

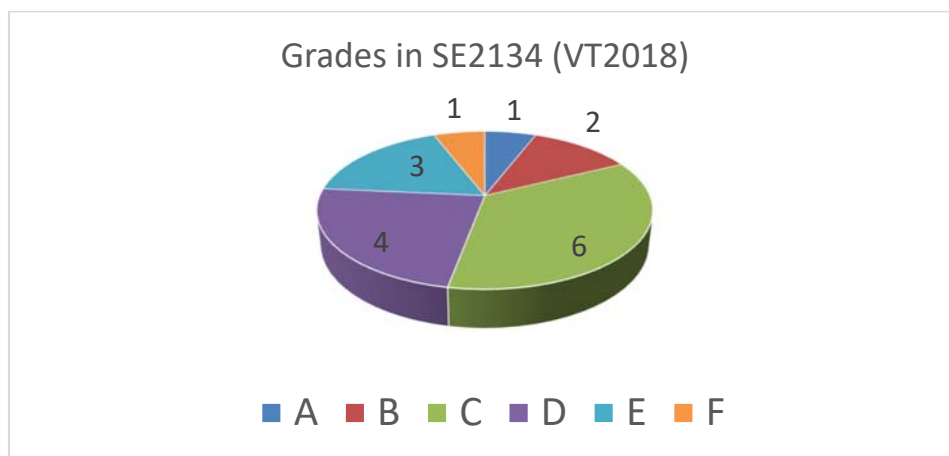
Course evaluation for Dynamic Problems in Solid Mechanics (SE2134, 7.5 credits, VT2018)

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Background

This was the seventh year I was responsible for the course. The overall structure of the course described in the previous evaluation was preserved. This year, I had a new teaching assistant, Hamid Reza Motamedian and, together, we introduced several changes.

This year, the grade distribution has changed with few students aiming at a higher grade.



Problems identified during the previous course round and implemented measures

Problem 1. Certain students regret not receiving individualized feedback and mentioned unfair help given to the students who sought it.

As we moved away from the individualized feedback, some, very motivated students did not receive enough feedback on their original solutions. At the same time, some students used our help extensively during the preparation of the submission.

Solution proposed: We will recognize the motivate students and spend time providing the individual feedback to match their effort. At this point, we do not see why we should limit the students seeking help from the teachers. We should be, however, cautious not giving the ready solution in this process making the grading system unfair. So far, this has not been a case.

Solution implemented: In order to make sure the extent of the individual effort, we reserved the right to call the students for the oral completion of the home assignments. We used this opportunity in the cases when the submitted solutions were clearly a result of collaborating effort. Such solutions can be identified relatively easy through shared mistakes and graphs. In addition, the new teaching assistant decided to structure the time slots for the discussion with

students and requested to send a proposed agenda in advance. That alone helped to increase the productivity from the discussions as students were better prepared since they had to formulate the questions in advance. It will be a recommended practice in the future.

Problem 2. Timoshenko book is too expensive.

With the increased dollar exchange rate, the cost of the book became unbearably high. We attempted to contact the library and order the electronic books. It appeared to be impossible for the given publisher.

Solution proposed: Since the book proved to be a valuable asset in the course, we do not see an easy solution to this problem. We will, nevertheless, attempt to build an alternative recommended reading scheme based upon the books available in the electronic form. This question will be researched toward the course start.

Solution implemented: We asked the library to arrange access to the electronic book. Unfortunately, it was not possible with the publisher owning the copyrights. After reviewing the existing alternatives, we selected the following book available through the library.

Craig, R. R., & Kurdila, A. J. (2006). [Fundamentals of structural dynamics](#). John Wiley & Sons.

Response to the changes

The idea and implementation of inviting the students to the oral completion of the home assignments were not taken with great enthusiasm. However, we noticed the no one denied this opportunity and in general the students were well prepared. The discussions were educating, and the number of deducted points were minimal (2 students out of 10 lost one point each after they could not explain the background of the equations they submitted).

Many students managed to acquire the book from the previous rounds.

Problems identified during the current round and proposed measures

Problem 1. Introducing a new teaching assistant creates turbulence in the course.

