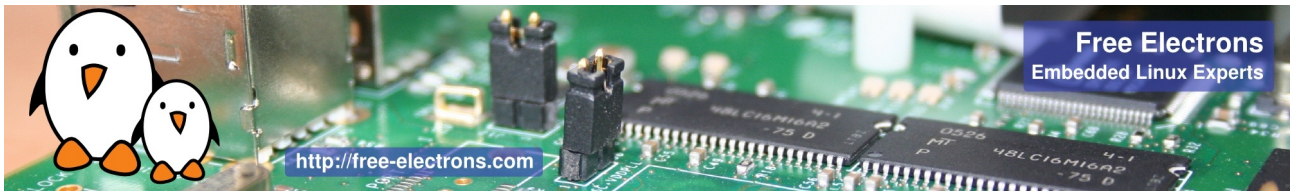


Training evaluation report

Training session: Embedded Linux Kernel and Development Training (public session)
Training dates: Nov. 15-19, 2010 (5 days)
Country: France

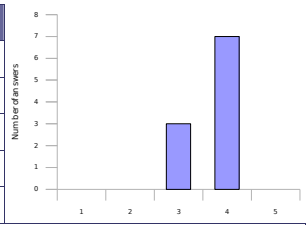
Number of participants: 10
Returned evaluation forms: 10

Thank you for having organized a Free Electrons training session!
Here is a wrap-up of evaluations from participants.

Learning objectives

1. How well did the course meet your learning objectives?

Rating	Answers	Description
1	0	Not met
2	0	
3	3	
4	7	
5	0	Fully met



4 – A little bit fast the last two days but we get a good overview and a good introduction to driver development and the different possibilities.

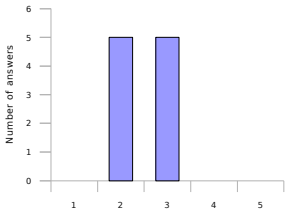
4 – But need more time.

3 – I wanted/could have learned some more.

4 – A bit too much time spent on basics.

2. How was the duration of the course?

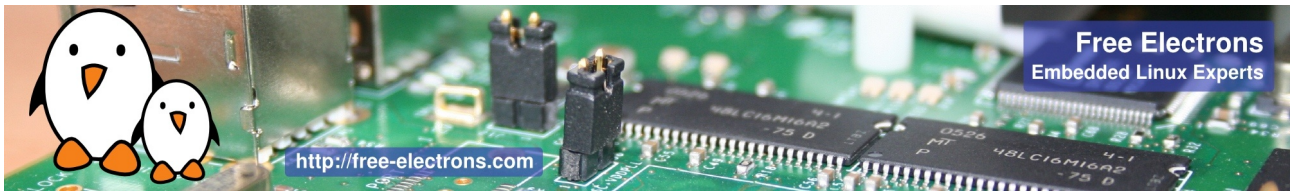
Rating	Answers	Description
1	0	Too short. Couldn't learn enough in such a short time.
2	5	A little too short
3	5	Just fine
4	0	A little too long
5	0	Definitely too long. The concepts could be learned in much less time.



2 – We need two more days, to completely the labs and have the training.

2 – We ran out of the time, so the last day, had a lot of “compressed” theory, which could/should have been practiced with labs. A little more time (on a better managed time schedule) could have solved that.

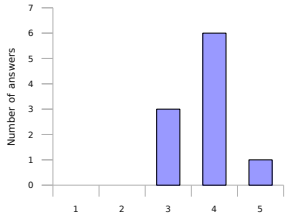
3 - One week is enough to get the overall view but probably not enough to make an in-depth course in which every participant stays focused.



Lecture materials

3. How helpful were the lecture materials?

Rating	Answers	Description
1	0	Not helpful. Made things more difficult to learn and understand.
2	0	
3	3	
4	6	
5	1	Really made things easier to understand and learn.



3 – At some parts of the course, some more explanations slides should be added. For instance, explaining the framework. Better graphics should help.

