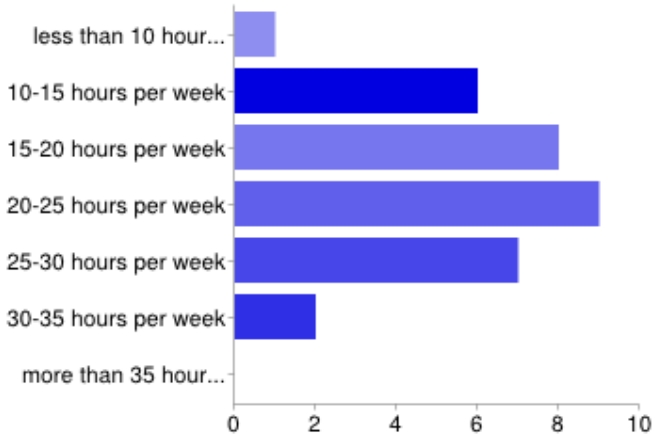
2013/14 - Course Evaluation: MF2042 (Embedded Systems 1) [as at 2014.03.14]

Section 1: Overall Course Set-up

1. Estimate how much time you spent PER WEEK on this course (including lectures, labs and homework).

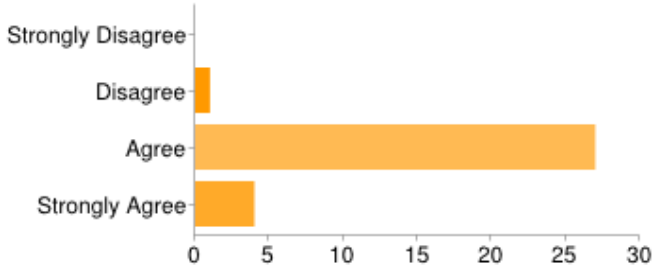
less than 10 hours per week	1	3%
10-15 hours per week	6	18%
15-20 hours per week	8	24%
20-25 hours per week	9	27%
25-30 hours per week	7	21%
30-35 hours per week	2	6%
more than 35 hours per week	0	0%



2) The stated learning goals for the course...

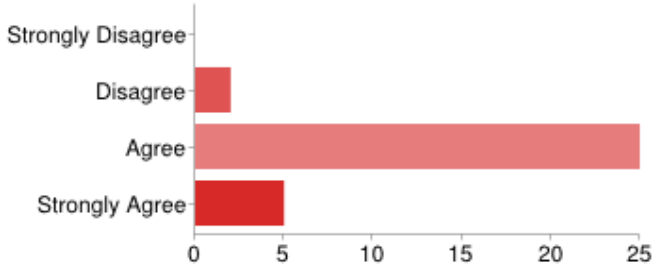
2a) ... corresponded well to the course content

Strongly Disagree	0	0%
Disagree	1	3%
Agree	27	82%
Strongly Agree	4	12%



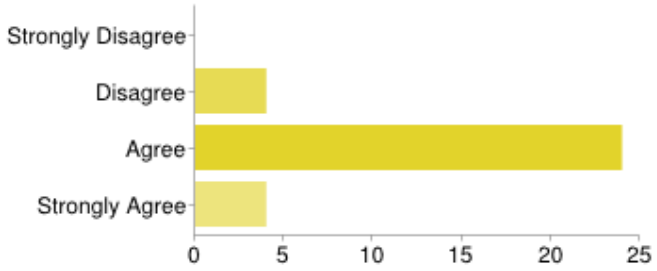
2b) ... were well supported by the course materials and handouts

Strongly Disagree	0	0%
Disagree	2	6%
Agree	25	76%
Strongly Agree	5	15%



2c) ... were well supported by the way the course was organised.

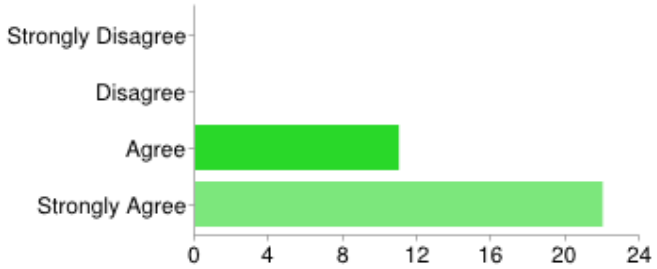
Strongly Disagree	0	0%
Disagree	4	12%
Agree	24	73%
Strongly Agree	4	12%



