Course analysis

General information

This document provides the course analysis about the master degree course

Introduction to Signal Theory EQ 1210 and Signal Theory EQ 1220

given in the first period 2015. The course responsible was Tobias Oechtering, Communication Theory, EES, KTH. Email: oech@kth.se, tel.: 08 790 8462. The course "Introduction to Signal Theory" covers the first 2/3 of the course "Signal Theory." Further, the requirements to pass the project and the difficulty of the exam are lower. The tutorials and projects were given/guided by the teaching assistants Zuxing Li and Marie Maros.

Course organization:

- 12 x 2h lectures
- 12 x 2h tutorial given in two groups with group work
    o 5 voluntary group solutions can be handed in
- 5 voluntary reflective questions essays
- 1 knowledge diagnostic test
- Course wiki (new)
- Two mandatory take home project assignments
- One written exam, 5h.

Requirements:

- Passed project assignments (PRO1: 1cu, PRO2: 1cu) , grading: passed/failed
- Exam (TEN: 5.5cu), grading: A-F
    o Exam consists of two parts:
        ▪ Part A: Questions, graded pass/fail,
        ▪ Part B: Problem solving, graded only if part A passed and graded A-F

Material:

- Lecture notes: "Signal theory" by P. Händel, R. Ottoson, H. Hjalmarsson, and M. Jansson.
- Collection of problems in Signal Theory
- Old exams available at the course homepage
- The KTH table of signal processing formulas (in English)
- Two project assignments (made available online during the class)
- Report templates in Word & Latex
- 5 reflective question sets for reading assignment
- 1 knowledge diagnostic test
- 4 lectures where clicker were used for student feedback
- Course wiki
- Lecture slides
- Solutions from suggested tutorial problems

Statistics

- 58 students registered for the course EQ1220
  from programs: TTLSM, TIVNM DMTE, CDATE, CELTE, TSCRM, TEBSM, and exchange students
- 0 students registered for the course EQ1210

All students have to do two homework project assignments which are allowed to be done in groups of at most two. The students have the opportunity to revise their project report after a first evaluation of the project report.

Project 1:

- 46 failed in the 1st round and 46 passed after the 2nd round.

Project 2:

- 6 passed and 40 failed in the 1st round and 33 passed and 2 failed in the 2nd round.

Exam written on Oct 29th, 2015, 8:00-13:00: Results see *Section Exam results*

Re-exam written on Jan 8th, 2016, 8:00-13:00

Course history and development

This was the fifth time that I gave this course after 2011. The course was previously given by Magnus Jansson, SP and I did not do any major change on the topics covered by the course, but I slightly revised and updated the slides from last year and tried to improve the alignment of lectures and reading assignments. The TA Marie Maros added recapitulations and solutions of the tutorial problems on the course wiki. We provided links to material to work on their weaknesses identified in the diagnostic test. Otherwise, I kept the course material, course book, problem collection, project assignments, diagnostic test, clicker questions, and reflective questions on the reading assignments of the previous year. We kept the style of the tutorial and exam as well as the incentive for students to provide feedback of the previous year. We added the option to gain one extra bonus point if a student adds or revises an own course wiki entry. We updated the course page on KTH social which was used again by a few students to post questions. In the exam we again included a problem beyond the problems and course book (on the Yule-Walker equation for ARMA processes) as successfully tested in the last re-exam.

We kept the responsibility matrix to have a clear distribution of responsibilities, assignments and deadlines of the tasks in the teaching team. The responsibilities were discussed and distributed before the course in an early course planning meeting. This year, this worked out perfectly – both TAs were very reliable following the plan.

Course feedback and discussion

The questions and the answers can be found in *Appendix Course Evaluation Results* using survey tool *artologik*. Again, the generation of report takes unnecessary time. Further, the teacher collected feedback from the TAs.

(EQ1210) EQ1220 (Introduction to) Signal Theory, KTH, Period 1, 2015, Instructor: Tobias Oechtering

The feedback from the students shows that most of the students are happy with the tutorial style, reading assignments, projects, bonus point system, diagnostic test, clickers and lectures. Overall, the course is well appreciated and does not require major changes. However, the following minor suggested changes have potential to improve the course:

- Reduce derivations and spend more time on teaching the concepts, in particular in the last lectures. For this, it might be good to add more clicker questions.
- Change the communication (and grading sheet) of the grading strategy in the project. Introduce three grades in the first round of the project (pass, mandatory revision, fail). The potential fail grade should give sufficient motivation to hand in a reasonable first version so that the student aims at least for the grade "mandatory revision." The project grading sheet needs to be revised accordingly.
- We should request that the course does not overlap with the course ME2072.
- We should provide information where the students can improve their Matlab competence.
- Let students discuss more with their neighbor, add more clicker questions, and perhaps 5 min exercises.
- The number of students in a group should be between 3 or 4 if the total number of groups allows. Weak students have problems to participate in larger groups.
- No student provided input to the course wiki despite the bonus point incentive. We tried it since the wiki is already available on KTH social page and I was curious if students would appreciate it, but now I think it is not useful for our type of courses and we should not offer it next time (at least not as offered this time)
- Marie suggested to add two basic linear algebra problems in the diagnostic test, since some students seem to have a very bad LA background.
- The alignment of lectures and reading assignment is important for the reading assignment to be effective.
- Marie suggested to consider peer-review for the reading assignments. This may reduce the grading effort but comes with a logistic effort. The efficiency of the learning activity is unclear since the workload for the students is already high.
- On the afternoon of the re-exam day, there was the re-exam of the digital communication course scheduled. This should be avoided in future.

A standing problem is the large variety of the background of the students. I believe that the diagnostic test helps students to become aware of the expected background and perhaps the material helped students to catch up. However, for a few students the pace of the course is too fast and the difficulty too tough (5). For most students the difficulty of the course is Ok (16) or tough (18) and a few students consider the difficulty of the course to be easy (3) or even too easy (1). I will look for more teaching ideas to help those students who have problems/insufficient background knowledge.

Ideas for future course development

The following actions are suggested based on the experiences from the teacher team and the response from the students as well as from previous years:

- Revise the diagnostic test and consider two extra tutorials on prob. theory and signal&syst.

- Test if the same result can be achieved with four-colored paper sets.
- More small examples and possibly in-class experiments/simulations should be looked for.
- The textbook might be revised, including additional reading or topics beyond for the interested student.
- Develop for each exam one guided exam problem beyond the scope of the lecture.

Ideas from last years which still might be interesting:

- Perhaps students who already solved the problems might be pushed to present their solution to their peers (and the TA).
- Teaching activity suggested by Efthmios and to be discussed: I would instead suggest out-of-the-class work, where people participate and debate. For example there could be a sub-forum where questions/real-world problems are posted and then the students make their suggestions or debate about a solution to an application-oriented problem (e.g. a detection/estimation problem). Each student should make at least one contribution to the discussion or argue in favor of/against someone else's point.
- It could be checked if one should call the 'acf' autocovariance function as done in the book Foundations in Digital Communications. This should be done in agreement with the other teachers in related courses.
- Ask for reflective journals during the lecture period to identify miss-conceptions. Possible implementation: Let the students reflect on the course so far – possibly a first one after the first 1/3 of the course and a second one due before the first project. They should discuss about the most important concepts and report about most difficult concepts. This provides feedback about troublesome knowledge and threshold concepts. First, I would suggest to make the journals voluntarily. To animate students to do them, I propose that a good reflection will be worth up to two extra points in the final exam (which usually will have around 50 points in total).
- I have good experience with "5-minute" exercises in class, where the students are supposed to directly apply the newly learned methods.