The structure of the course is demanding on the preparedness level of the teaching assistant even though this could be an experienced Ph.D. student. The iterations and mistakes made during the corrections, and tutorials may discourage and frustrate the students.

Solution proposed:

Have greater control of the corrections and tutorials during the first introductory year of the course.

Problem 2. Students stop reading the book.

This year, we have noticed that few students continued reading the book prior to classes. It was visible from the performance on the reading quizzes during the lecture. It is not clear whether it is due to being accustomed to the electronic sources or something else.

Solution proposed:

To investigate this, we will include a more detailed question about it in the next course evaluation. We will include the online material as an alternative preparation source before the lecture.

Problem 3. Students do not strive for a better grade.

More students settled with a lower grade than usual. There was no strong core of the students taking the lead. It was also reflected in rather an unlively discussion in the Facebook group.

Solution proposed:

Probe the feeling about the ambition level earlier in the course to take the corrective actions if needed. They may include additional stimulation, emphasizing the relevance of the questions.

General observation

It feels as students developed negative perception of any peer-review activities from the previous experiences at KTH. In fact, everything that makes them work harder and on their own is perceived as negative by a larger group of students. The level of impatience is high while the ability to focus on the tasks rather than trying to find a ready solution is low. A longer observation period is required before generalizing these observations.

My father passed away during the exam week and the collection of the course evaluations was not done in time. It partly explains a low response rate.

Students' responses to course evaluation questionnaire

Note: the original punctuation and wording are preserved.

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Respondents: 17
 Answer Count: 5
 Answer Frequency: 29.41 %

Please, tell the reason why you decided to take this course.

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I took this course as I am going to make a PhD, which will deal with dynamic problems in helicopters gearboxes.

Since it is super relevant to solve dynamic problems and not just stationary ones I thought this course could be one of the most important ones in my masters.

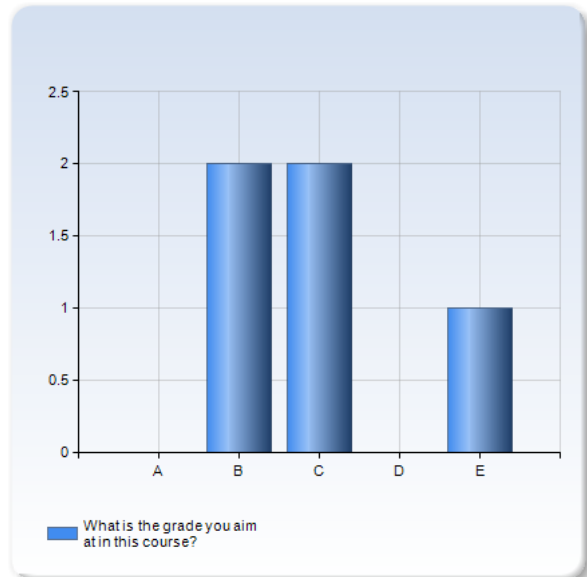
It was one of a very limited number of courses mandatory for me studying a master in applied mathematics with background in mechanical engineering.

It was part of the recommended courses for the master

It was mandatory for the technical track of the master in applied mathematics.

What is the grade you aim at in this course?

What is the grade you aim at in this course?	Number of Responses
A	0 (0.0%)
B	2 (40.0%)
C	2 (40.0%)
D	0 (0.0%)
E	1 (20.0%)
Total	5 (100.0%)



	Mean	Standard Deviation	Coefficient of Variation	Min	Lower Quartile	Median	Upper Quartile	Max
What is the grade you aim at in this course?	3.0	1.2	40.8 %	2.0	2.0	3.0	3.0	5.0

Comment

As I wasn't able to attend the exam.

It was the last course in Sweden, so a Pass was enough

What is the grade you aim at in this course?

3

2

2

5

3

Please, list the previous courses which you think are needed to succeed in this course?

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Some general solid mechanic courses, like Timoshenko and St Venant theory at least.

FEM, Solid Mechanics, Differentials.

Solid mechanics, FEM, differential equations, numerical methods, fourier analysis(?)... etc.

