FYTN09 vt14

Respondents: 21
Answer Count: 17
Answer Frequency: 80,95 %

General Opinion

Give your opinion in the scale 1-5.

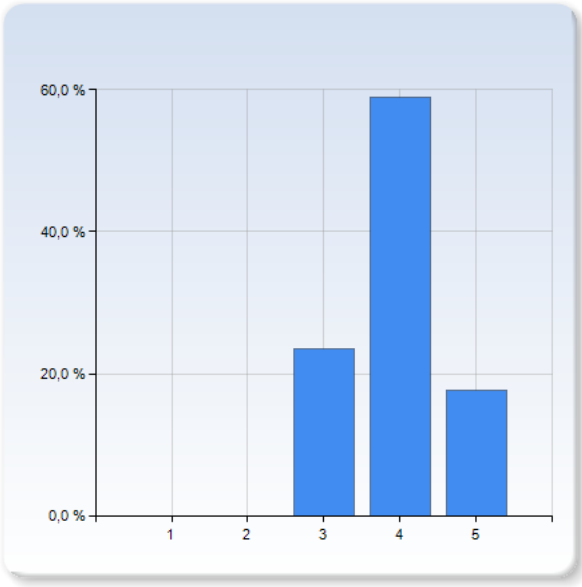
1 = very negative
2 = negative
3 = neutral
4 = positive
5 = very positive

Personal comments will be appreciated!

What is your general opinion of...

the course?

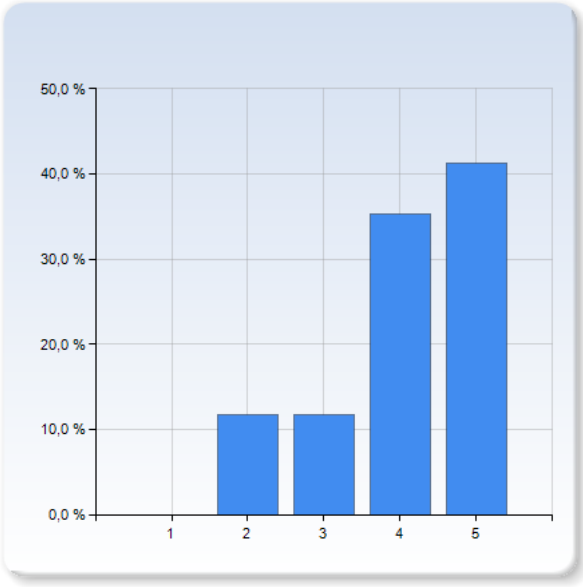
the course?	Number of Responses
1	0 (0,0%)
2	0 (0,0%)
3	4 (23,5%)
4	10 (58,8%)
5	3 (17,6%)
Total	17 (100,0%)



	Mean	Standard Deviation
the course?	3,9	0,7

the information about the course when it started?

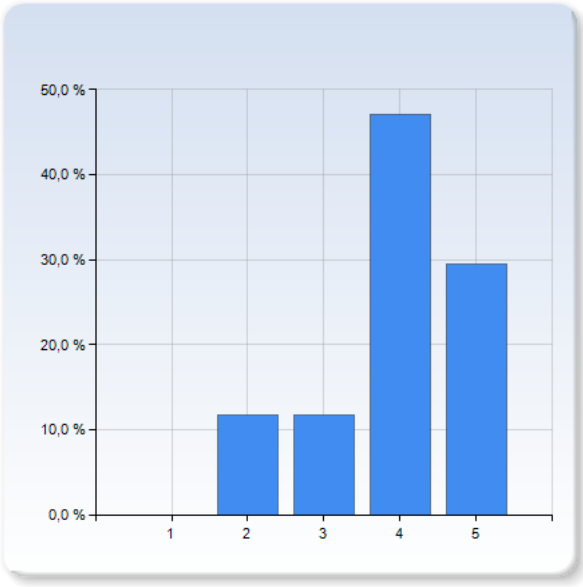
the information about the course when it started?	Number of Responses
1	0 (0,0%)
2	2 (11,8%)
3	2 (11,8%)
4	6 (35,3%)
5	7 (41,2%)
Total	17 (100,0%)



	Mean	Standard Deviation
the information about the course when it started?	4,1	1,0

the information about what was expected of you?

the information about what was expected of you?	Number of Responses
1	0 (0,0%)
2	2 (11,8%)
3	2 (11,8%)
4	8 (47,1%)
5	5 (29,4%)
Total	17 (100,0%)



	Mean	Standard Deviation
the information about what was expected of you?	3,9	1,0

Comments
The course is generally an excellent course to have, since it introduces many topics relevant for studies in theoretical physics. The problem is, that the course tries to include too many levels of knowledge. Basics concepts of linear algebra, which in the study plan are stated as prerequisites, are introduced in both the book and the lectures. Thus the students, who already know these concepts, will find much of the content of the book and the lectures trivial, while the students who does not know these prerequisites will find much of the higher-level content too hard. The introduction meeting lacked a plan and outline of the course, which is important to know for the students. The expectations of the students was not clearly stated, and thus it was hard for me as a student to know which lectures a student at my level should participate in.
The introduction meeting could easily have included: - more information about handins and how they were to be evaluated - general information about the broader scope of the course, instead of just starting at page 1 in the book The form of examination changed during the course. First we were told that presentations could be counted towards the exam (in some undefined way), then maybe not. It was never clear how much of a handin should be correct to be passed, and the final examination changed less than a week before the examination from the standard oral exam to a semi-written exam with multiple people in at a time. The examination form should not be changed less than a week before examination, and especially not without full consent of the students!
I knew what to expect from a course in Classical mechanics, it wasn't my first one.