Overall evaluation

I believe that the course is on a very good level and very well appreciated. The course material is good, the bonus points are a good incentive to motivate the students. I believe that the tutorial style is efficient and works very well. The diagnostic test is a useful tool for the student's self-assessment. The clickers have been shown to be a good tool to improve the lectures. The course wiki was not used and should not be offered in future. The lectures have still room for improvement.
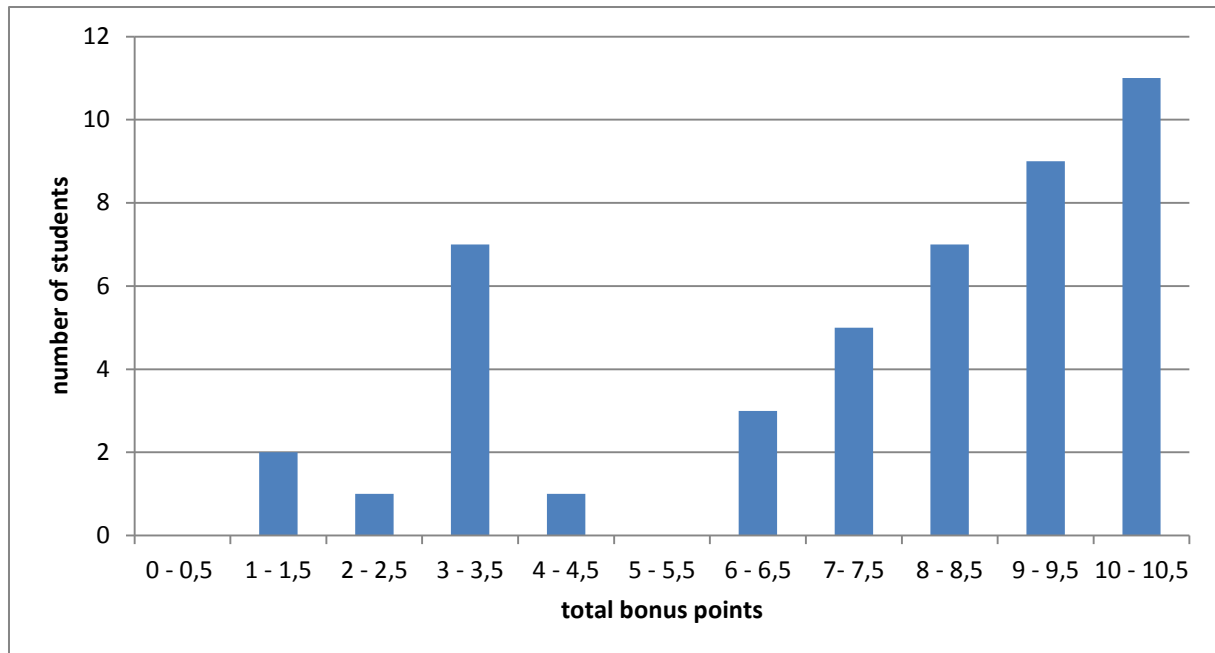
Bonus points statistics

5 bonus points from 5 reading assignments +

5 bonus points from 5 tutorials +
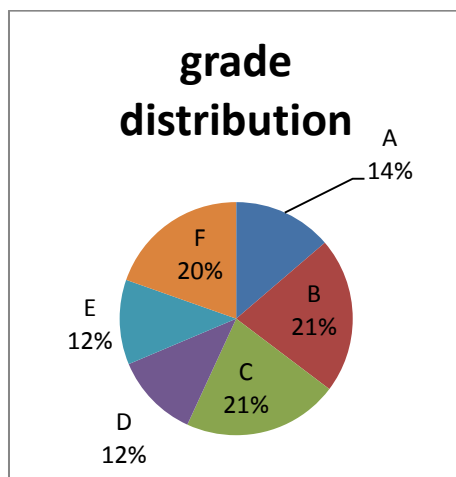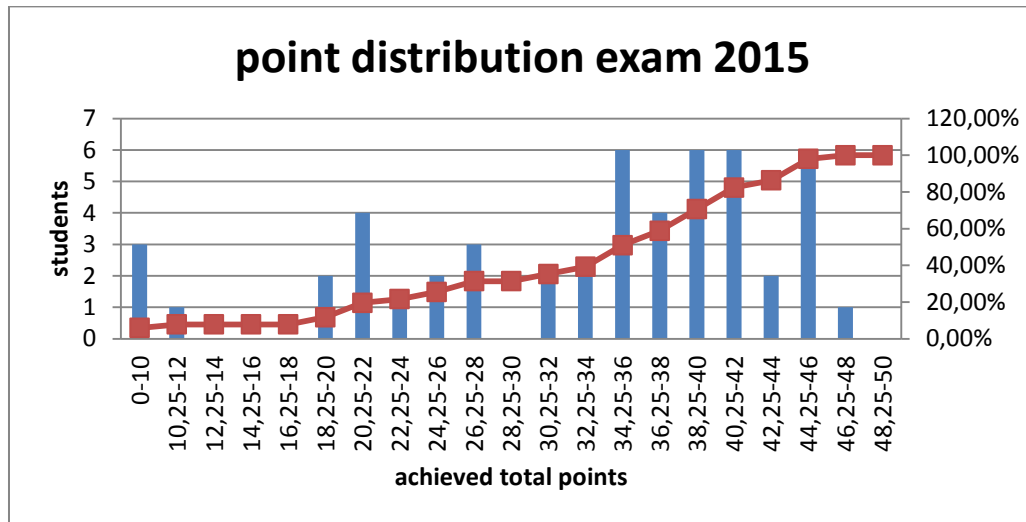
1 bonus point from the diagnostic test

Bonus points count for part A of the exam where 8 points were required. 46 students participated in obtaining bonus points, 27 obtained more than 8 points.
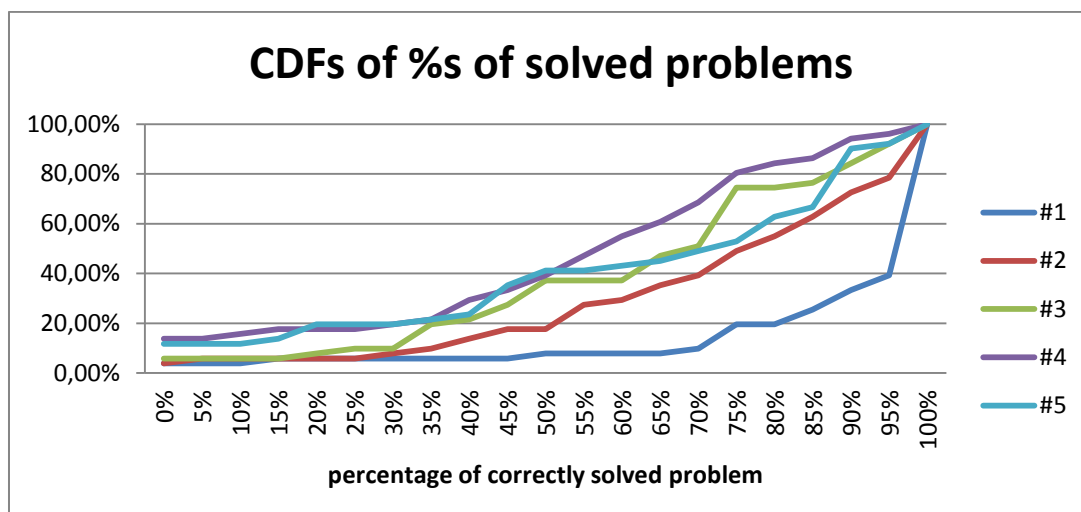
Statistics exam results
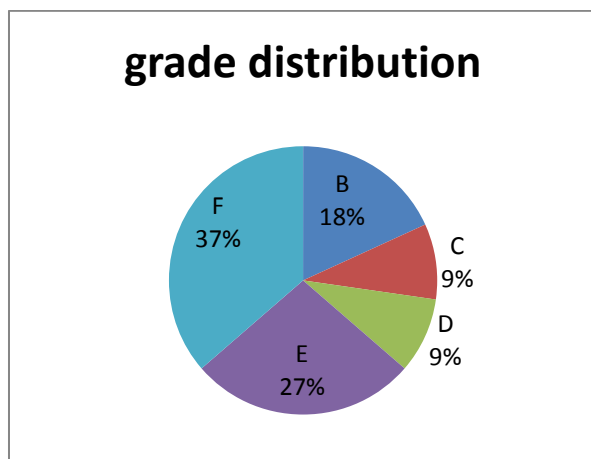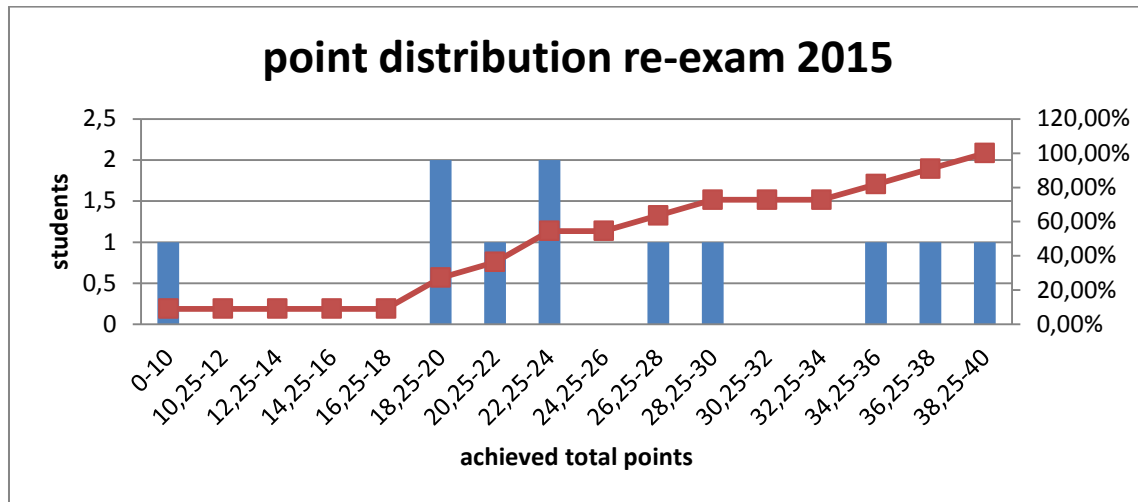
Exam 2015-10-29