3. The LAB content was... –

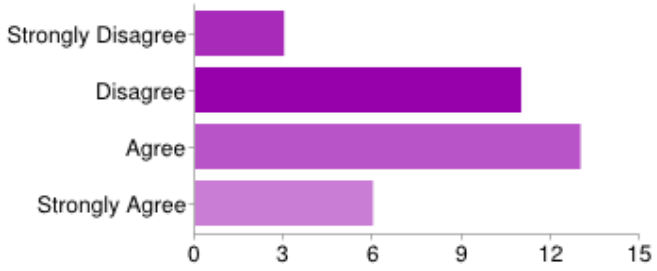
3a) ... relevant to the course and improved my understanding.

Strongly Disagree	0	0%
Disagree	0	0%
Agree	11	33%
Strongly Agree	22	67%



3b) ... in pace with the course material / lectures

Strongly Disagree	3	9%
Disagree	11	33%
Agree	13	39%
Strongly Agree	6	18%



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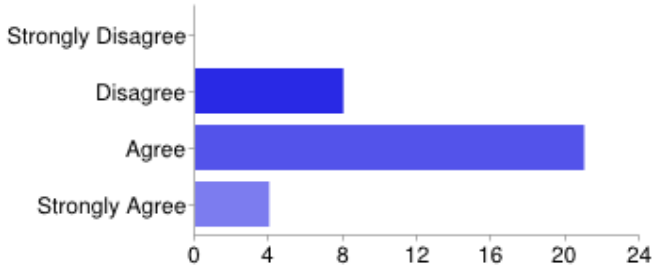
4. The course... –

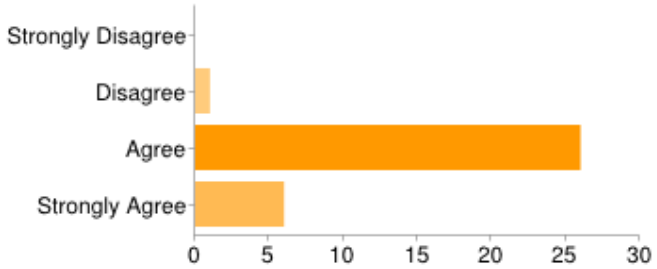
4a) ... had a reasonable workload.

Strongly Disagree	0	0%
Disagree	8	24%
Agree	21	64%
Strongly Agree	4	12%



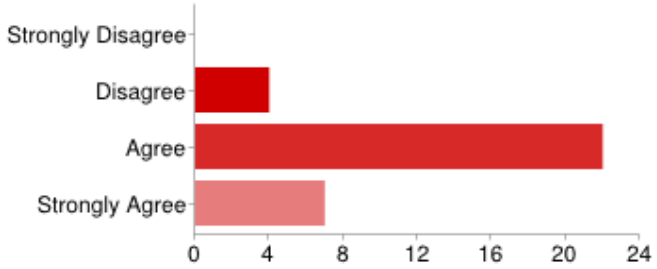
4b) ... was intellectually challenging.

Strongly Disagree	0	0%
Disagree	1	3%
Agree	26	79%
Strongly Agree	6	18%



4c) ... has developed my problem-solving skills.

Strongly Disagree	0	0%
Disagree	4	12%
Agree	22	67%
Strongly Agree	7	21%



4d) ... has sharpened my analytical skills.

Strongly Disagree	0	0%
Disagree	4	12%
Agree	21	64%
Strongly Agree	7	21%

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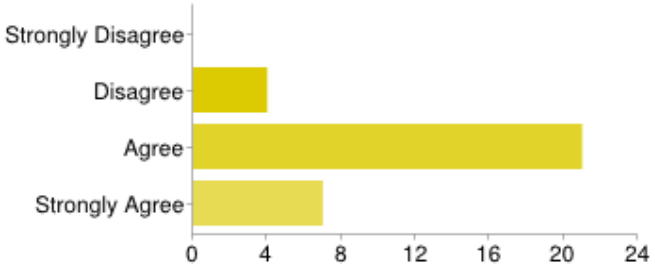

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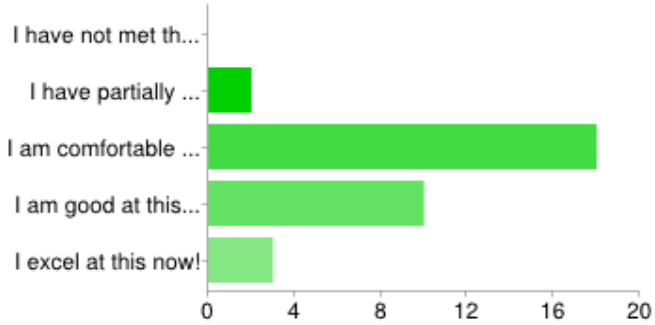
Section 2a: Course-specific Learning Objectives

5. Based on the learning objectives laid out in the Course Plan, please choose the option that best describes YOUR accomplishment of each objective.