Literature

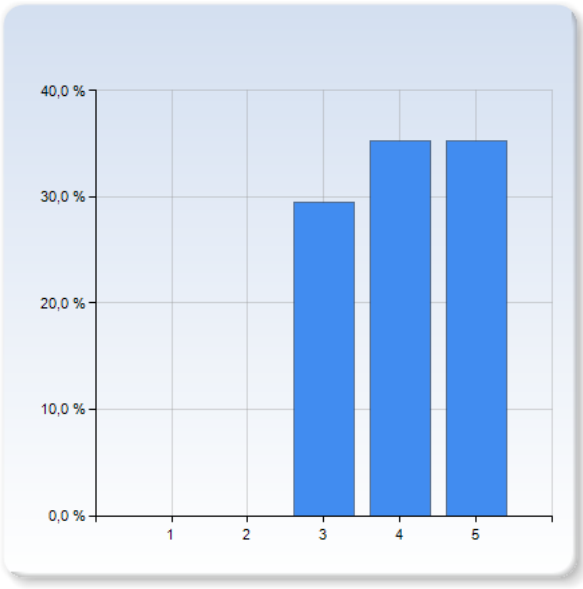
Give your opinion in the scale 1-5.

1 = very negative
2 = negative
3 = neutral
4 = positive
5 = very positive

Personal comments will be appreciated!

What is your general opinion of...

What is your general opinion of Goldstein's book?	Number of Responses
1	0 (0,0%)
2	0 (0,0%)
3	5 (29,4%)
4	6 (35,3%)
5	6 (35,3%)
Total	17 (100,0%)



	Mean	Standard Deviation
What is your general opinion of Goldstein's book?	4,1	0,8

Comments
The book could have been improved with more examples of how to apply the theory to solve problems.
Goldsteins book introduces many important concepts, but generally lacks an introduction to why we introduce the concepts, and when the different concepts are important. This could have been taken care of in the lectures, but was not properly done, leaving the students with a large sample of tools, but a small knowledge on when to use which tools on what problems.
Very good book overall, with good reasoning and quite easy to follow. However, there are many misprints that confuses.
Quite wordy, but a classic in the field, so I guess one must read it at some point.
It is really good as reference but can sometimes be a bit heavy, especially if you lack some part of the assumed knowledge.
Lots of typos, of course, but since it's the standard text there probably is no better book.

Lectures and problem solving sessions

Give your opinion in the scale 1-5.

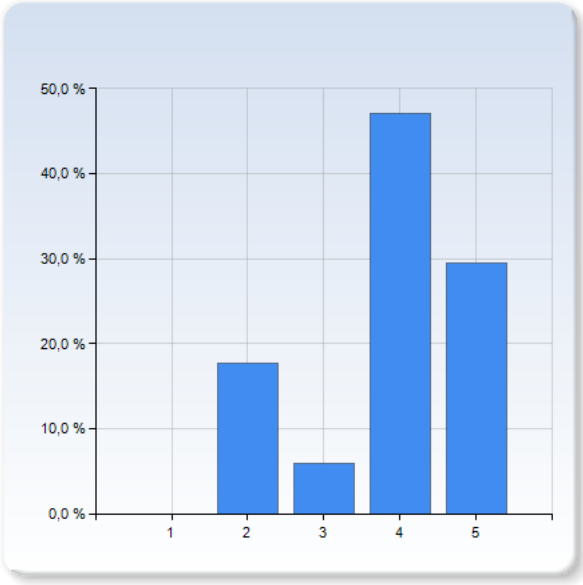
1 = very negative
2 = negative
3 = neutral
4 = positive
5 = very positive

Personal comments will be appreciated!

What is your general opinion of...

the lectures with Roman Pasechnik?

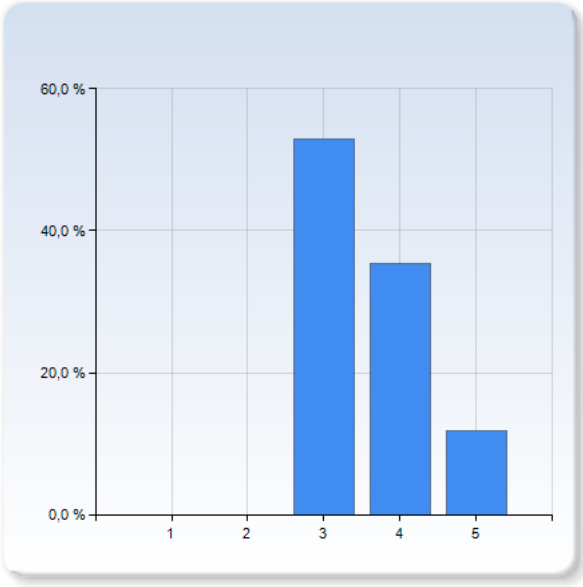
the lectures with Roman Pasechnik?	Number of Responses
1	0 (0,0%)
2	3 (17,6%)
3	1 (5,9%)
4	8 (47,1%)
5	5 (29,4%)
Total	17 (100,0%)



	Mean	Standard Deviation
the lectures with Roman Pasechnik?	3,9	1,1

the problem solving sessions?