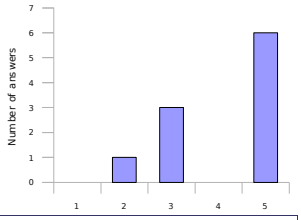
3 – Better overview graphs would be nice.

4 – The framework and buses part would need more time. A complete diagram for a specific driver would be more clear than the general diagram.

4 - “Learn from the source”, is one of the advices given at the end, maybe you can set this one somewhere in the beginning.

4. Will you recommend these materials to others?

Rating	Answers	Description
1	0	No. Not helpful without following the sessions.
2	1	
3	3	
4	0	
5	6	Definitely

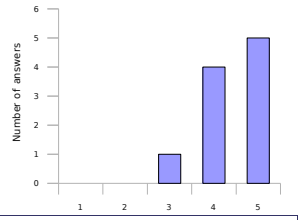


2 – The slides do need additional explanations at most points.

5 - Links to very useful information (books, websites, source code)

5. If you have Linux project opportunities, will you use these materials again?

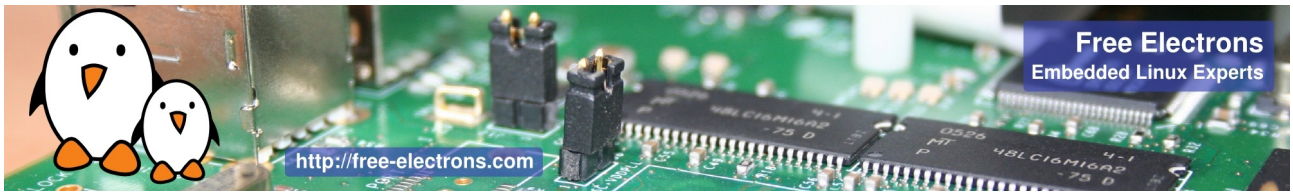
Rating	Answers	Description
1	0	No. I will look for other sources of information.
2	0	
3	1	
4	4	
5	5	Definitely



3 – To perform internal training.

4 – With my notes, they will trigger what I've learned.

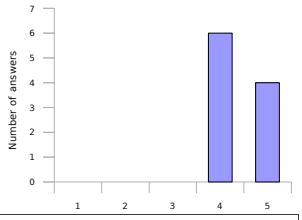
4 - I will use it more as a reference guide



Instructor added value

6. How knowledgeable was the instructor?

Rating	Answers	Description
1	0	Not enough for my own technical experience.
2	0	
3	0	
4	6	
5	4	More than enough for my own experience.

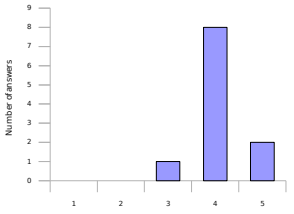


4 – I particularly appreciated to get web sites/book references to find more complete information.

4 - Very wide overview.

7. Did instructor oral explanations add value to the lecture materials?

Rating	Answers	Description
1	0	No added value to reading the materials.
2	0	
3	1	
4	8	
5	2	Yes. The instructor really made very useful oral explanations.

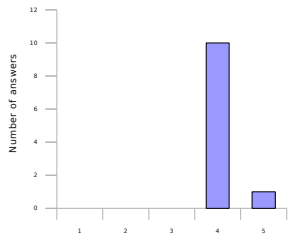


5 – Nice jokes and intermezzos!

3 - + : He knew what he was talking about and wanted (as it should be) to explain things correctly. - : Neither myself nor the instructor had English as mother language. This made it sometimes a little difficult since he talked rather fast.

8. How well did the instructor answer questions from the audience?

Rating	Answers	Description
1	0	Poorly. Didn't try to understand the questions well or rarely managed to find useful answers.
2	0	
3	0	
4	10	
5	1	Answered very well to questions from the audience



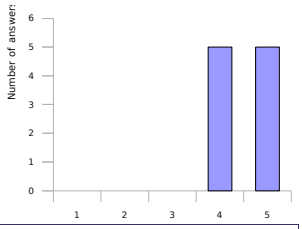
4 – Sometimes, the instructor was a little hard to follow when the slides were altered and he had to go forward and back. I was then easy to lose the red-line of the topic.