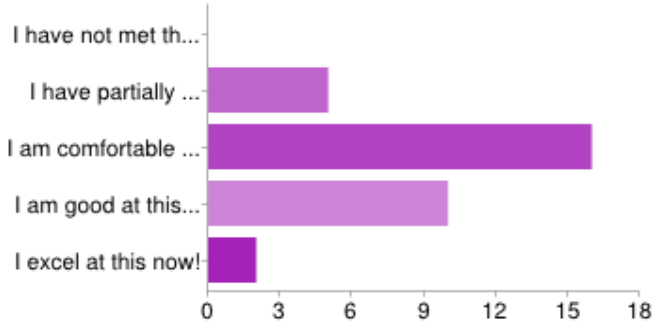
5a) I am able to provide examples of existing embedded systems based products and describe the special requirements placed in developing such systems.

I have not met this objective	0	0%
I have partially met this objective	2	6%
I am comfortable with this now	18	55%
I am good at this now	10	30%
I excel at this now!	3	9%



5b) I am able to describe and explain important steps in the design of embedded systems.

I have not met this objective	0	0%
I have partially met this objective	5	15%
I am comfortable with this now	16	48%
I am good at this now	10	30%
I excel at this now!	2	6%



5c) I am able to use modern integrated development environments for microcontroller programming and debugging.

I have not met this objective	0	0%
I have partially met this objective	3	9%
I am comfortable with this now	10	30%
I am good at this now	15	45%
I excel at this now!	5	15%

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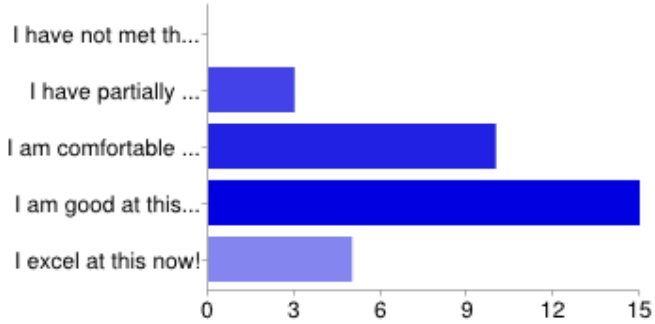
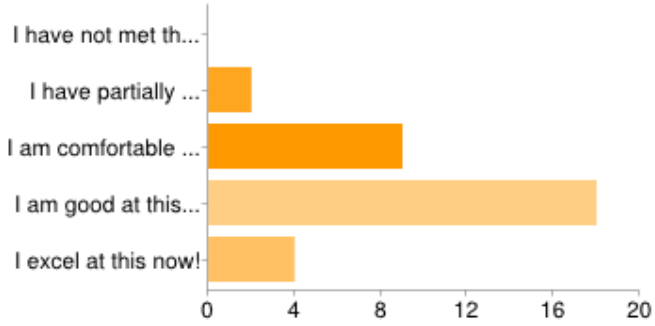


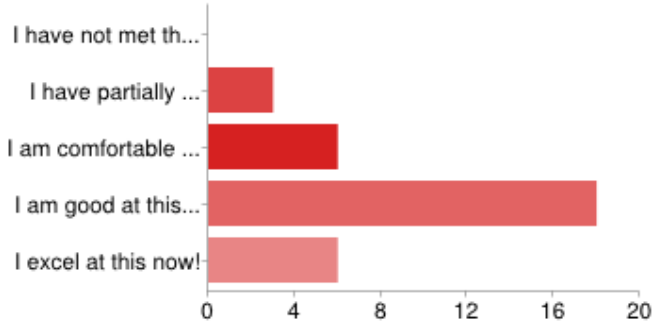
5d) I am able to describe and explain the basic operation of microcontrollers.