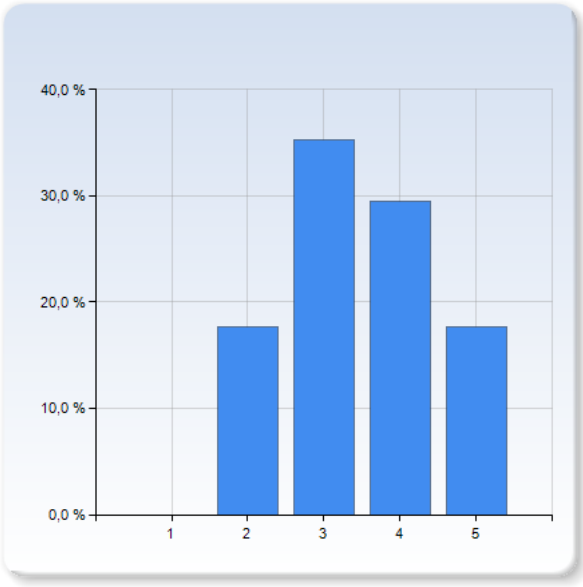
the problem solving sessions?	Number of Responses
1	0 (0,0%)
2	0 (0,0%)
3	9 (52,9%)
4	6 (35,3%)
5	2 (11,8%)
Total	17 (100,0%)



	Mean	Standard Deviation
the problem solving sessions?	3,6	0,7

the balance between lectures and problem solving sessions?

the balance between lectures and problem solving sessions?	Number of Responses
1	0 (0,0%)
2	3 (17,6%)
3	6 (35,3%)
4	5 (29,4%)
5	3 (17,6%)
Total	17 (100,0%)



	Mean	Standard Deviation
the balance between lectures and problem solving sessions?	3,5	1,0

Comments
You only get something out of the problem solving sessions if you have tried to solve a problem and failed.
The lecturer was clear, but generally did not deviate from the book at all. This meant that if you had not understood the book, you will not be able to understand the lectures. Had the lecturer used the concepts and tools introduced in the book on new problems and/or examples, the lectures would have been more interesting and useful. It is generally not good to make a lecture, which is an exact copy of the book!
Romans lectures followed the book almost line by line. Roman seems to be very knowledgeable about the subject, so it would be nice if he could use the lectures to point out structures in the material, and emphasize what is important, instead of following the book closely. The only thing gained by following the book so closely is that students stop reading in advance, as the book will be read out loud in the lectures. The problem solving sessions were nice, especially after the modification where groups got responsibility to solve exercises. We could definitely have had one or two extra problem solving sessions, skipping one or two lectures.
The lectures was sometimes a bit difficult to follow. It had been good with more headings because sometimes I was not sure about what topic we were currently discussing. Otherwise I thought the lecturer showed much interest in the opinions of the students which felt very good. In the beginning there were too many home exercises and it was impossible to manage to do them all which affected the problem sessions negatively. It became much better when the structure of the problem sessions were change. However, I thought the problem sessions focused to much on the mathematical derivations and too little on the methods or way of thinking for solving problems.
I would have appreciated more problem solving sessions (once every week), for example guided by a student (for example advanced PhD student of Theoretical physics department) to have a second view on problems, that is closer to the student's level.
The setup around the problem solving sessions was a bit unclear in the beginning, after the groups where formed it was much better in my opinion. I felt that it was a bit stressed though, since sometimes we didn't have time to go over all problems and you could up end up trying to work on the hand-in exersize without a chance to discuss how to solve. However, I felt that there is room for another type of problems. What I lacked during the course was problems with solutions or answers, where I am able to work on my own and see how well I have understood the material. The problem sessions were really good for the more complicated problems though. To try to illustrate it a bit more.. What I was looking for is that one first goes to the lectures and read the book. After that there are some problems that I can work with where an answer (and/or complete solution). Then I can work with the problems for the problem solving sessions, where maybe there should in this case be a bit fewer problems so that everyone have time to solve all the problems and thus can be involved in the discussions. And THEN working on solving the hand-in assignments.
Lectures were good, if a bit confusing at times (possibly just me). A good idea might be to take a step back from time to time and repeat what we're doing/our goal at the moment.

Examination

Give your opinion in the scale 1-5.

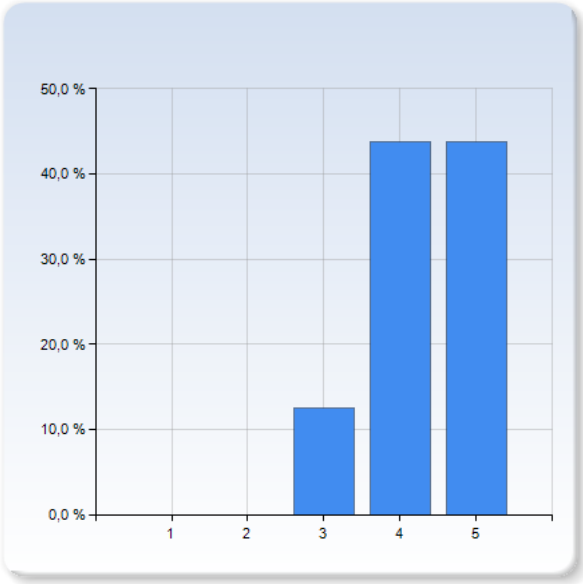
1 = very negative
2 = negative
3 = neutral
4 = positive
5 = very positive

Personal comments will be appreciated!

What is your general opinion of...

the hand-in exercises?