Number of students EQ1220: 41

point distribution exam 2015

grade distribution

Grade	Points	Number of Students
A	44,5-50	7
B	39,75-44,25	11
C	35-39,5	11
D	31-34,75	6
E	23,5-30,75	6
F	0-23,25	10

CDFs of %s of solved problems

Re-Exam 2016-01-08

Number of students EQ1220: 11

point distribution re-exam 2015

grade distribution

Grade	Points	Number of Students
A	45 − 50	0
B	38 − 44,75	2
C	33 − 37,75	1
D	28 − 32,75	1
E	22,75 − 27,75	3
F	0 - 22,5	4

CDFs of %s of solved problems
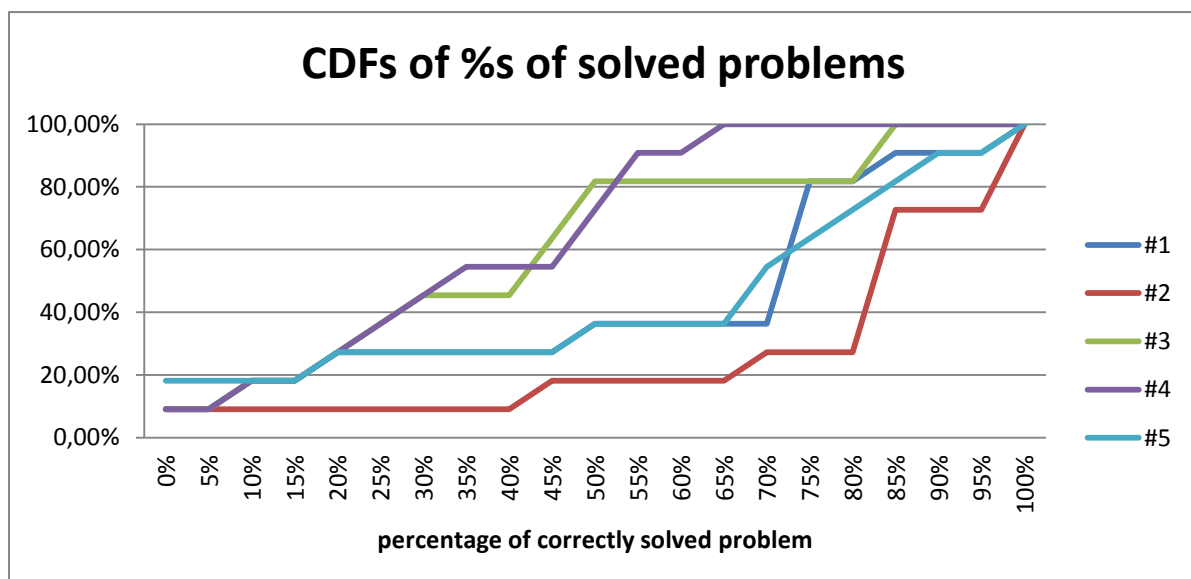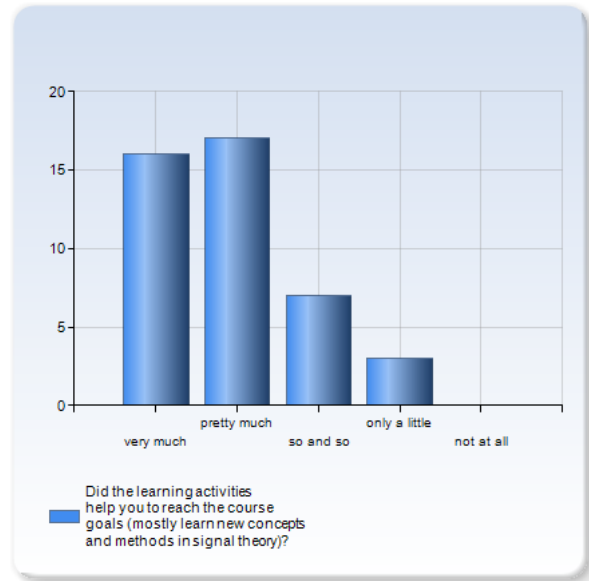
Respondents: 55
Answer Count: 43
Answer Frequency: 78.18 %

Did the learning activities help you to reach the course goals (mostly learn new concepts and methods in signal theory)?

Did the learning activities help you to reach the course goals (mostly learn new concepts and methods in signal theory)?	Number of Responses
very much	16 (37.2%)
pretty much	17 (39.5%)
so and so	7 (16.3%)
only a little	3 (7.0%)
not at all	0 (0.0%)
Total	43 (100.0%)

Did the learning activities help you to reach the course goals (mostly learn new concepts and methods in signal theory)?

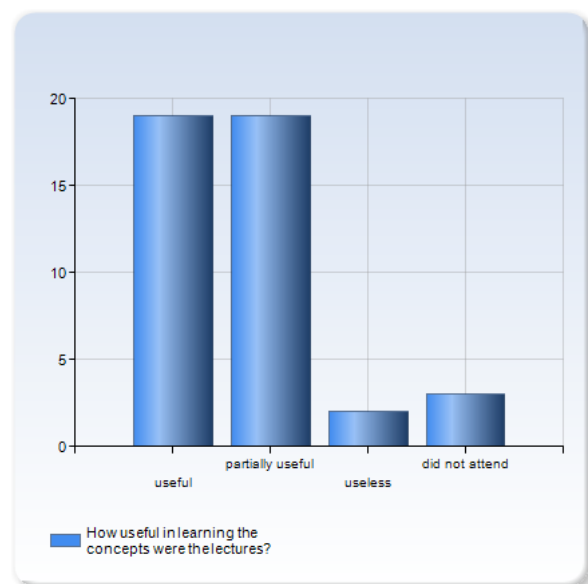| Please feel free to add a comment. |
|---|
| I feel it's a little hard for me to learn a course in one month but it's because I haven't adapted to the learning pattern |
| Application of the knowledge (with respect to the concepts learnt in the class is missing) . Project work did bring in good knowledge into work but otherwise solving numerical in tutorials and mathematical derivation in the class seem non correlated. |
| Tobias teach us really good, when we found a new equation, he always try to derive it and proof so we can link each other equations from previous chapter |
| the pace of the course is little bit fast |
| The derivation process given by the teacher is very useful |
| I think there is too many info, and the pace was too fast for me. Could not really deeply understand the topics |

Threshold concepts are core concepts that once understood, transform perception of a given subject. What threshold concept(s) did you learn in the course?