I have not met this objective	0	0%
I have partially met this objective	2	6%
I am comfortable with this now	9	27%
I am good at this now	18	55%
I excel at this now!	4	12%



5e) I am able to develop basic microcontroller programs for mechatronic applications.

I have not met this objective	0	0%
I have partially met this objective	3	9%
I am comfortable with this now	6	18%
I am good at this now	18	55%
I excel at this now!	6	18%



5f) I am able to describe, explain and apply basic concepts of concurrent and real-time programming.

I have not met this objective	2	6%
I have partially met this objective	8	24%
I am comfortable with this now	13	39%
I am good at this now	10	30%
I excel at this now!	0	0%

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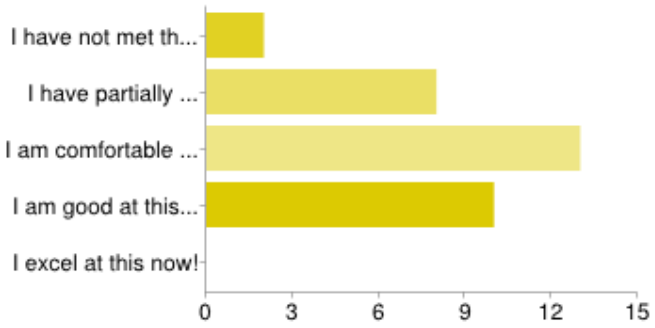
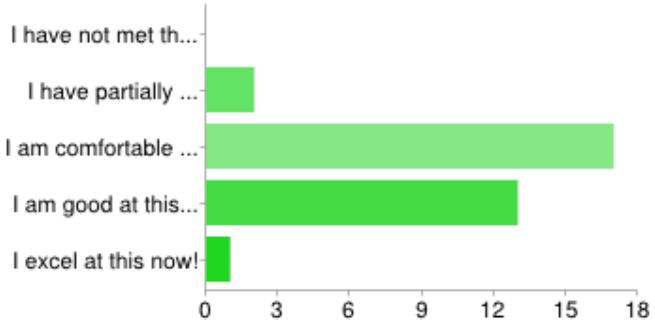


5g) I am able to describe, explain and apply some of the basic concepts of communication protocols.

I have not met this objective	0	0%
I have partially met this objective	2	6%
I am comfortable with this now	17	52%
I am good at this now	13	39%
I excel at this now!	1	3%



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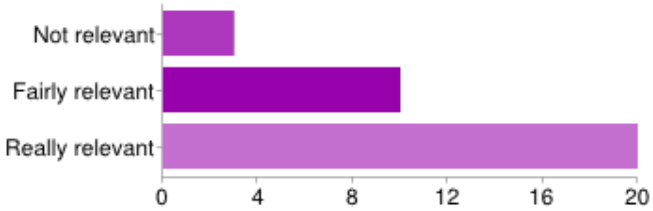
6. How relevant did you find each theme for YOUR education?