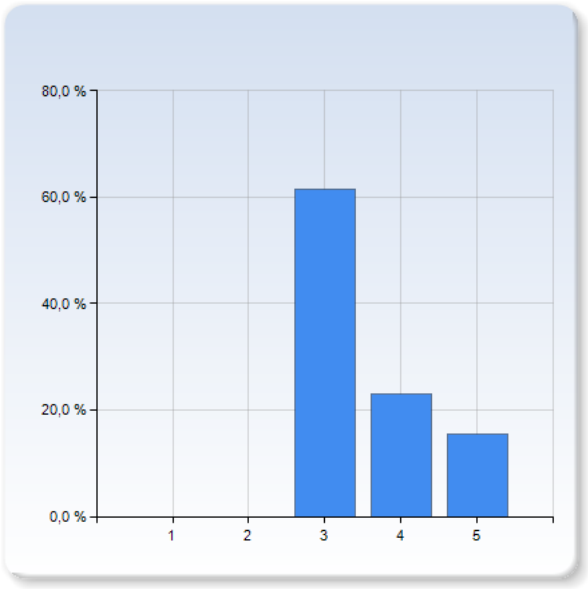
the hand-in exercises?	Number of Responses
1	0 (0,0%)
2	0 (0,0%)
3	2 (12,5%)
4	7 (43,8%)
5	7 (43,8%)
Total	16 (100,0%)



	Mean	Standard Deviation
the hand-in exercises?	4,3	0,7

the seminar assignment?

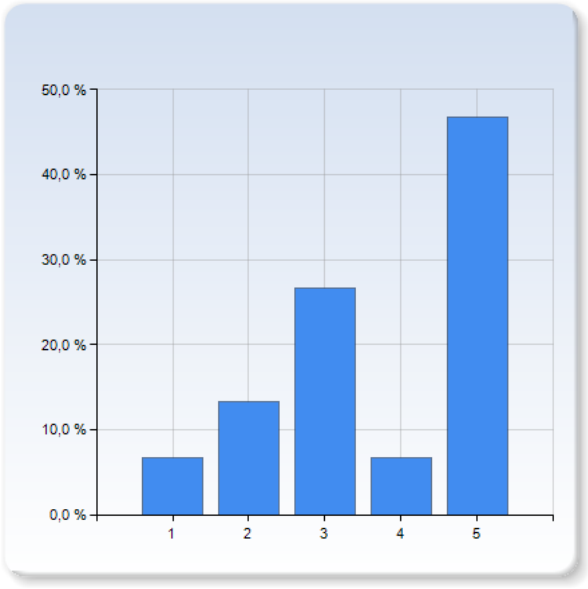
the seminar assignment?	Number of Responses
1	0 (0,0%)
2	0 (0,0%)
3	8 (61,5%)
4	3 (23,1%)
5	2 (15,4%)
Total	13 (100,0%)



	Mean	Standard Deviation
the seminar assignment?	3,5	0,8

the oral exam?

the oral exam?	Number of Responses
1	1 (6,7%)
2	2 (13,3%)
3	4 (26,7%)
4	1 (6,7%)
5	7 (46,7%)
Total	15 (100,0%)



	Mean	Standard Deviation
the oral exam?	3,7	1,4

Comments
I would suggest a weighted average between homework and the oral exam as a final grade. And you shouldn't get the specific questions for the oral exam before hand. Then people just memorize all the answers. And a 95% for VG is pretty high?
The problems chosen in the hand-in exercises did not highlight the concepts of the book in a new way. They were often a copy of an example given in the book, with slight changes. The oral exam was not conducted in a good way. The method of examination was not stated until a few days before, leaving many students confused. The actual method of having to be examined in the same room as the other students was not acceptable. A positive thing was the rearrangement of the exercise sessions during the course, where the lecturer tried to divide the number of assignments between smaller groups. This helped the students to actually try to understand the fewer number of assignments, in stead of just showing up unprepared for the sessions.
It was a nice layout of the oral exam.
The examination form should not be changed less than a week before the exam!
I think the criterias for passing the home exercises should be more clear from the beginning so you know what is expected of you. The oral exam was really good. I think those type of exams were you are able to disuss and explain are much better for you learning process than for example written exams.
was there a seminar assignment? The oral exam I didn't take yet. The preparation for the exam was good as far as I can tell now
I found the exercises hard.

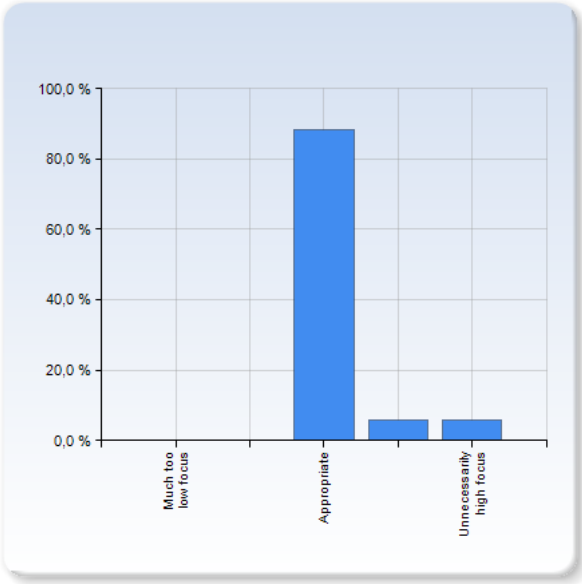
The focus of the course.

Below are learning goals from the course plan. Mark how much focus these goals got during the course, compared to what you feel would be needed.

After completion of the course, the student...

can explain the D'Alembert and Hamilton principles and derive the Lagrange equations.

