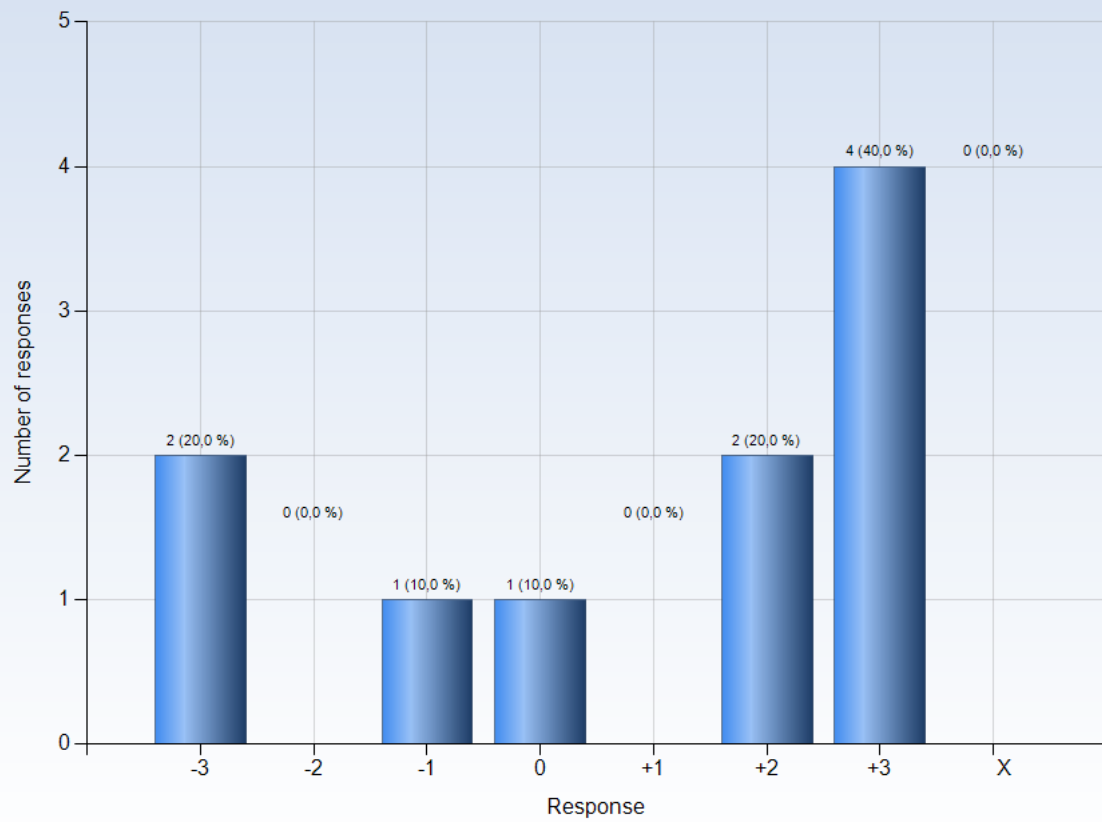


#### Comments

Comments (My response was: -1)

Olika sätt but not that i can finished skiss in 50m

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



#### Comments

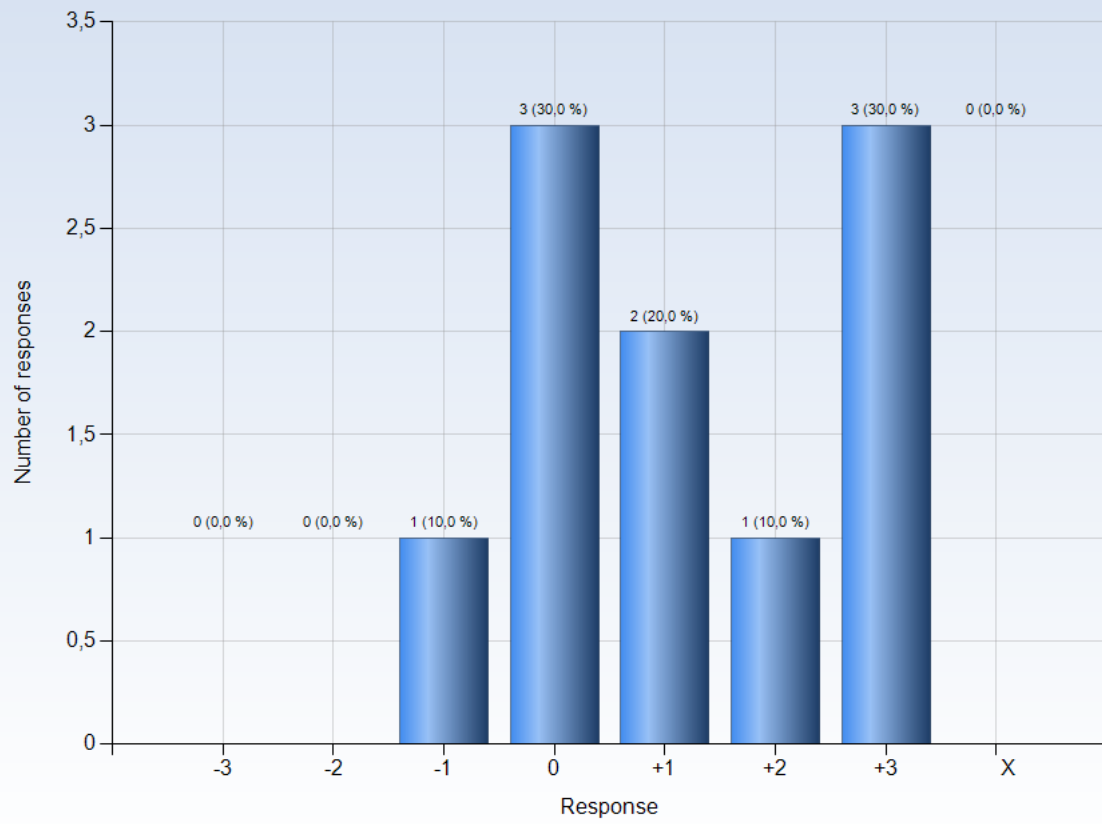
Comments (My response was: -3)

Hade varit betydligt lättare på plats i skolan

Comments (My response was: -1)

I get help just one time beause i have stuck in homework two days so i meet my ferinds

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



### Comments

Comments (My response was: -1)

Not so much because i need help so many