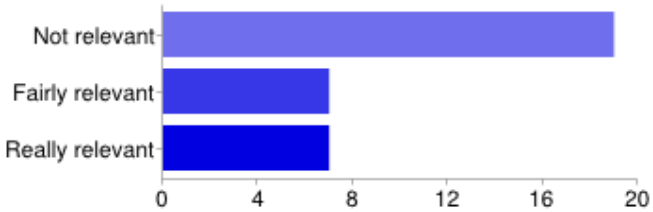
6a) Introduction to AVR32

Not relevant	3	9%
Fairly relevant	10	30%
Really relevant	20	61%



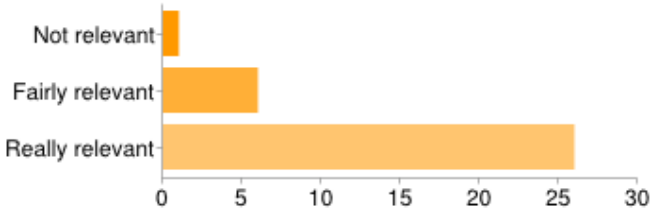
6b) Programming is a Craft

Not relevant	19	58%
Fairly relevant	7	21%
Really relevant	7	21%



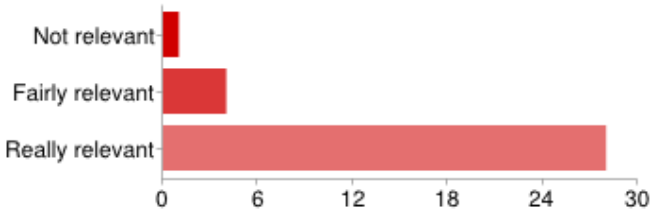
6c) Power Management

Not relevant	1	3%
Fairly relevant	6	18%
Really relevant	26	79%



6d) Distributed Systems

Not relevant	1	3%
Fairly relevant	4	12%
Really relevant	28	85%



6e) Model Based Development

Not relevant	0	0%
Fairly relevant	14	42%
Really relevant	19	58%

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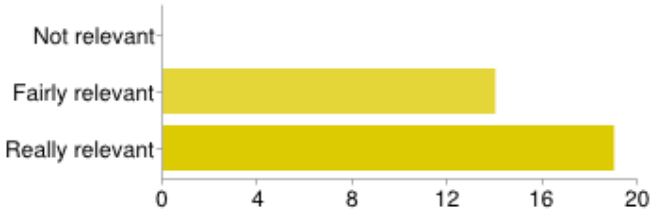

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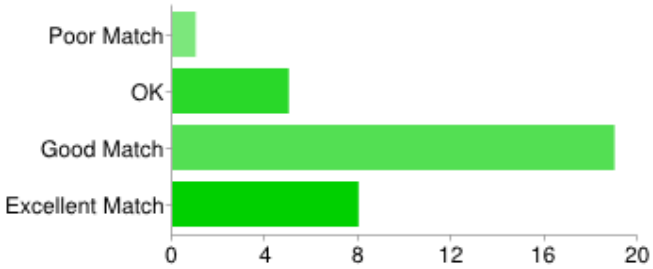
Section 2b: Course Content The course was divided into 5 themes.

7. How did the content meet your initial learning expectations? –

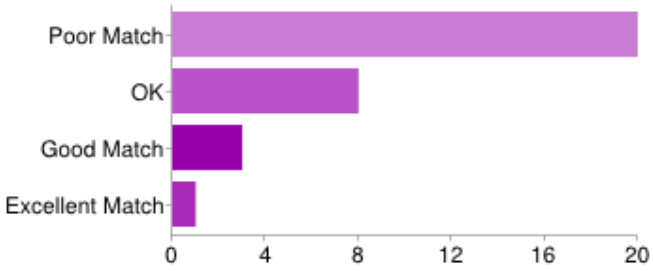
7a) Introduction to AVR32

Poor Match	1	3%
OK	5	15%
Good Match	19	58%
Excellent Match	8	24%



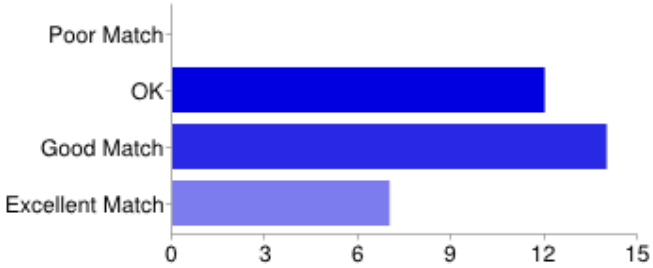
7b) Programming is a Craft

Poor Match	20	61%
OK	8	24%
Good Match	3	9%
Excellent Match	1	3%



7c) Power Management

Poor Match	0	0%
OK	12	36%
Good Match	14	42%
Excellent Match	7	21%



7d) Distributed Systems

Poor Match	0	0%
OK	3	9%
Good Match	17	52%
Excellent Match	13	39%

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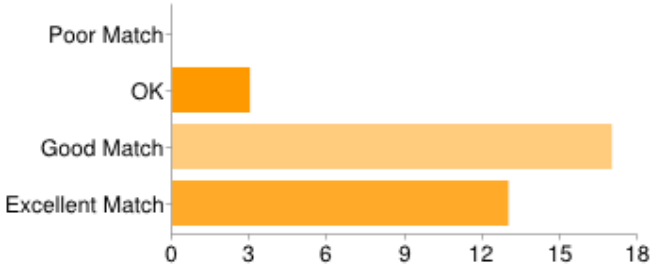
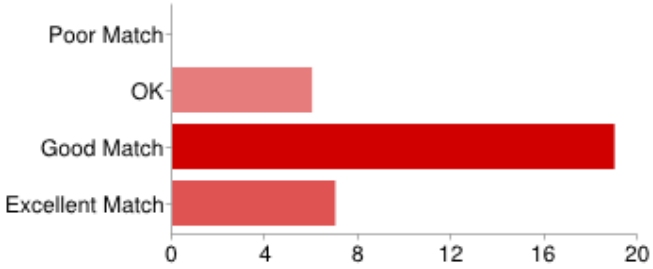


7e) Model Based Development

Poor Match	0	0%
OK	6	18%
Good Match	19	58%
Excellent Match	7	21%



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8. Do you have any suggestions for improvements for the 5 themes?