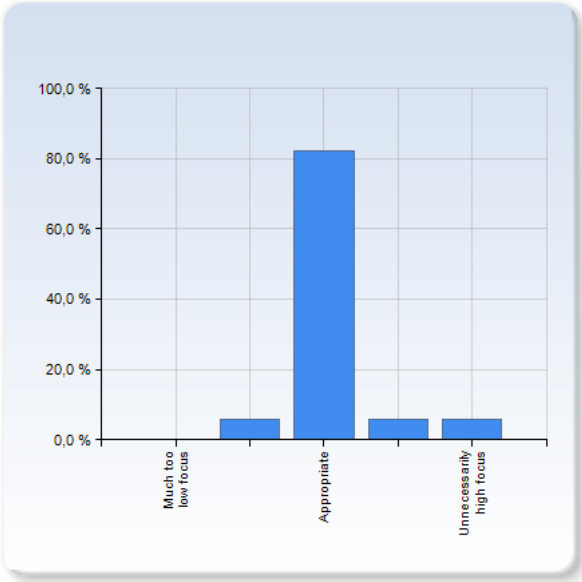
can explain the D'Alembert and Hamilton principles and derive the Lagrange equations.	Number of Responses
Much too low focus	0 (0,0%)
	0 (0,0%)
Appropriate	15 (88,2%)
	1 (5,9%)
Unnecessarily high focus	1 (5,9%)
Total	17 (100,0%)



	Mean	Standard Deviation
can explain the D'Alembert and Hamilton principles and derive the Lagrange equations.	3,2	0,5

can describe the reduction to the equivalent one-body problem, derive the equations of motion, obtain their solutions and apply the formalism to the Kepler motion problem.

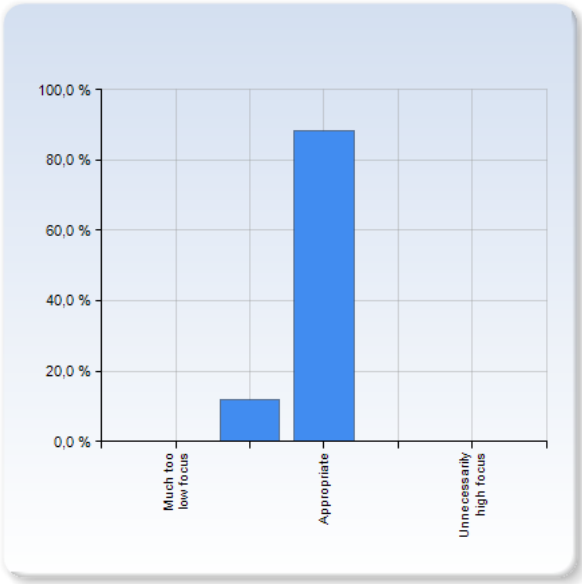
can describe the reduction to the equivalent one-body problem, derive the equations of motion, obtain their solutions and apply the formalism to the Kepler motion problem.	Number of Responses
Much too low focus	0 (0,0%)
	1 (5,9%)
Appropriate	14 (82,4%)
	1 (5,9%)
Unnecessarily high focus	1 (5,9%)
Total	17 (100,0%)



	Mean	Standard Deviation
can describe the reduction to the equivalent one-body problem, derive the equations of motion, obtain their solutions and apply the formalism to the Kepler motion problem.	3,1	0,6

can describe the rigid body motion and how it obtain the Euler equations of motion.

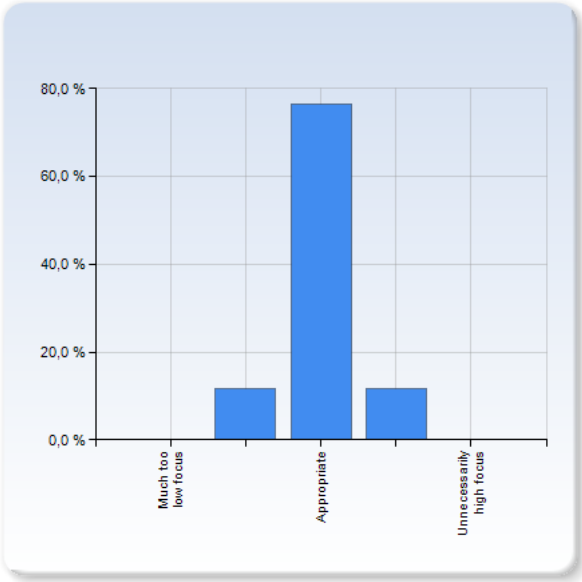
can describe the rigid body motion and how it obtain the Euler equations of motion.	Number of Responses
Much too low focus	0 (0,0%)
	2 (11,8%)
Appropriate	15 (88,2%)
	0 (0,0%)
Unnecessarily high focus	0 (0,0%)
Total	17 (100,0%)



	Mean	Standard Deviation
can describe the rigid body motion and how it obtain the Euler equations of motion.	2,9	0,3

can explain the principles behind the small oscillations around an equilibrium state and describe the principal axes transformation.