Threshold concepts are core concepts that once understood, transform perception of a given subject. What threshold concept(s) did you learn in the course?
How to get the mean, variance, autocorrelation and so on
Stochastic processes, frequency domain, acf, reconstruction and sampling
I have learnt theory and vocabulary about stochastic processes, distribution, estimation, filtering
Difference between random variables and stochastic processes; (wide-sense) stationarity and ergodicity concept and how important these assumptions for all calculations are
Filtering and reconstruction of signals
Stochastic process, Fourier Transform, Auto correlation function
discrete vs continuous, deterministic vs stochastic, estimation
Second order Theory, Wide-sense stationary process, LTI systems fed by the stochastic process, Power spectrum, and the designs of Optimal linear filters.
convolution
PAM process
autocorrelation function; stochastic process; power spectrum; filter; sample; optimal; MMSE;
stationarity, power spectrum, sampling
power limited,energy limited,bandwidth limited,such like that
stochastic process, signal knowledge
Cauchy-Buniakowsky-Schwarz
About how the theory for deterministic quantities and stochastic quantities varies
stochastic processes, Ergodicity, Power Spectrum, Estimation, Sampling, PAM, Reconstruction
Optimal Filtering, Reconstruction
Stochastic process and estimation theory
Mathematical modelling, Use of Probability theory in terms of Random stochastic process, Power spectrum density, estimation using MMSE, filters etc..
stochastic processes, ergodicity, ACF, power spectrum, estimation, sampling and reconstitution
Understanding signal theory requires deep and thorough concept of random probability and its properties
Stochastic process, power spectrum, filter, sampling, PAM, reconstruction
the relation between expected values, first and second moment, autocorrelation, power and ect
stochastic process, power spectrum, reconstruction
filter,reconstructiong, ensemble
acf, pdf, MMSE, PAM, sampling
Stochastic process, Estimation of a signal
Random processes, probability
the stationary of a random process
ergodicity
Statistical model of signals
Statistical signal analysis, Stochastic process analysis
I would say definition of Stochastic processes. I was always thinking about the signal as a determined one
Linear systems, stochastic processes
I've no idea what Threshold concepts are?
conception of the signal

How useful in learning the concepts were the lectures?

How useful in learning the concepts were the lectures?	Number of Responses
useful	19 (44.2%)
partially useful	19 (44.2%)
useless	2 (4.7%)
did not attend	3 (7.0%)
Total	43 (100.0%)

Please feel free to add a comment.

I attended the first lectures and they were good. But I have to read the lecture notes anyway in order to be able to solve the problems. In a sense attending lectures and reading the same subject in the lecture notes just takes twice the time than just reading the lecture notes. So personally I prefer to calculate exercises in the time I saved by not going to the lectures as this seems more important to me.

I think we have a little bit much proof of some threom which have already given in the textbook in the lecture. Maybe some applications introduction could be better. But just my personal opinion.

The reading assignments and the exercise sessions were enough. The lecture was redundant

More examples on how the course content is linked to practical wireless communication field application could have been provided

As commented in the first point, could not relate how the concepts are related to real world problems apart from the mathematical modelling part.

most of the lecture is focused on the derivation of some theorem, but less on the understanding of some core concepts.

The lectures cover way too much material. I have a Computer Science background and almost everything in the course was new concepts and mathematics for me. By the time chapter 5 was introduced I was already behind and couldn't keep up with the lectures, so I stopped attending...

This course needs a serious reviewing.

I understand it's supposed to be a marathon of known notions of electrical engineering. For someone like me with no such background it's just force feeding of concepts.

Too fast again. Would like to spend more time on each topics. And be able to ask questions on every part i did not understand at the board
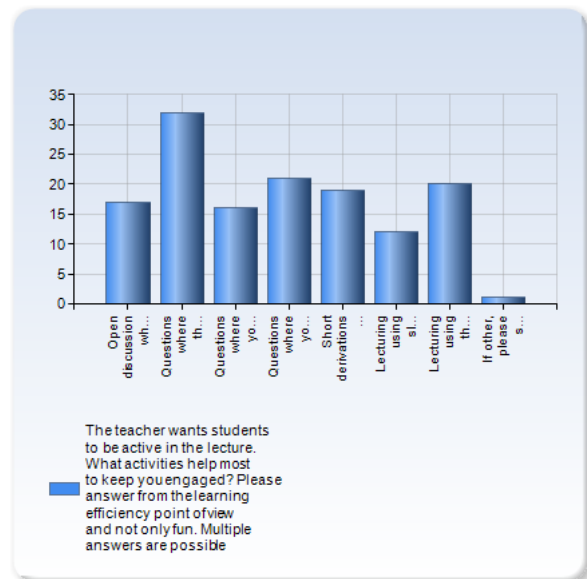
How many lectures did you miss?

How many lectures did you miss?	Number of Responses
0	3 (9.7%)
1	8 (25.8%)
2	7 (22.6%)
3	6 (19.4%)
4	1 (3.2%)
5	1 (3.2%)
6	1 (3.2%)
7	0 (0.0%)
8	2 (6.5%)
9	2 (6.5%)
10	0 (0.0%)
11	0 (0.0%)
12	0 (0.0%)
Total	31 (100.0%)
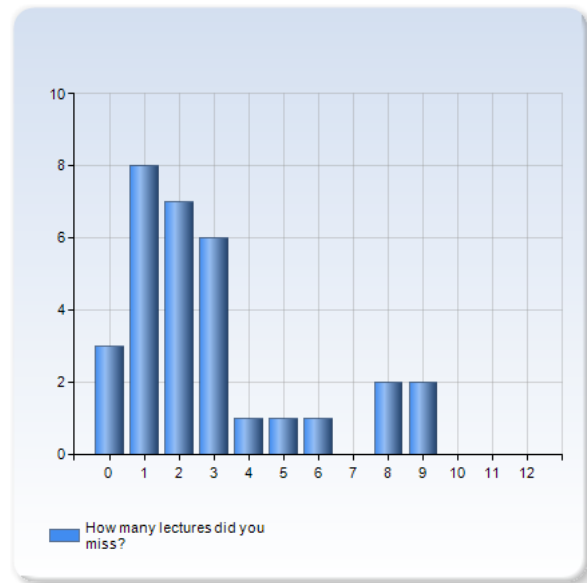
The teacher wants students to be active in the lecture. What activities help most to keep you engaged? Please answer from the learning efficiency point of view and not only fun. Multiple answers are possible

The teacher wants students to be active in the lecture. **What activities help most to keep you engaged?** Please answer from the **learning efficiency point of view** and not only fun. Multiple answers are possible	Number of Responses
Open discussion when the teacher asks students and the answer is developed jointly.	17 (39.5%)
Questions where the students use clickers for their feedback.	32 (74.4%)
Questions where you have discussions with your neighbor before open discussion.	16 (37.2%)
Questions where you have discussions with your neighbor before using clickers.	21 (48.8%)
Short derivations and problems solving done in class by the students.	19 (44.2%)
Lecturing using slides.	12 (27.9%)
Lecturing using the board.	20 (46.5%)
If other, please specify	1 (2.3%)
Total	138 (320.9%)

If other, please specify
Giving reading assignments to learn the relation of the concept with the real world use.

The discussion with the neighbor forces us to really think about the concepts, formulate our ideas and argue in a proper way - which is not necessarily the case with 'using clickers' since we miss the interaction with the neighbor and neither with 'open discussion' where we often don't have enough time to think about the question.

I like the short derivations done un class, which also forces us to understand what we are currently doing - some sort of a break in the lecture.

I think the slides are a good support but it would be great if the formulas are also rewritten and explain by the teacher using the board

Spend more time on each topic if possible

The teacher thinks that using clickers takes much time in class. How efficient was the learning experience for you?

The teacher thinks that using clickers takes much time in class. How efficient was the learning experience for you?	Number of Responses
Clicker questions and discussions provide the best learning experience and are always worth the time.	12 (27.9%)
If clickers are used with good questions and adequate discussions, the learning experience is worth the time effort.	27 (62.8%)
Other teaching activities provide similar understanding and are more efficient.	0 (0.0%)
Clicker questions and discussions are not worth the time.	1 (2.3%)
I missed the lectures where clickers were used.	3 (7.0%)
If other, please specify	0 (0.0%)
Total	43 (100.0%)
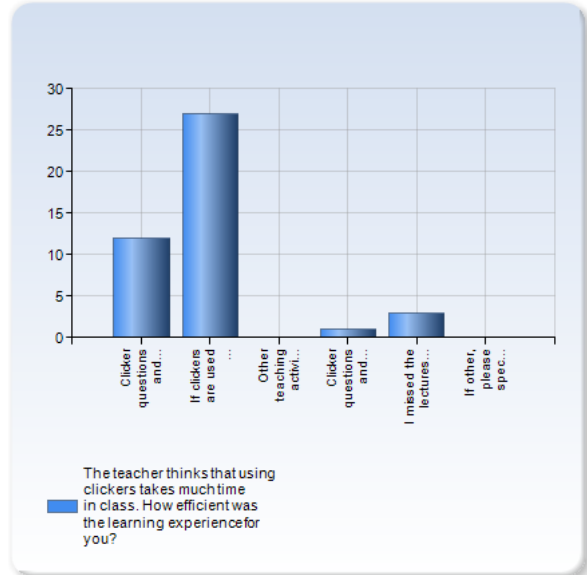
Please feel free to add a comment.