8 (a) The Introduction to AVR32 could have been better if...

We used better HW. The EVK1100 is old!

An example on RTC

Do a check at the start of the course to se the level of knowledge, I think people are coming with very different ?? on this

It was sufficiently good

could do more introduction to the basic knowledge about c-programming, especially which would be used in the coming lab sessions.

You would have known about what we learn in the FIM course

Take a break with study questions. A lot of new terms need to sink in during lecture.

some of the exercises could be better described

Better tutorials, not more. More connections to datasheet.

if it would have been different/more challenging. Was knowledge you already had after the FIM-project.

GPIO interrupt could be covered in greater details to enhance students understanding when they need to use interrupt in distributed systems.

more information can be provided for PWM codes, im still comfused about the usage of some certain modes.

more low level initicly?.

it had been a little slower...

8 (b) The Programming is a Craft theme could have been better if...

Reworked or removed. Spend time doing more important embedded work, visit companies or that like.

I fel t very unprepared for the group work. The 30 min lecture was not enough.

"*more structured course, *more examples, *more dynamic course"

It was clerly stated beforehand what the goals with the group work were. Now everything got really confusing.

A clear? example of both methids where presented based on one of the cases we got.

It didn't feel so unrelated to the rest of the course.

More clear instructions on how to use the methods! More examples, this part was very unclear and caused frustration.

Lecture had covered the subject better. Clear assignmnet.

"More lectures. Do some exercises and really explain how the models work.

The process would have been explained better although when reading the litterature it should be very clear.

It was abscent

the could give more examples and do more detailed explanation about STPA and ODC?.

it was not included in the course

someone would have taught us anything about it...

What was expected from the group assignment had been more clear.

Use the hole 2 hour with example.

The information about this should be much better, unclear what was expected from the student

If we actually learned something about the topic.

more time would spend on a concrete example during lecture

The teacher used his full 2h to explain the project, ODC, STPA and STAMP. The assignment was unclear and I think all groups had to rework thier part.

More concrete examples and better explanation on the lecture.

Two analysis methods could be better presented before group assignment as that students would be clearer abou the assignment.

Removed from the course due to the overall unclarity of the whole module.

it would have been clearer what we were supposed to do in the hand-in assignment.

it had been given with actual lectures/requirements for the hand-in report. I would grade this module F!

8 (c) The Power Management theme could have been better if...

The focus had been more on how to make i work.

Give an example of application (in an existing system)

More focus on practical ways tp reduce power, not only why its neccesary.

A good explanation on how the clocks work and how the buses work.

Introduction before quest lecturer.
To get a better clarity on what is right and wrong in the lab. Often it was like: "well thats almost right"
the information in the lecture could have been little less dense and maybe better explaned.
It was sufficientlty good
if it was better explained how the CMOS part of the lecture tied into power management. I dont quite understand that.
End with guest lecture.
some of the exercises could be better described
better description of the exercises
N/A. It was good!
was really good
we had been better explained how the clocks are set physically (not implemented, this was clear)

8 (d) The Distributed Systems theme could have been better if...

There where more can-sys in the lab. So that the network wasn't so crowded.
more info in the slides (ex. for information layers)
Better time spend balance between can 1 and can 2, can 1 was quick and easy, can 2 took longer time.
Liked it!
There was more literature
The lectures and the labs would have been synced
"The lab was slightly smaller. (ex: remove some of the easier program requirements)"
Difficult to work on the CAN-bus when everyone is doing it at the same time. Maybe ddivide the students in smaller group for this module.
Starting with CAN and then talking about more general distributed system.
we gotten more time on the labs.
we hade more time scheduled in for the lab.

8 (e) The Model Based Development theme could have been better if...

We had gotten the programs to work at home with.
We could get access to the software on our own computers.
It was bigger part of the total work/hours spent on the labs and the course.
No ?? yet. But think lecture was good.
It was sufficiently good
do more explanation about its real-life introduction.
Why does it have to be grapical? that system i old.