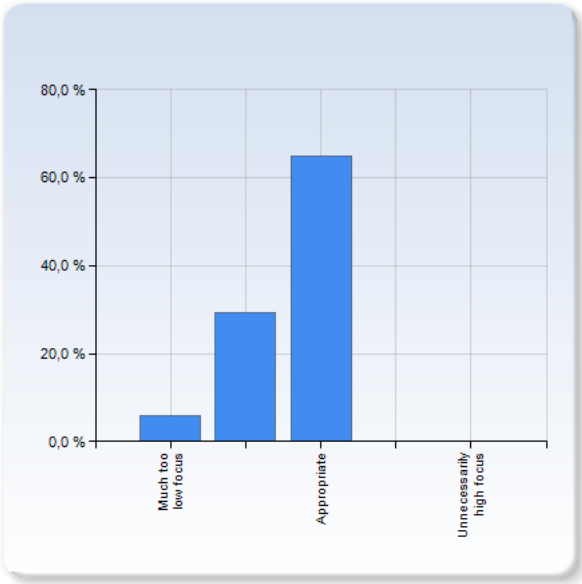
can explain the principles behind the small oscillations around an equilibrium state and describe the principal axes transformation.	Number of Responses
Much too low focus	0 (0,0%)
	2 (11,8%)
Appropriate	13 (76,5%)
	2 (11,8%)
Unnecessarily high focus	0 (0,0%)
Total	17 (100,0%)



	Mean	Standard Deviation
can explain the principles behind the small oscillations around an equilibrium state and describe the principal axes transformation.	3,0	0,5

can explain the Lagrange formulation for a particle in a relativistic case.

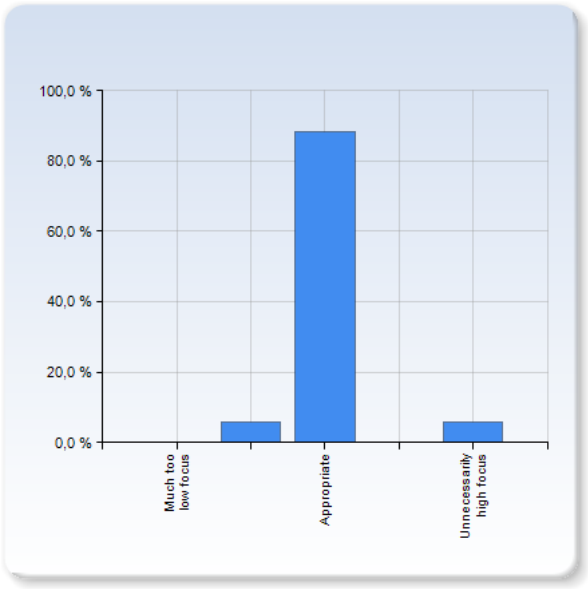
can explain the Lagrange formulation for a particle in a relativistic case.	Number of Responses
Much too low focus	1 (5,9%)
	5 (29,4%)
Appropriate	11 (64,7%)
	0 (0,0%)
Unnecessarily high focus	0 (0,0%)
Total	17 (100,0%)



	Mean	Standard Deviation
can explain the Lagrange formulation for a particle in a relativistic case.	2,6	0,6

can explain the derivation of the principle of least action and its physical meaning.

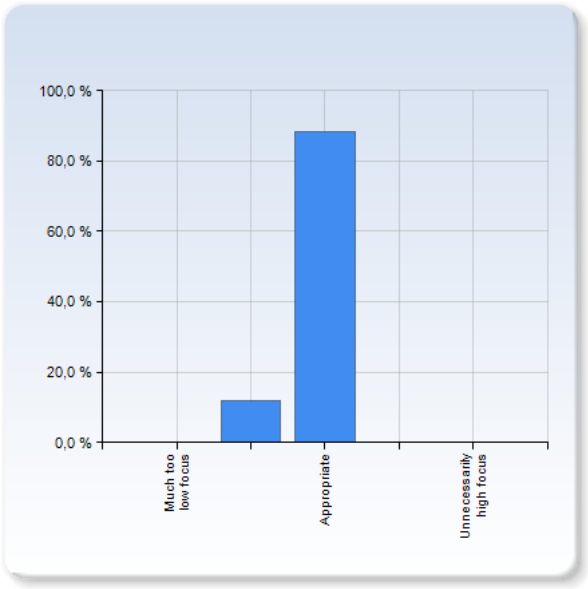
can explain the derivation of the principle of least action and its physical meaning.	Number of Responses
Much too low focus	0 (0,0%)
	1 (5,9%)
Appropriate	15 (88,2%)
	0 (0,0%)
Unnecessarily high focus	1 (5,9%)
Total	17 (100,0%)



	Mean	Standard Deviation
can explain the derivation of the principle of least action and its physical meaning.	3,1	0,6

can describe the principle behind canonical transformations and how it leads to the Hamilton-Jacobi equation and to the action-angle variables formalism.

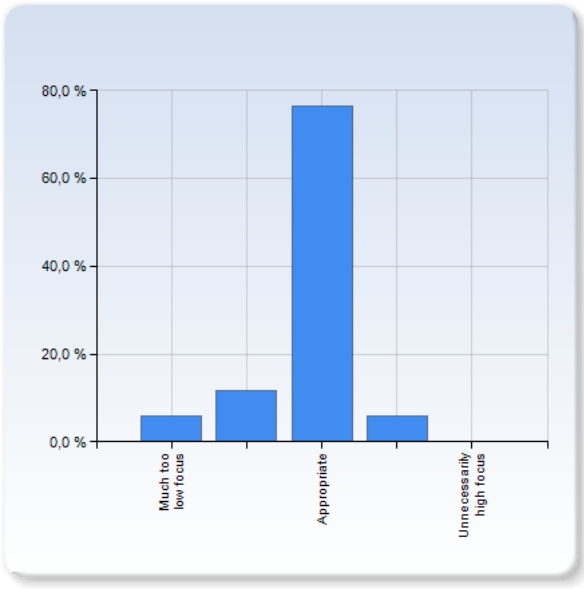
can describe the principle behind canonical transformations and how it leads to the Hamilton-Jacobi equation and to the action-angle variables formalism.	Number of Responses
Much too low focus	0 (0,0%)
	2 (11,8%)
Appropriate	15 (88,2%)
	0 (0,0%)
Unnecessarily high focus	0 (0,0%)
Total	17 (100,0%)



	Mean	Standard Deviation
can describe the principle behind canonical transformations and how it leads to the Hamilton-Jacobi equation and to the action-angle variables formalism.	2,9	0,3

can explain the principles behind the time-dependent and time-independent perturbation theories.