I experienced the use of clickers in another course's lecture.

I think the discussion with the neighbor before answering - with or without clickers - is the best. Using the clickers allows us to situate other's answers, which is interesting. I think we should be asked only once to answer the question - even though the majority is false. The teacher should explain the false and correct statement after the first attempt.

Using clickers is the useful way to get the students' participation because questions will be discussed among students before the students make the decision on which choice they will choose. In addition, a professor can see the percentage in each of choices that students selected. Hence, he can explain why this choice is wrong or correct. I love these clickers used to answer questions very much.

Though I had a collision with the course "Entrepreneurship for Engineers" (ME2072) and I missed most of the lectures where clickers were used.

Clicker questions are a good way to evaluate how confident you are with the concepts.

Did the diagnostic test help yourself to assess your own pre-knowledge?

Did the diagnotic test help yourself to assess your own pre-knowledge?	Number of Responses
very much	8 (18.6%)
pretty much	17 (39.5%)
so and so	10 (23.3%)
only a little	4 (9.3%)
not at all	2 (4.7%)
did not do	2 (4.7%)
Total	43 (100.0%)

Did the diagnotictest help yourself to assess your own pre-knowledge?
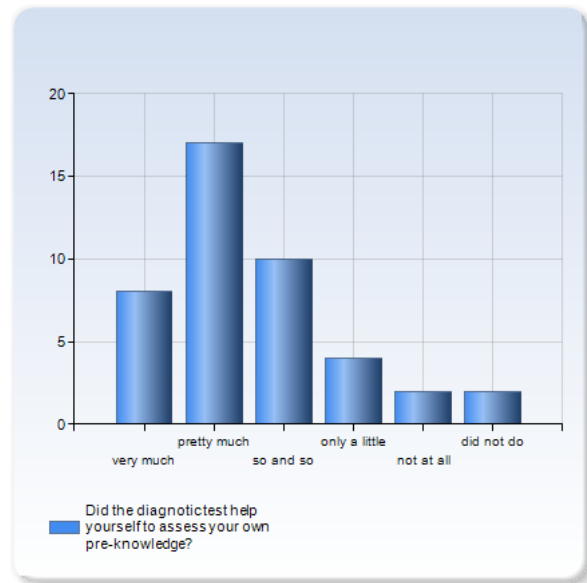
Please provide any comment regarding the diagnostic test.

After taking the test, I can realize which part I choose pay attention before I come to the lecture. Also, it helps me prepare myself for the subject by focusing on the parts that I answer questions incorrectly.

The correction was too specific from my point of view. No summary was given or the number of good answers per category..

I would like to have results to access properly.

It was more about probabilities. We did not need that deep understanding in probabilities which was asked in the test

Were the reflective questions useful for your preparation?

Were the reflective questions useful for your preparation?	Number of Responses
useful	23 (53.5%)
partially useful	17 (39.5%)
useless	3 (7.0%)
did not do	0 (0.0%)
Total	43 (100.0%)

Were the reflective questions useful for your preparation?
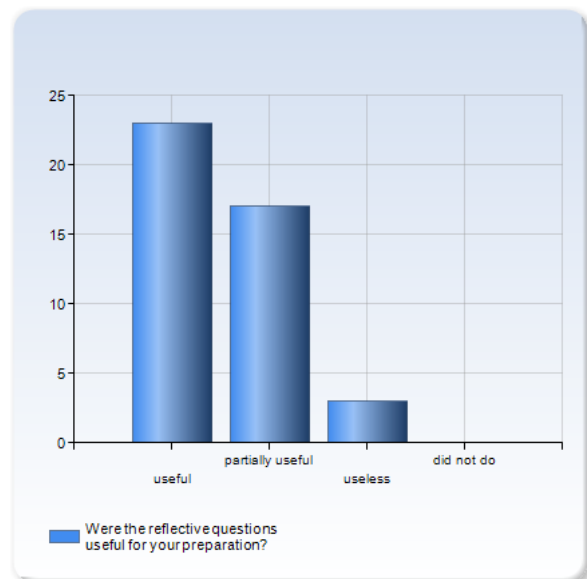
Please feel free to add a comment.

It was a good way to keep us reading the relative chapters before the lecture. It really helps to synthesis what is important in the book. Again, formulating the concepts in a concise way makes us understand better. Should keep it!

It forced me to better understand the textbook

Reflective questions if mean reading assignments.

If this is about the reading assignments, then they were useful while I still could keep up with the lectures.

Synchronization problems. I had to read the chapter that will be discussed the week after. So i would forget what I read. Should really make the schedule so that each assignment synchronizes with corresponding lecture. Otherwise its great

How useful in learning the methods were the tutorials?

How useful in learning the methods were the tutorials?	Number of Responses
useful	32 (74.4%)
partially useful	10 (23.3%)
useless	0 (0.0%)
did not attend	1 (2.3%)
Total	43 (100.0%)
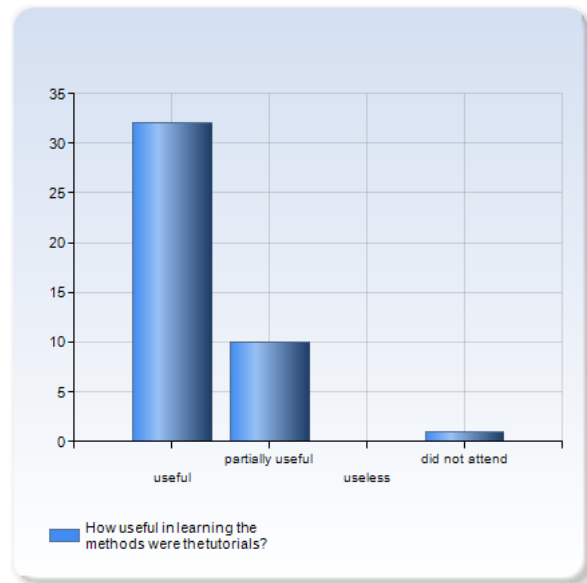
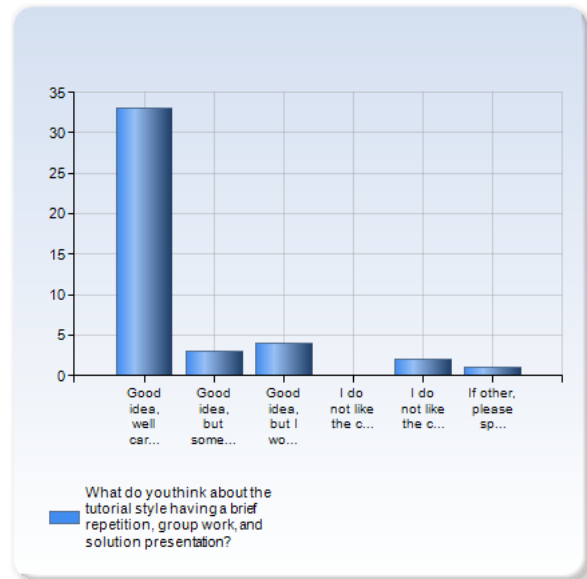| Please feel free to add a comment. |
|---|
| The tutorials were really good! |
| Learning by doing: this is what works the best for me. You should definitely keep it! |
| Solutions explained too early and too fast. |
| TAs are very excellent helpers,better than the teacher to some extent. |
| Though during some tutorials the TAs spent a lot of time just waiting and then corrected everything really fast without taking care that everyone understood. |
| I do feel really helped by tutorial session because we can recheck again our understanding from the class |
| Tutorials are always useful for practical learning, when solutions are explained well. |
| I stopped going to the tutorials after a while since I was behind with the book chapters. It felt like a waste of time trying to solve problems about concepts I hadn't begun to learn yet. |
| I'm solving the tutorial problems at my own pace, so having access to the solutions online is really useful for me. |

How many tutorials did you miss?