4 – Sometimes difficult to reach the instructor for asking a question.

4 - Good answer, if the question was clear.

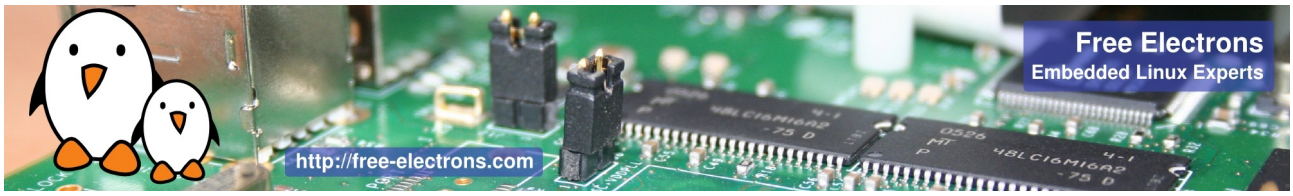
9. Was the instructor helpful with practical labs?

Rating	Answers	Description
1	0	No, not enough available and helpful during the labs.
2	0	
3	0	
4	5	
5	5	Yes. The instructor definitely helped to make labs a learning opportunity.



4 – We need “solutions” at the end of the labs (each labs).
Free Electrons note: we give code solutions for the biggest labs. It's true that some shorter labs didn't get solutions.

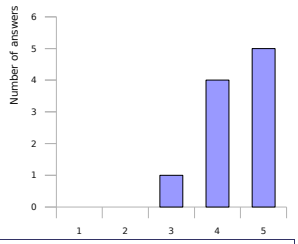
4 – He could not answer all questions, but got back on the ones he could the day after.



Training labs

10. How useful were the training labs?

Rating	Answers	Description
1	0	Not useful. Didn't add significant value to the lectures.
2	0	
3	1	
4	4	
5	5	Very useful. Helped to highlight things not understood and build useful experience.



5 - Some mismatches were found in the labs (gemu configuration for instance) which took some time to fix, which was unfortunate. All together, I think the labs are very good.
Free Electrons notes: these issues were left from the migration to Ubuntu 10.04. They are fixed now. Thanks!

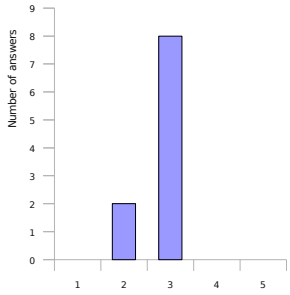
3 – Useful but not enough labs for me.

4 – The design and didactic value of the labs is perfect. However, there is not enough time for them. Slides & books can be read in one's own time, Free Electrons instructors could then answer questions regarding them. Free Electrons real value comes from the learning experience provided by instructor assistance during the labs.

4 – The first couple of chapters spend time on things already known.

11. How difficult were the training labs?

Rating	Answers	Description
1	0	Too difficult. Didn't help or even discouraged a beginner to get more familiar with the tools and concepts.
2	2	A bit too difficult. Would be better if the lab instructions gave a bit more details about explanations.
3	8	Just fine. Prompted me to look for answers, get my own experience and find my own solutions.
4	0	Too easy for my own technical level.
5	0	Too easy for everyone. Should challenge participants more and help everyone to practice on real issues.

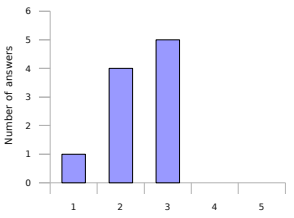


2 – Would be useful to have a quick recap of the solutions after the lab.

3 - A little more experienced assignments could have been added to the labs for those that finish early (so not mandatory but optional).