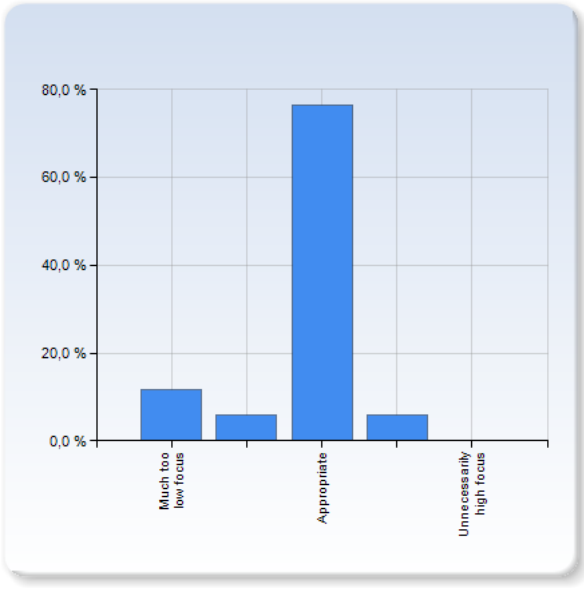
can explain the principles behind the time-dependent and time-independent perturbation theories.	Number of Responses
Much too low focus	1 (5,9%)
	2 (11,8%)
Appropriate	13 (76,5%)
	1 (5,9%)
Unnecessarily high focus	0 (0,0%)
Total	17 (100,0%)



	Mean	Standard Deviation
can explain the principles behind the time-dependent and time-independent perturbation theories.	2,8	0,6

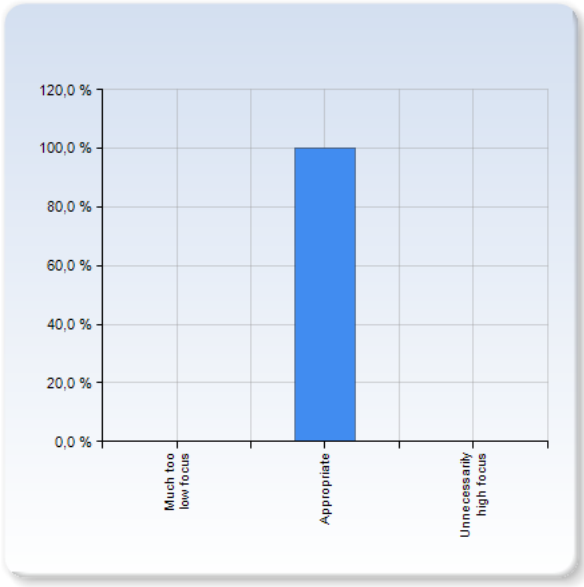
.can demonstrate the basic knowledge and Lagrange/Hamilton formulation of classical mechanics for continuous systems.

.can demonstrate the basic knowledge and Lagrange /Hamilton formulation of classical mechanics for continuous systems.	Number of Responses
Much too low focus	2 (11,8%)
	1 (5,9%)
Appropriate	13 (76,5%)
	1 (5,9%)
Unnecessarily high focus	0 (0,0%)
Total	17 (100,0%)



	Mean	Standard Deviation
.can demonstrate the basic knowledge and Lagrange/Hamilton formulation of classical mechanics for continuous systems.	2,8	0,8

	Number of Responses
Much too low focus	0 (0,0%)
	0 (0,0%)
Appropriate	7 (100,0%)
	0 (0,0%)
Unnecessarily high focus	0 (0,0%)
Total	7 (100,0%)

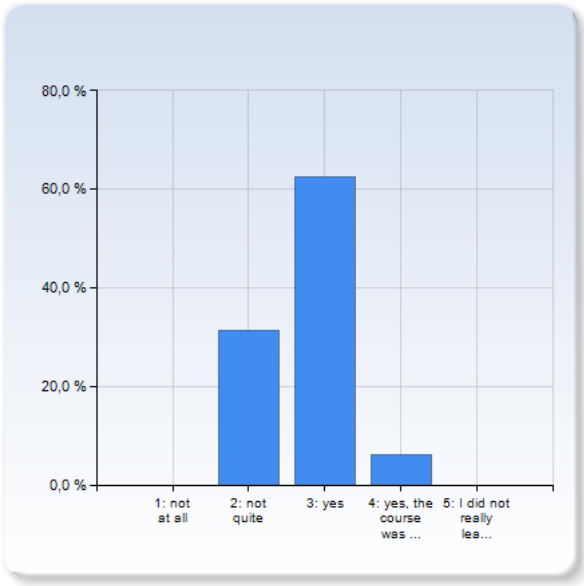


	Mean	Standard Deviation
	3,0	0,0

Comments
Because of the very wide range of levels tried to be covered in the course, much focus was on eg. linear algebra and other mathematical tools such as calculus of variations, in stead of the physical concepts of the course. This clashes with the content of the course plan, where the math is prerequisites and the focus is on the physical concepts.
Unfortunately, I could not attend several lectures, and so my answers might not be entirely representative...
I think the course was way too crowded content-wise. It is really a stretch to try and cover all of Goldstein in such a short course! Considering the prior knowledge participants were expected to have, I think we could have easily skipped over some of the first chapters and spent more time covering the last ones. Conversely the course could also be made into a rigorous treatment of the Kepler problem and the more low level stuff, but trying to cover it all is just too much.