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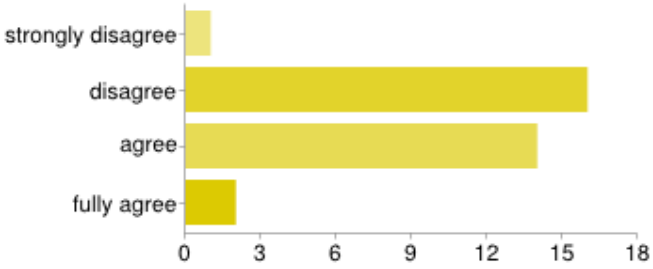
Section 3: Your Thoughts on the Learning Experience

9. Looking back over the course and labs as a whole, please rate your feelings about the following statements.

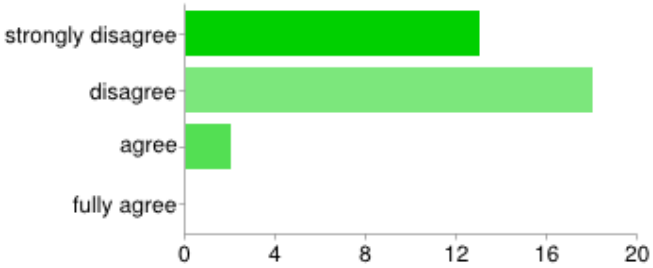
9 (a) I received a lot of valuable feedback on my progress and achievements

strongly disagree	1	3%
disagree	16	48%
agree	14	42%
fully agree	2	6%



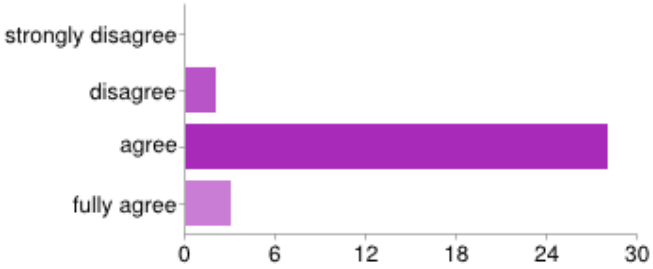
9 (b) To do well in this course, all you need is a good memory.

strongly disagree	13	39%
disagree	18	55%
agree	2	6%
fully agree	0	0%



9(c) The course has made me feel more confident about tackling new and unfamiliar problems

strongly disagree	0	0%
disagree	2	6%
agree	28	85%
fully agree	3	9%



9 (d) It was always clear what was expected of me in this course

strongly disagree	4	12%
disagree	12	36%
agree	14	42%

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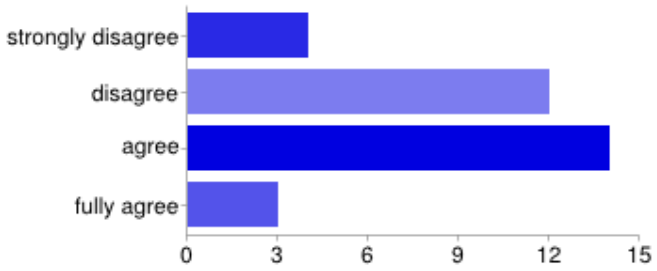
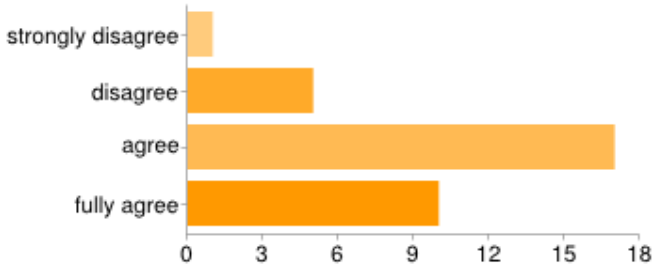
fully agree	3	9%



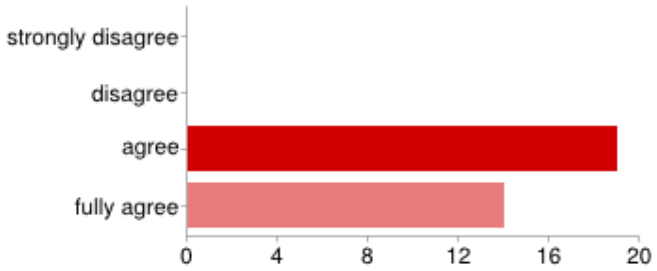
9(e) The staff made a real effort to understand any problems we had

strongly disagree	1	3%
disagree	5	15%
agree	17	52%
fully agree	10	30%



9 - (f) This course has contributed to my overall education

strongly disagree	0	0%
disagree	0	0%
agree	19	58%
fully agree	14	42%



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10. What did you enjoy LEAST about this course?