12. Was enough time dedicated to the practical labs?

Rating	Answers	Description
1	1	No. More practice is needed
2	4	A little bit more time would help.
3	5	Just fine
4	0	A little bit less time would be enough.
5	0	Don't need to spend so much time on labs. On-the-job practice is best



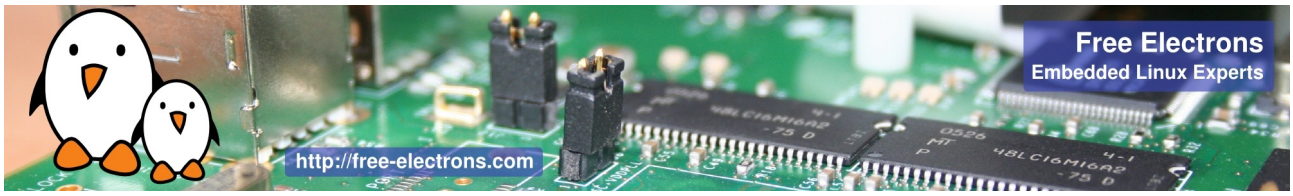
2 – We need two more days for the training.

3 – Too much time was spent on labs. So much so that the theory had to be rushed on the last day. It would be better to stick to the agenda and have a set of time for the labs. Students can finish labs in their own time if required.

3 – The practical labs duration was enough but we could have done more in the time allocated. The kernel compilation on the laptops was particularly slow. We also spend a lot of time to install/debug the tools needed for the labs.

2 – As mentioned above (question 10), the materials of the slides could be committed more to self study. The real value of the Free Electrons courses comes from the well designed labs. More time should be dedicated to them!

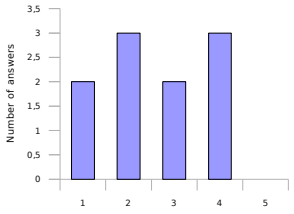
2 - Once you've found a solution, it might be handy to elaborate more on it. There is probably more than one solution whereas one could be better than another. That kind of information is very useful.



Training conditions

13. How do you rate training conditions (room size, equipment, environment...)?

Rating	Answers	Description
1	2	Poor.
2	3	
3	2	
4	3	
5	0	Very good.



2 – Too noisy.

4 – Chairs were not great.
Free Electrons note: we asked the hotel to change the chairs because someone found the previous ones too hard. We will get back to standard wooden chairs with cushions.

2 – Too noisy, a real room would be better.
Free Electrons note: the hotel allocated some space for us in the restaurant. We had plenty of natural light, but everyone found the room too noisy. Will book the room much earlier next time to make sure that we have a separate room next time.

2 – Room was very noisy. Made it hard to concentrate sometimes. Chairs/desks were not very ergonomic resulting in painful shoulders and neck.

3 – Too noisy sometimes.

1 – Noisy environment and food smell ; Difficult to stay concentrated.

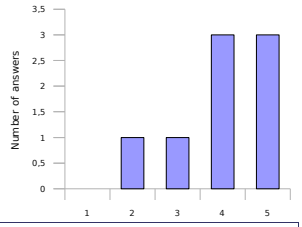
4 – Things like network problems, etc, distract the student and might make some students fall behind the lectures and labs ; should be better prepared. Packages should perhaps come pre-installed to save time.

3 – Connectivity problems, noise, cleanliness.

1 – Not enough desk space, bad seats, too noisy, bad Internet connection, which made us waste too much time.
Free Electrons note: the hotel had just made changes to its wireless network, which worked with some computers, and not with others. We addressed this by switching to a wired connection.

14. How do you rate the training equipment (mainly computers)?

Rating	Answers	Description
1	0	Poor. Not powerful enough to execute practical labs.
2	1	
3	1	
4	3	
5	3	Very good. Very little time waiting, more time learning.



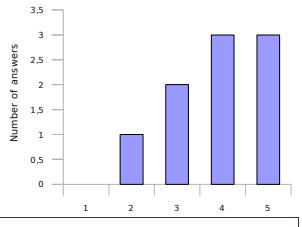
N/A – Used own computer as training equipment could not connect to Internet ; unnecessary time was used (on the first day) to setup networking etc...

N/A – Not applicable (I used mine).

5 – Fast PC's, reasonable network

15. How well was the course organized (program, registration, meeting the schedule...)?

Rating	Answers	Description
1	0	Not well
2	1	
3	2	
4	3	
5	3	Very well



2 – Too fast at the end of the training.