How many tutorials did you miss?	Number of Responses
0	2 (8.3%)
1	12 (50.0%)
2	2 (8.3%)
3	2 (8.3%)
4	2 (8.3%)
5	0 (0.0%)
6	2 (8.3%)
7	0 (0.0%)
8	0 (0.0%)
9	1 (4.2%)
10	0 (0.0%)
11	0 (0.0%)
12	1 (4.2%)
Total	24 (100.0%)
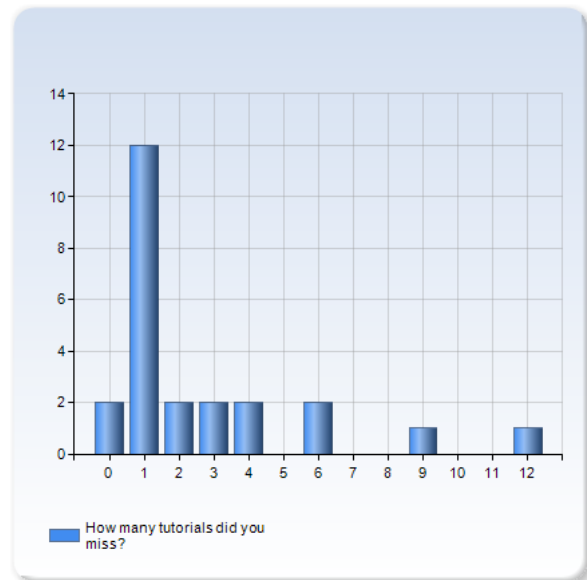
What do you think about the tutorial style having a brief repetition, group work, and solution presentation?

What do you think about the tutorial style having a brief repetition, group work, and solution presentation?	Number of Responses
Good idea, well carried out by the TAs.	33 (76.7%)
Good idea, but some TAs did not follow the concept.	3 (7.0%)
Good idea, but I would prefer to work alone.	4 (9.3%)
I do not like the concept and prefer solution presentation only.	0 (0.0%)
I do not like the concept and prefer group work only.	2 (4.7%)
If other, please specify	1 (2.3%)
Total	43 (100.0%)

Please feel free to add a comment.

My main problem with how the tutorials worked was that it varied between groups how long each problem took to solve, we would often have moved on to the next problem, only to get interrupted by the board presentation of the previous problem. It was difficult to find a good work flow. Maybe it would be better to split the tutorial in half, let the first half be group work and second half be presentation of the problems at the board.

I strongly recommend that in tutorial we should have seat according to the group in the course web instead of sitting as students' own wish. So I can experience different perspectives towards the concepts and discuss with as many students as possible.

I LIKE MARIE!!

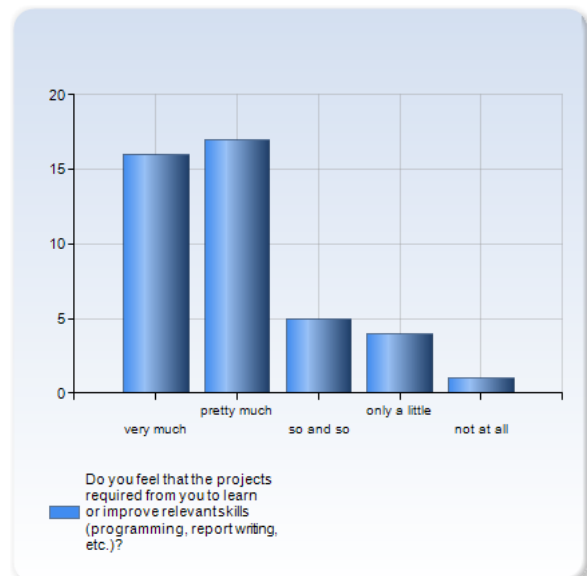The TAs are very active and open so that students feel free to ask

I think for something like this the best number of people in a group is 3. Sometimes I found myself in groups or 6 or more people, sitting at the edge of the table and watching the others solve the problem.

But it demotivates to prepare in advance..

It was tough to catchup with guys who are good at it. So I was tending to skip some questions that I did not understand in order not to slow my group. It was a mistake for me

Do you feel that the projects required from you to learn or improve relevant skills (programming, report writing, etc.)?

Do you feel that the projects required from you to learn or improve relevant skills (programming, report writing, etc.)?	Number of Responses
very much	16 (37.2%)
pretty much	17 (39.5%)
so and so	5 (11.6%)
only a little	4 (9.3%)
not at all	1 (2.3%)
Total	43 (100.0%)

Please feel free to add a comment.

The projects didn't help me to improve my report writing - since I was already quite used to it - and they didn't demand too much about programming skills I guess.. However, the projects did help me to better understand theorical concepts, which is very appreciated.

Very useful project! Contributing a lot to my understand of some important concepts and methods.

I did the project by myself and discussed my thoughts with the others, which deepened my understanding of the knowledge.

Sometimes the project introduction is not so clear and it's easy for us to misunderstand it and conduct it in a wrong way

I suggest that Project solution should be discussed by either by TA in tutorials or Teacher in class after the project submission deadline. It would help us to learn better and we will learn many ways of solving the same problems and would understand why one method is better than other.

Loved the projects. They required us to be aware of the concepts and coding skills.

They helped me improve both programming and report writing skills.

The projects could have been much better. I mean they were more like short assignments, I would not really call them 'projects'

I enjoyed learning MATLAB

Did the project assignments improve your understanding of the material?

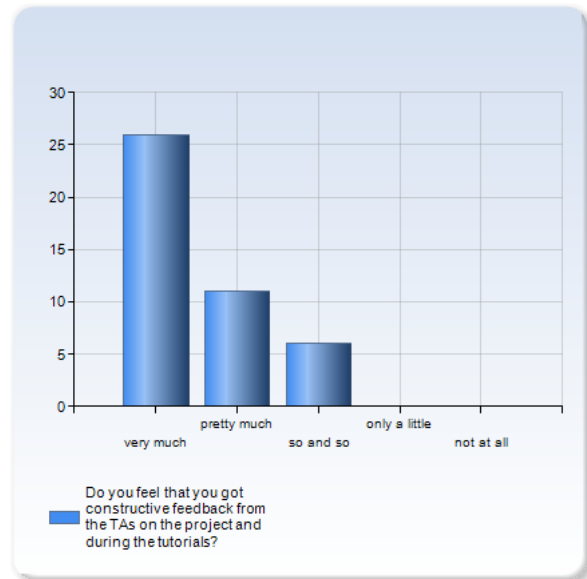| Did the project assignments improve your understanding of the material?	Number of Responses
very much	15 (34.9%)
pretty much	18 (41.9%)
so and so	6 (14.0%)
only a little	3 (7.0%)
not at all	1 (2.3%)
Total	43 (100.0%)
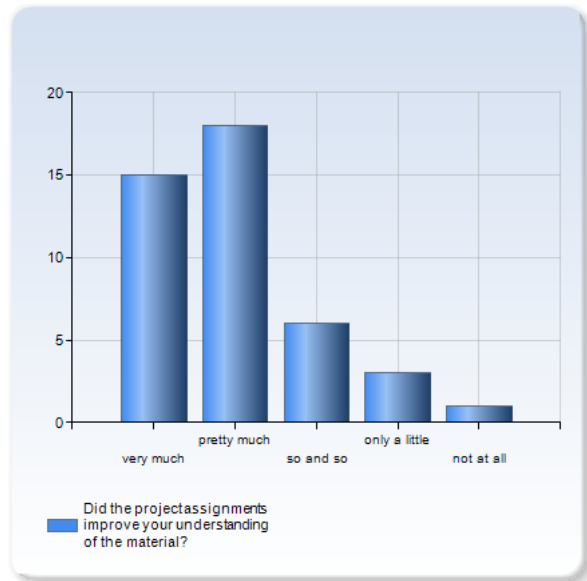
Please feel free to add a comment.

One suggestion: It would be really great if the project assignments are discussed in the class or tutorials so as to clear doubts arisen during the completion of the project.

It's important to see how the concepts from the book, which for me tend to be very abstract, apply to real work.

Do you feel that you got constructive feedback from the TAs on the project and during the tutorials?