PIAC

Piac and the LAB/lecture order. AND the lack of lab turn in opurtunity.

The countless hours in the labs. Some labs (eg. CAN2) was too long.

To be stuck with the equipment in the lab. Would be nice to be able to do it from elsewhere. (NOTE from Anton: This might actually be a really good idea, if they got to sign out thier own equipment from Staffan Q. there would be less equipment that broke and there would be someone responsible if it did.) Also the PIAC lectures had a really poor quality.

PIAC, little help for labs.

The only part I didn't enjoy was the PIAC report, even though it wasn't very time consuming. Felt a bit like a thorn in the side.

PIAC assignment. As mentioned, very unclear. Also no hey? to the exams!

PIAC

PIAC. Good subject but need to be reworked, more lectures and exercises.

PIAC

It took me quite a lot of time to review my previous learning of c-programming. It would be better if you could give more instruction on the course.

PIAC :/

PIAC

PIAC...

PIAC module

The lab should have silencer in the ceiling

PIAC

PIAC, the teachers only knew about the specific task and drivers. They often couldent answer more complex questions.

"- Att man hade en frl på CAN, sen LAB i CAN, sen en frl i PM, sen en LAB i det igen och sen en frl i CAN osv. Det blev lite ""hoppigt"".

- Väldigt sega datorer i labbet. Ibland skulle man använda AS 6.0 sen 6.1. Vissa saker fungerade på ena men inte på andra vilket var lite irriterande.

- To corwded in the lab. You should have a Scania dashboard in the other lab aswell.

- Kolla över förkunskaper! Jag skulle egentligen inte ha fått gå kursen, men jag har läst kurs hur man programmerar en microkontroller. Jag fick labba ihop med en person som inte har programmerat en microkontroller men tydligen hade de rätt förkunskaperna. Men det slutade med att jag fick förklara mycket och göra det mesta själv. Jag önskar att jag hade haft någon som var jämnbra med mig så jag hade haft någon att diskutera med istället för att agera lärare. (NOTE ANTON: Good point, there should be a microcontroller pre requirement instead of c programming, had to deal with this in the labs)"

modules are divided into different weeks, ex. pm - can2 - pm. difficult to follow

PIAC

Much negative energy with the PIAC group work. The computers, equipment and Atmel was consuming much unneccessary time.

PIAC

I still cannot get known about some codes in the example even when I read the manual. I wish more explanation could be added in the lab guideline.

PIAC

Krångla med atmel studio som inte fungerade på vissa datorer och vissa versioner.

lack of time to complete all the labs and also gain full understanding of the different moduls while doing the labs.

PIAC module.

11. What did you enjoy MOST about this course?

CAN 2 Lab

The connection between practical and theory; use of evaluation during the course.

The programming

The practice (labs reflect the course well)

Interesting and useful labs. Guest lecturer from SAAB.

CAN 2.

The labs were very time consuming but also very enjoyable and I learned alot form completing them. The lab assistants were really helpful and took the time to undertand and solve the problems.

The interesting labs.

MBD

CAN!

"Labs

2013/14 - Course Evaluation: MF2042 (Embedded Systems 1) [as at 2014.03.14]

Most interesting topics:

MBD, PIAC, CAN"

MBD

I get more familiar with embedded systems sand distributed systems now.

"CAN (learned alot)

MBD (fun/interesting)"

Labs

DS module

Jad manages to hold your attention during lecture.

Digging in to the AVR32, learning about CAN, the broader perspective on MDB.

The labs.

- lab exercises. - enthusiasm of teacher - asking feedback at the end of modules

CAN lab 2. Fun to use different sensors and most of the EVK1100.

Jad and the labs.

the moment we successfully completed the lab tasks after debuggging.

i like CAN system. Its very interesting.

Distributed system.

Using the CAN network.

labs were fun when you started to understand how you were supposed to solve the problems. PM felt very relevant to real-life problems in todays products.

- Labs as an oppurtunity to solve real-life problems. - Mini-exam was useful to have in progress feedback.

CAN lectures, MBD