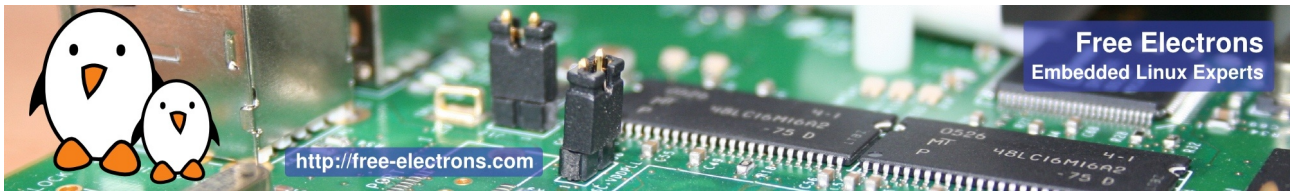
4 – The course was organized well, but sticking to the timetable would have helped a better execution of the program.

3 – Too slow at the beginning, too fast at the end.

N/A – See answers to Question 10 and Question 12.

4 – Didn't stick to agenda.

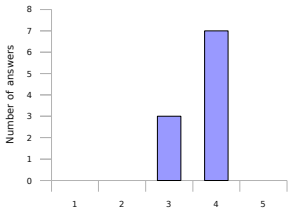
5 - Breaks every two hours, keeps you more focused.



Overall rating

16. How much did you learn?

Rating	Answers	Description
1	0	Definitely not much
2	0	
3	3	
4	7	
5	0	Definitely more than I expected.

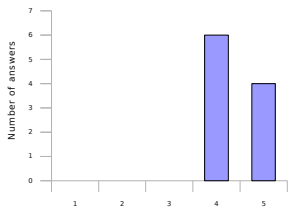


3 – Around or a little less than I expected. Too much time on labs : I already finished → results in idle/waiting state, not learning state. Could have done more labs → learned more.

3 – As much as expected.

17. How useful will this course be in your daily job?

Rating	Answers	Description
1	0	Not useful.
2	0	
3	0	
4	6	
5	4	Very useful. Will make my job easier and more productive.



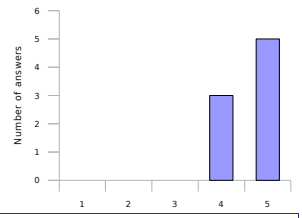
4 – Course is a very much hands on, as is my job. So now, I know where to start.

5 – Very useful if I spend time reviewing the slides & labs in my own time.

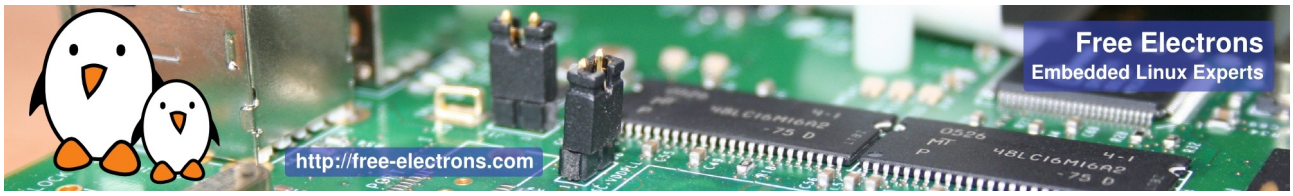
4 - Maybe I'll need some deeper knowledge of a certain kernel subsystem when developing a specific driver.

18. Would you recommend this course to others?

Rating	Answers	Description
1	0	No.
2	0	
3	0	
4	3	
5	5	Yes, definitely

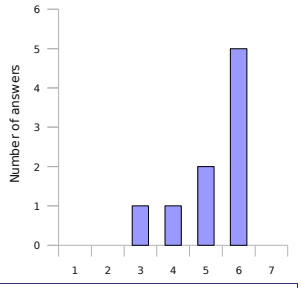


5 – But depending on the previous knowledge and skills of the others!