Did you have enough prior knowledge for this course?

Did you have enough prior knowledge for this course?	Number of Responses
1: not at all	0 (0,0%)
2: not quite	5 (31,3%)
3: yes	10 (62,5%)
4: yes, the course was a bit easy	1 (6,3%)
5: I did not really learn anything new	0 (0,0%)
Total	16 (100,0%)



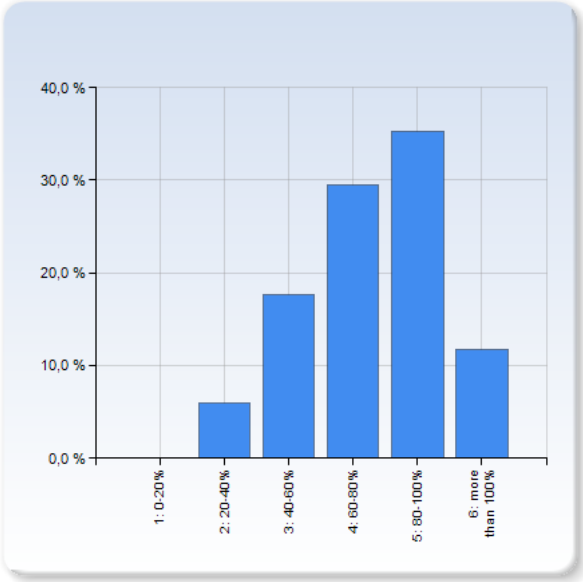
	Mean	Standard Deviation
Did you have enough prior knowledge for this course?	2,8	0,6

Comment
I would have appreciated it if the course included more group theory when discussing symmetries and transformations.

Your efforts

How much time have you spent on this course?(100% means 9-10 weeks, 20 hours per week, adding up to roughly 25 work-days)

Your efforts How much time have you spent on this course? (100% means 9-10 weeks, 20 hours per week, adding up to roughly 25 work-days)	Number of Responses
1: 0-20%	0 (0,0%)
2: 20-40%	1 (5,9%)
3: 40-60%	3 (17,6%)
4: 60-80%	5 (29,4%)
5: 80-100%	6 (35,3%)
6: more than 100%	2 (11,8%)
Total	17 (100,0%)



	Mean	Standard Deviation
Your efforts How much time have you spent on this course?(100% means 9-10 weeks, 20 hours per week, adding up to roughly 25 work-days)	4,3	1,1

Comment
It was much more than 7.5 hp course regarding the amount of things to learn
Most of the time spent was on reading (quite a lot to be clear) and on doing the exercises. The amount of pages each assignment took was quite incredible. I have never been subject to exercises of this level of paperwork!
The handins took quite a lot of time.

What did you particularly like with the course?

What did you particularly like with the course?
Direct relation to the chapters in the book. The list of approximate questions was good to have as a plan for exam preparation
I liked that the lectures followed the book.
The sections on Hamiltonian mechanics. Essentially all the things that is not covered in the "Grundläggande teoretisk fysik" was interesting. Maybe good with some repetition as well.
The physical concepts, which, unfortunately, were not the highest priority of the course.
I liked the book, and that the lectures followed it. That made the structuring logical and it was easy to study.
The handins were lengthy but good. The seminar form of the exercise sessions, where groups had responsibility to prepare in advance, were good. Definitely keep that!
I liked that you learned how to use the mathematics of classical mechanics.
the understanding of some basic principles that are needed in order to understand deeply the quantum mechanics
clear structure. following closely the Goldstein book, one could easily use as a reference.
The content and Roman

What in the course do you think could improve?

What in the course do you think could improve?
amount of homework problems and hand-in exercises was too much
I liked the homework. I would want it to be graded and maybe even more of it as well. This is pretty much a selfstudy course, you learn the content when you solve the problems.
Lectures, exercise sessions, exercise choices.
Maybe hand out a few problems that are easier than the ones in the book/seminar sessions, so that you have time to solve a few more problems. The way it was now with the exercise sessions, though you really couldn't avoid doing the exercises assigned to your group, you tended to only look at those in very much detail, and not the other ones.
The course should focus on less material, and cover it in more detail, eg. with more worked examples. In my opinion the first three chapters of the book could be skipped. The lectures ought to be a presentation of the material in question that goes beyond just following the book line by line.
I would have wanted the course to be more related to my field, i.e. how classical mechanics are used in accelerator physics, but since it is a general course I understand that might not be the focus of the course. But still, perhaps some examples of applications other than planets, springs and pendulum could have been used.
some of the hand-in exams have been due just a few days after the corresponding lecture was given. That made it difficult to fit the course into my personal schedule.
As mentioned above, I think more problems with provided answers could be good. Also, maybe fewer problems for the problem solving sessions would mean that everyone have the possibility to work on all the problems, and thus a better discussion.

Other comments (both positive and negative) on the course?

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It would be good to ask some extra questions(at least one) on the exam and not only the ones from the list
It was a lot, a lot of work!! Absolutely more than 7.5 hp!!
The semi-written exam was a fine idea. But: I need to stress again: The examination criteria for the course needs to be clear from the very beginning. The examination form is not subject to change a week before examination. The examination form should never be changed without explicit consent from the students.
As enjoyable as a course in theoretical physics can get for an experimentalist!