Do you feel that you got constructive feedback from the TAs on the project and during the tutorials?	Number of Responses
very much	26 (60.5%)
pretty much	11 (25.6%)
so and so	6 (14.0%)
only a little	0 (0.0%)
not at all	0 (0.0%)
Total	43 (100.0%)

| Please feel free to add a comment. |
|---|
| I have to express my thanks to Marie and Zuxing here. They help me a lot through this course. |
| Marie was very responsible!!! like her. |
| Absolutely! Awaiting for second project feedback. |
| The handwriting is not clear |

How many hours of work did you spend in project 1?

| How many hours of work did you spend in project 1?	Number of Responses
0 - 6	5 (11.6%)
7 - 13	10 (23.3%)
14 - 20	13 (30.2%)
21 - 27	4 (9.3%)
28 - 34	6 (14.0%)
35 - 41	2 (4.7%)
42 - 48	1 (2.3%)
49 - 55	0 (0.0%)
56 - 62	2 (4.7%)
63 - 69	0 (0.0%)
Total	43 (100.0%)
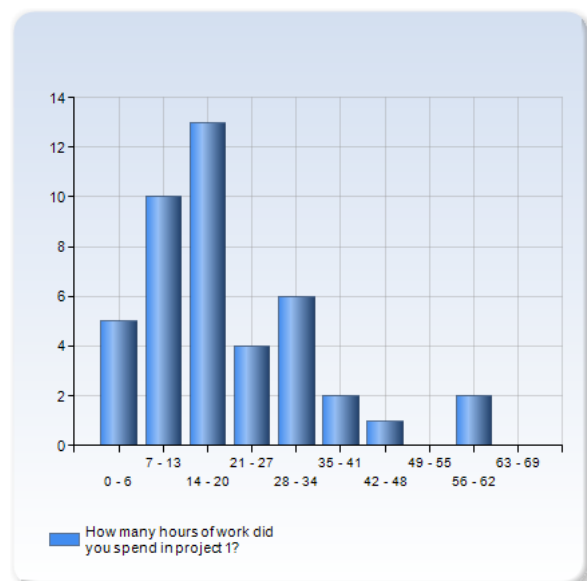
How many hours of work did you spend in project 2?

How many hours of work did you spend in project 2?	Number of Responses
0 - 6	5 (11.6%)
7 - 13	7 (16.3%)
14 - 20	13 (30.2%)
21 - 27	8 (18.6%)
28 - 34	3 (7.0%)
35 - 41	2 (4.7%)
42 - 48	2 (4.7%)
49 - 55	0 (0.0%)
56 - 62	3 (7.0%)
63 - 69	0 (0.0%)
Total	43 (100.0%)
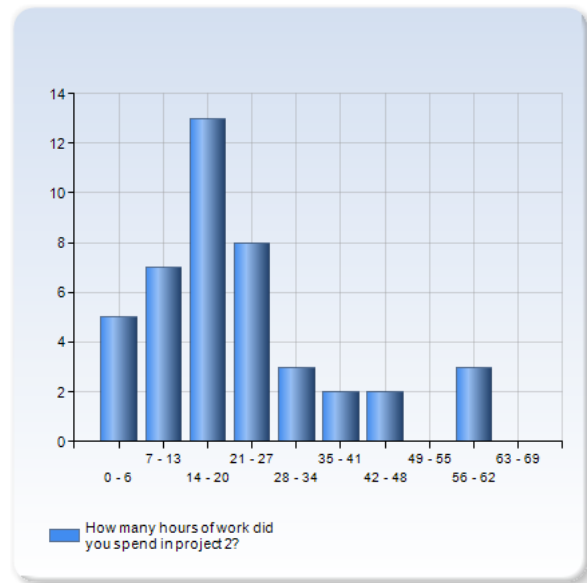
Did the bonus points increase your motivation to participate?

Did the bonus points increase your motivation to participate?	Number of Responses
In both, lecture & tutorial.	33 (76.7%)
In lectures only.	2 (4.7%)
In tutorials only.	4 (9.3%)
No additional motivation.	4 (9.3%)
Total	43 (100.0%)
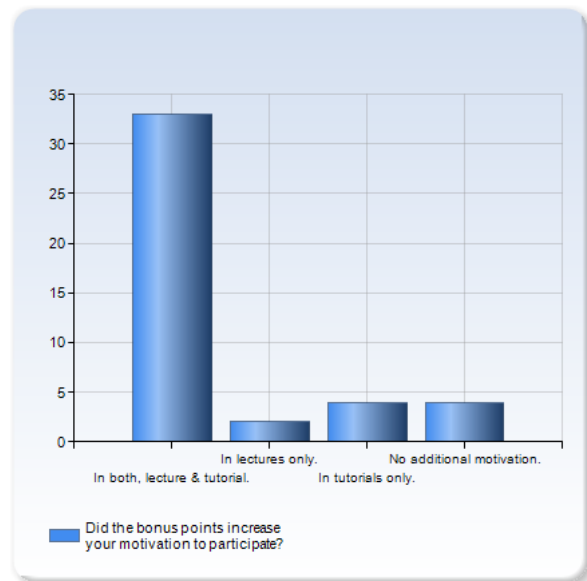
| Please feel free to add a comment. |
|---|
| It would be nice if it was possible to submit the essays also in a mailbox or STEX or somewhere else. As I mostly did not attend the lectures I always had to find a way to submit the essay without waiting at KTH for the lecture to start or coming back to KTH just in order to submit the essays. |
| Bonus points are always worth gaining, but I would have done the job anyway. |
| I think the most attractive thing in tutorial are the problems and methods themselves. |
| Until the moment I couldn't keep up anymore. |

This year you had the opportunity to obtain an extra bonus point if you would have added a course wiki entry. Why didn't you do it? (multiple answers possible)

This year you had the opportunity to obtain an extra bonus point if you would have added a course wiki entry. Why didn't you do it? (multiple answers possible)	Number of Responses
I obtained enough bonus points from the diagnostic test, essays, and tutorial.	25 (58.1%)
I do not consider this learning activity to be useful.	3 (7.0%)
I was afraid of writing something wrong.	9 (20.9%)
I thought about it, but I did not had a good idea what to write.	23 (53.5%)
Total	60 (139.5%)
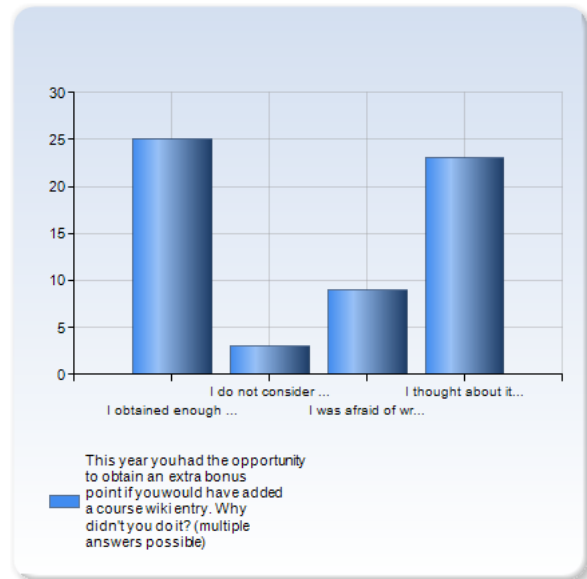
| Any other reason/comment? |
|---|
| In addition to that, it was not really clear to me what and how to write such a wiki entry. |
| I think the course wiki is already quite complete. |
| I guess this contribution should be open until the exam takes place, since we may feel more confortable with the concepts after having prepared for the exam. Furthermore, students often do summaries during their exam's preparation; such summaries could be part of the course wiki and useful for the others. |
| It is great. But still, the course is very intensive, so spending more time on wiki was very difficult |

How would you rate the level of difficulty of the course?

How would you rate the level of difficulty of the course?	Number of Responses
too easy	1 (2.3%)
easy	3 (7.0%)
ok	16 (37.2%)
tough	18 (41.9%)
too tough	5 (11.6%)
Total	43 (100.0%)
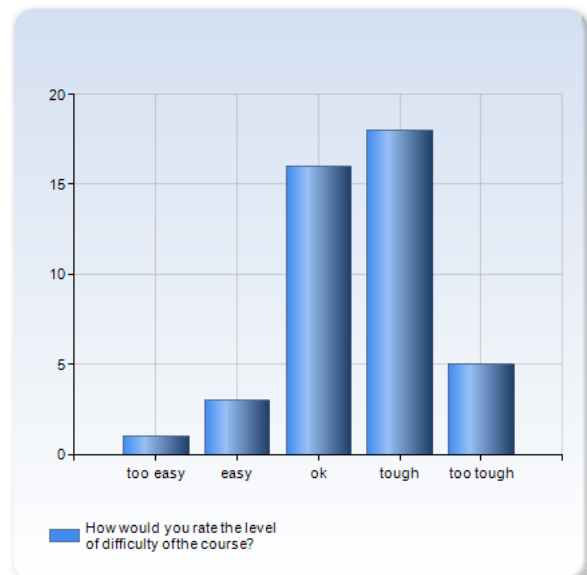
What was good and should not be changed?