19. Overall rating

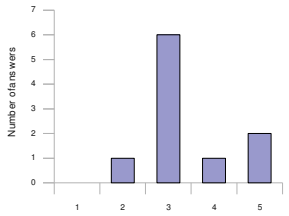
Rating	Answers	Description
1	0	Very disappointing
2	0	Disappointing
3	1	A little bit disappointing
4	1	OK
5	2	Pretty good
6	5	Very good
7	0	Excellent



3 – Maybe my expectations were a little too high.
4 – I would like have more technical details on each part.
5 - 10 people for a public session is probably too much.

20. An extra session?

Rating	Answers	Description
1	0	No
2	1	
3	6	Why not?
4	1	
5	2	Yes, definitely



4 – Driver Framework and more advanced topics needs perhaps an extra session + LABS!

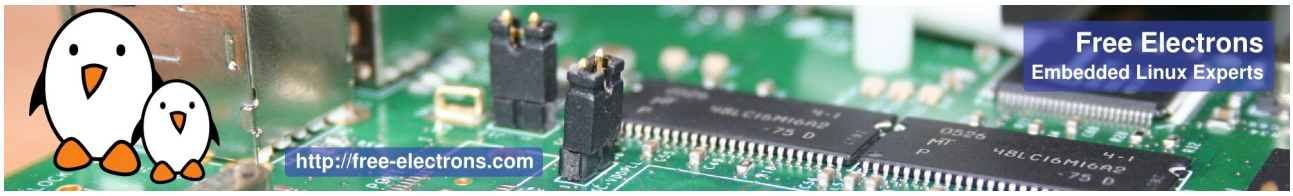
Number of votes for topics in an extra session

Understanding the Linux kernel		Linux device driver development		Linux board support packages		Embedded system development		Miscellaneous needs	
Process management	1	USB device drivers	2	Processor specific code	1	Lightweight tools		Java	
Filesystem implementation	1	USB host drivers	2	Board specific code	2	Embedded system development tools		Real-time	1
Memory management	1	PCI drivers		Board specific interrupt support code	1	Cross-compiling toolchains		Audio	
Scheduling implementation	1	Network drivers|CAN	1	DMA support		Debugging solutions	2	Video 3D / X-server	1
Bootstrap code	1	Block drivers		Bootloader development	1	Software development tools		uClinux	
		Flash drivers	1			Programming with graphical libraries		Voice over IP	
		I2S drivers	1			POSIX API			
		Input drivers	1			System optimization	2		
		Sound drivers	1			Root filesystem creation			
		Video drivers	2						

Free Electrons comments

Thanks to the (sometimes oral) suggestions from the audience, we will improve future training sessions...

- By squeezing the first day topics (basics) into just a few hours
- By adding more labs on the last day's topics (thanks to time saved on the first day)
- By adding more graphics and diagrams to make learning easier
- By providing more complete solutions
- By offering more lab time, and spending less time in lectures if possible.
- By offering more challenges at the end of each lab, for people who complete their labs before the others.
- Focus the slides more on self study
- By booking the room early enough, to get a separate room in the hotel.
- By asking the hotel for a wired connection (which will be connect to our own access point).



Life after training

After this training session, do not hesitate to get back to us! Here are things we could do to support you in your embedded Linux projects:

- More training: you may be interested in the other training sessions that we propose, either embedded Linux system development or Linux kernel and driver development, depending on the course you have already taken. See http://free-electrons.com/training for details.
- If some people in your organization missed the session, and you don't have enough requests to organize another session, they can choose to go to our public training sessions. See http://free-electrons.com/training/sessions for details.
- Linux kernel porting. Adding Linux support to your boards, or supporting you in doing this.
- Having your board support code merged in mainstream sources (Linux, U-boot), so that your sources are maintained by the community. This also means for customers that your boards will be supported for a long time.
- System development and integration. Creating demos and prototypes.
- System optimization: improving system performance and features (power consumption, speed, size...)
- Investigating and fixing nasty bugs that you don't have time to cope with by yourselves.

See http://free-electrons.com/services for details.