A strong mechanical background is required, but I'd say Applied elasticity with FEM is a good start

I had only taken one previous course in solid mechanics, the basic course SE1010. I do not think that was enough. I did not know how to use Ansys for example and it took a while to remember the mechanics.

Were the objectives of the course (as stated per course description) aligned with the course activities? Please, elaborate on your answer.

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Yes.

Yes everything followed a very clear structure which was easy to understand throughout the course.

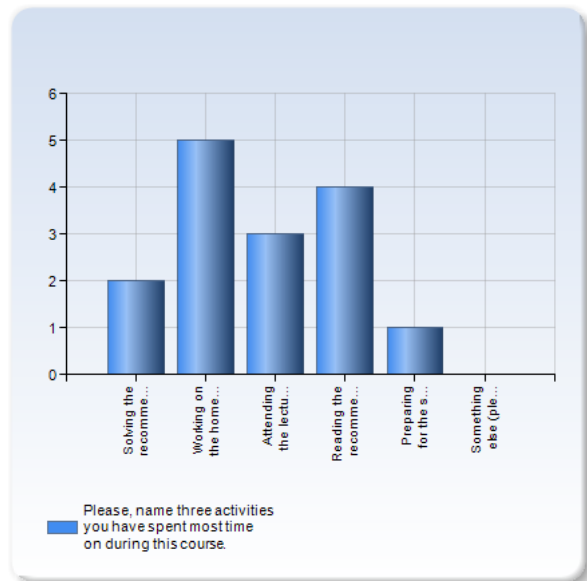
Yes, there were so many activities so nothing could have been missed.

The objectives are reached when solving the full homeworks, but the way there is difficult

Yes, I think so. I just didn't realize how advanced the course was.

Please, name three activities you have spent most time on during this course.

Please, name three activities you have spent most time on during this course.	Number of Responses
Solving the recommended problems.	2 (40.0%)
Working on the homework assignments.	5 (100.0%)
Attending the lectures and recitations.	3 (60.0%)
Reading the recommended material.	4 (80.0%)
Preparing for the seminar.	1 (20.0%)
Something else (please, specify)	0 (0.0%)
Total	15 (300.0%)



	Mean	Standard Deviation	Coefficient of Variation	Min	Lower Quartile	Median	Upper Quartile	Max
Please, name three activities you have spent most time on during this course.	2.8	1.2	43.1 %	1.0	2.0	3.0	4.0	5.0

Comment

I went to all classes, but literally all the remaining time had to be spent with the homework assignments. The recommended material was read to try to find a solution to the home assignments.

95% of the time is solving the homeworks

Please, name three activities you have spent most time on during this course.

1

2

4

2

4

5

2

3

4

1

2

3

2

3

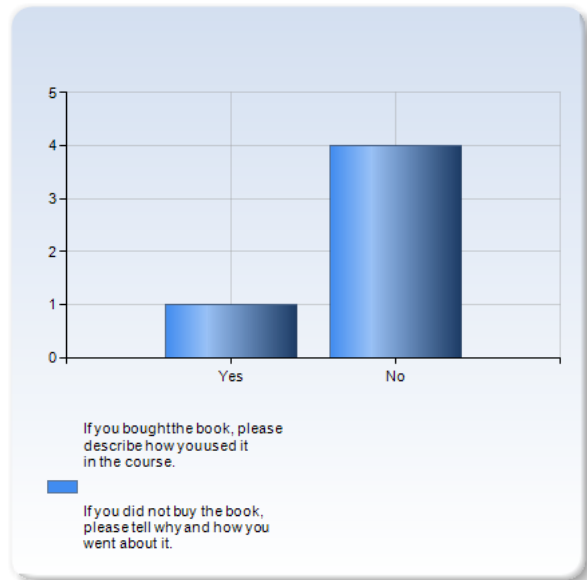
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Did you purchase the Timoshenko book?

If you bought the book, please describe how you used it in the course.

If you did not buy the book, please tell why and how you went about it.