What was good and should not be changed?

We have the course book and it has helped me a lot. And the idea of sharing the answers of the questions we discussed in tutorial is very nice.

Ta's tuition, the intention brought on that everyone understands

The tutorials and the structure of the course were good, more clickers sessions would be interesting

Tutorials, bonus points, lecture notes, projects were quite interesting but they took lots of time (maybe shorten it a little?)

Tutorials

Tutorials

Good structure and workflow during this course. Tutorials and reflective questions are a very good aspect of the course, which help us to better understand the theory. The lectures are following a course book, which is convenient. Nothing massive to change then, just a few recommendation made in my past comments.

The best part is the reading assignment and the tutorials since I have to prepare myself by reading something before each class. This helps me get an overview of what will be going on in each of the classes.

the reading assignments

Tutor Marie Maros is an excellent and nice person, she helps us very much!

Focusing on the important concept in lectures; Providing some hints to preview in reading assignment leading to high effience;

reading assignments,projects,textbook,tutorial, bonus points

Lectures were good. In tutorials, not every problem of the session should be solved on the whiteboard, only one or two in the end.

TAs and tutorials

clickers question

tutorial

Group Activity (both in class and tutorials)

project is very good

The content and the fact that there are many tutorials

Group work in Tutorials and Project Assignment

The pattern and structure of the course is perfect and very apt and should not be changed.

the structure of the course

Reading Assignment

I consider the projects are the good part of this course and students could learn a lot from these.

The good is: Tobias's way of teaching to using board and lecture slide in perfect portion. and, TA's also have a good explanation in tutorial

Lectures notes are weak: once you get asked question on the subject you realise they aren't clear.

Tutorials

the project assignment, reading assignment and the tutorial

Tutorial

The bonus points structure, the reading assignments, the click questions

Bonus points, evaluation test in the start

clickers

Teacher and TA's

Teachers

reading assignment

time assignment for different lectures

tutorials and bonus points

The instructor Tobias Oechtering

Projects, tutorials, TAs

Tutorials. Projects.

Good balance between the different learning activities (tutorials, projects, lessons, reading assignments ...)

no idea

I don't know

How can the course be improved?

How can the course be improved?

Making group of levels in tutorials so that nobody get bored

More clickers

do not make us work on two projects at the same time (after first grading of first project)

The last lectures were a bit boring, with very long mathematical proofs that were not really useful

Make more projects

See last comments

Before the tutorials, if the TAs provide some small exercises before the tutorials, then I think that I don't have to spend a lot of time to finish some difficult questions. This is because some of the questions are time-consuming, and hence TAs cannot finish them on time.

Better work flow at the tutorials.

If we do not need to print the reports by ourselves, it can be better.(The printers in the library are very slow and difficult to use)

Less proof in lectures;

the lectures were slow if we had done the reading assignment

dito

It's better to decrease the proof of some concepts because the derivations are on the book.

we can leave some questions instead of reading assignments

take some calculation exercise for example in the lecture

Probably have some practical lab sessions(just one or two) .. the course is a bit too mathematical and it can get boring at times..if you can demonstrate concepts such as filtering, reconstruction etc in a practical setup then people would be more interested

change the lecture time to 8:00 - 10:00 on Wednesday

Groups for tutorials should either be chosen by students or the groups made up should be respected

More emphasis on application and project assignment

Relating concepts with real world problems or applications can increase the participation of the students. Addition of PAM, sampling and reconstruction chapters makes the course study duration short. 1 month is really short span of time to cover the current length of the course.

more practical examples

Maybe fixed study groups should be built so that students have more flexible to ask colleagues about matters

Some exercises of this course should be required to do or hand in before the tutorials, so that it can save some time to discuss more problem that help us understand the course.

Add more questions with clickers

the pace arrangement of the course

More instruction of Matlab

The lectures go too fast. Needs to be extended over two periods. It should be accessible also to students with no background on signals, since for some students it's a mandatory elective course.

The project problems can be little better

It's a pity that we have to discover new topics by our own and just after to have the lecture on this course. Maybe the reverse should be better

the content of lectures could be more abundant

put more strength on the last several lectures

more discussion

More problem solving in class

Some practical knowledge and experiments with real signals could improve the understanding.

read previous comments

Only one-period time is too short for learning a course like signal theory.

can it be slow□

Did the course schedule conflict with other courses (simultaneous classes, etc)?

Did the course schedule conflict with other courses (simultaneous classes, etc)?	Number of Responses
Yes	15 (34.9%)
No	28 (65.1%)
Total	43 (100.0%)

Did the course schedule conflict with other courses (simultaneous classes, etc)?
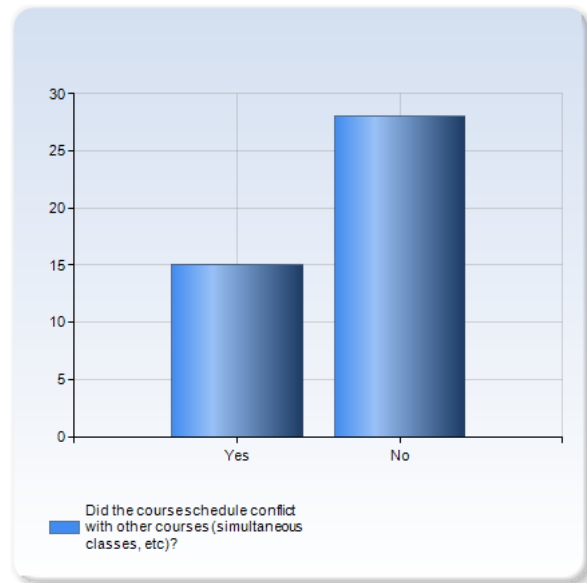
If yes, please provide the name of course (course code) and the frequency of collision.

Entrepreneurship for engineers. We missed almost all entrepreneurship classes (2 classes every 2 weeks).

ME2072 (every second week)

Industrial Management and I have the collision with Signal Theory for four times at least.

IO2691, once a week on average, concerns probably only EPFL exchange students in microengineering...

ME2072, many collisions, nearly half of the lectures collided with this course

Entrepreneurship for Engineers (ME2072). There are about 4 classes conflicted in total.

Entrepreneurship for Engineers(ME2072)

Every lectures

Entrepreneurship for engineers [ME2072].
Almost all the time, both on Monday and Wednesday.
This is a mandatory course for EIT ICT students.

Optics IO2651 always

Entrepreneurship for Engineers
EVERY TIME! HAD TO skipp ALL THE EforE lectures!

Optics (IO2651), 2h / week

Entrepreneurship of Engineering

Please feel free to add any other comment?

Please feel free to add any other comment?

Good and interesting course, thanks

Great, but I didn't know that the diagnostic test has a bonus point

Looking forward to prepare for this exam and feel confident with all the concept we've learned!

The course per se is highly organized and also forced me to prepare myself before going to lectures and tutorials, which I really like.

Minor thing: I personally find it rather demotivating to be more or less promised a fail grade on the 1st version of a report (little point in 'perfecting' it before the 2nd grading if it doesn't make a difference). I understand the idea behind it, but if you just want to give feedback and not a final grade, call it a revision and not a grading.

I think the course is very good and I like it.

The TA were really good

Project 2 was fun!

I like Marie.

TAs are very nice

I have learned lots of knowledge, Thanks very much!

Even though none of the courses collided with the schedule of Signal theory, the schedule can be not taking tuts and lecture on the same day.

I think he lecture really consider about students understanding during the class

I really learned a lot from this course and thank you, my teachers and classmates.

overall it is a pleasure to learn Signal Theory in this way

Wonderful work by the teacher and TAs

Tutorial about the project will be thankful. It is a little bit difficult for me.

as mentioned before, time assignment for different lectures with the variation on difficulty

thanks for teacher and TAs' efforts

The course is too hard to learn in such a short time.

No