	Number of Responses
Yes	1 (20.0%)
No	4 (80.0%)
Total	5 (100.0%)



	Mean	Standard Deviation	Coefficient of Variation	Min	Lower Quartile	Median	Upper Quartile	Max
If you bought the book, please describe how you used it in the course.								
If you did not buy the book, please tell why and how you went about it.	1.8	0.4	24.8 %	1.0	2.0	2.0	2.0	2.0

Comment

Too expensive. I used some internet support and course material to balance the lack of the book.

Super useful, don't know how we would have solved some of the problems without it

I think it's quite expensive, and the handbook is enough in my opinion

I thought the other book and exercise-book was good

If you bought the book, please describe how you used it in the course.

If you did not buy the book, please tell why and how you went about it.

2

1

2

2

2

What are the activities you benefited the most in this course? Please, reason your answer.

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The homeworks, as it warps lot of knowledge acquired during the engineer studies.

Even though I disapprove of the home assignments, the idea isnt bad. I liked that we were taught how to approach new problem with mathematical modelling like we did on the lectures and tutorials.

I really appreciated the tutorials, as the exercices' level was, in my opinion, really well calibrated

Exercises, lectures and homeworks. Mostly homeworks I think because I learn most if I do something by myself.

Knowing that the homework takes a lot of time, did you consider a full exam as an alternative? Did you seek and receive enough help in coping with it?

Knowing that the homework takes a lot of time, did you consider a full exam as an alternative? Did you seek and receive enough help in coping with it?

They were time consuming, that's right. But they were doable enough using the professor's help. On the other hand, It is optimistic to take another course at the same time.

Never

It was evident that the course was designed to be carried out doing the homeworks, the exam seemed to be almost more brutal than the home assignment so I would never have gone for that. I sought and received lots of help, but we were all still struggling with the homeworks.

As I knew I passed the course before the exam, and the difficulty of it, I didn't consider it as an alternative

I think it's good with homeworks as an alternative for the exam but I think the homeworks was too time consuming, I did not really have that time which was needed and because of the deadlines was on every Saturday I got no time to relax or have fun for the whole period.

I got help if I asked but felt like my questions might be too basic for this advanced course.

Please, suggest how the course can be improved (homework, lectures, tutorials, labs, seminar, etc.). In addition, if you think that the course load does not correspond to 7.5 credits, what are the activities that should be dropped in order bring the workload to the expected level?

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I think the seminar might be the thing that should be dropped if anything since it just felt like a thing that we had to do but didn't benefit from

An unreasonable emphasis was put on the homeworks, and they were unreasonably hard for the level we were at in the course. They were an incredible time sink that only generated a disproportional level of stress in all of the students. The course evidently does not correspond to 7.5 credits and grades in any other course done simultaneously will suffer greatly. I recommend that you drop at least one homework and rethink how you design the problems so that the students can actually apply what they learn on the lectures to solve the problems.

This course is the most time-consuming course of the year. It is worth at least 9.0 or 10.0 credits with the amount of work currently required.

If 7.5 credits is kept, I recommend to make the homeworks easier (something like the tutorials for example)

Smaller homeworks, set the deadline to another day than Saturday. Since the homeworks are very complex and hard the students will continue to work until the last day and its bad for their health to never have free time in the weekends.

Would you recommend taking this course to your younger colleague? If so, what would be your recommendation on how to succeed in this course?

Would you recommend taking this course to your younger colleague? If so, what would be your recommendation on how to succeed in this course?

Don't take any time consuming course next to this one. It is difficult to validate it, so don't take it if you cannot focus on it.

Yes I would, it was the toughest course I have read but I'm very happy that I did read it since it pushed the problem solving experience to a whole new level.

Even though I enjoyed the subject and the teachers (especially Kurosh that helped me to an incredible extent with the home assignments), I could never recommend this course as long as the home assignments are in the state they were when I did the course. My only recommendation is to quickly find a lot of colleagues to try to tackle the problems with together, it is also incredibly inconvenient to have other courses meanwhile, so avoid that too.

Yes, because it's interesting, but I would warn him that the work load is enormous

Not to a student in applied mathematics. Only to a student who are really interested in solid mechanics and dynamics, have the time and not other big courses the same time. It is an interesting course but I would warn them that it is hard and tell them to start with the homeworks early and work with the course every day.