EECE 2410 Fall 2012 Mid-Term Feedback

1. The first couple labs dealing with basic resistive circuits were very helpful as introductions to the initial circuit concepts that we learned later in lecture. Later on, the first lab involving the EKG signal, although too long, was a great example of a basic difference amplifier circuit.
2. The order of presentation of content in this course has not been entirely helpful. For a course that is intended to be equivalent an introductory course in circuits, I feel that there has been a lack of focus on the basic circuits material that Electrical Engineers will rely heavily on in their future studies. Also, some of the labs seemed to not relate to the material we had covered in lecture at that time. Or they did relate, however the timing was not helpful in relation to when material was covered in lecture.
3. The best aspect of this course so far was the moment when we first saw an EKG signal on our oscilloscope. It was sort of an "Ah-ha" moment for us, and it showed that we were conceptually on the right track, even if we didn't totally understand everything that was happening.
4. Since the labs were all being run for the first time, the instructor assistance that was provided was not always extremely helpful. There was usually one professor who had the best idea of how to help students, but it felt like there was no communication between the instructors and the TA about how the lab should be actually completed. On multiple occasions I was given advice by one professor/TA, then told to do something different in the same place by another. I think it would be more useful to the students if the instructors and TA had collectively, done the labs ahead of time, and discussed the proper methods and results that were to be expected. Obviously working with some of the new technology limits the possibility of doing this, but for some of the MATLAB labs, it would have been better for the instructors/TA to be more on the same page.
5. If this course is continued to be offered as an "equivalent" to the standard circuits course, the pace of the circuits material was too fast. I think more time and emphasis should be spent on this material, because it is *so* vital to everything else in Electrical Engineering. If there was more detail, and more complex examples provided for this material, like what we will certainly see in the future, we would be better prepared in terms of circuits material in the future. One thing that particularly troubled me was that I learned about RC circuits in Physics 2 before I did in circuits class (and a lot of other topics were covered before RC circuits were in Physics). I think that is completely unacceptable.
6. The pace of the signals material, I found, was also too fast. Or more that it related to nothing else, which made it extremely hard to understand, especially when I didn't have an understanding of the basic circuits behind the material. Also in the presentation of that material, I would have liked more words and descriptions in the lectures on the board. This is a personal preference, but as I take notes in class, I understand the material, then looking back at later on, I only have the equations from the board, and no idea what they mean.
7. I think the material in this course has to be re-ordered for the next time the course is offered. This course is a circuits class, and for many, the first course taken in the ECE Department. Therefore I think that the circuits material must take more of a prescience than the signals concepts. Without a basic understanding of simple circuits, I feel like trying to teach a lot of the signals material is simply out of place. Again, it is so hard to relate to anything, and impossible without some background in circuits, which most people don't have when taking an introductory circuits course.

8. I think the early on MATLAB labs were not as useful as they could have been. We spent the majority of our time trying to debug small coding errors, and it entirely took away from the bigger picture of finding the Fourier Transform of our signals. If we had been given a basis code to go from, so that we would not have to spend the whole lab writing and testing code, the lab would have been more useful.
9. The first lab dealing with resistive circuits was very useful, and it was very relatable to the material in the book. I also think a similar lab dealing with basic RC circuits would have been very beneficial. Also, the first EKG lab, when we finally saw my heart beat on the screen was very rewarding.
10. When we haven't been given enough instruction on the specifics of what we need to do in the lab, they have felt too long, but the length gives us plenty of time to really get a lot done.
11. The difficulty of the labs has really varied from straightforward to near impossible. The MATLAB labs where we were given little specific instruction, when the signals material was still very new to us, were excessively difficult, and the difficulty took away from trying to understand the concepts. But now, the difficulty is good, although there is sometimes critical information missing from the lab instructions. I.e. how to connect the A-D chip to the PAL board. Information like that should absolutely be included in directions, because nobody knew how to do that on their own.
12. For the circuits material, the coordination with the labs has been pretty good, however for the signals material, not as much. It felt like the signals was disconnected from the labs, and we were unable to visualize the basic signals concepts as we learned them. The lab made some of them clearer, but not in a timely fashion.
13. The biggest thing that would improve the labs is coordination between instructors and the TA. If everyone is on the same page in terms of giving the same advice to students, the labs would be more helpful and informative. This would make them go quicker and we would be able to get the important concepts out of the lab instead of getting caught up in the minuet details of getting to the important concepts.
14. Most of the circuits homework has been a reasonable level of difficulty, but signals, most of the time, has not. It just has been very difficult to relate to the rest of the class, and because of this it hasn't always made sense. Perhaps if I had a better overall understanding of signals as a whole, it would be easier, but still, not everything has clicked, thus making the work often too difficult.
15. The homework could be improved, at least in terms of signals, by having it relate better to the examples provided in class, or by taking time to review it during class time. Same with circuits, having a chance to review and discuss the solutions with the instructors would be beneficial.
16. In its current form, I think this course needs a lot of refinement before it can be offered as an "equivalent" to the traditional circuits course. In the future, I think it should be made clearer to those who have the opportunity to take this course that it is *not* the same as traditional circuits, and the material covered differs quite a bit. There definitely exists potential for the course, but its just not there yet.

Introduction to Circuits and Signals (Pilot Section)
Midterm Feedback Form – 8 Nov 2012

Please provide us anonymous feedback by entering your answers for each question below and bringing a print-out of your answers to the lab on Nov 13, 2012. Thank you for your feedback, which will help us improve this course for future students.

1. Considering the course & lab as a whole, what has been particularly good about this course?

   The course and lab introduced concepts related to both circuits and signal processing. As a whole, the two sections provided a link to real world applications not discussed in ordinary lectures/labs. Both sections had an open format, where the professors could incorporate elements of their research in the lab and lecture. The outcome of the course, becoming familiar with linear systems and circuits, has its merits beyond the class, adequately transitioning to electronics and linear systems.

2. Considering the course & lab as a whole, what has been particularly bad about this course?

   Although the nature of the course allowed for any material to be presented, often the timelines of the lab and course did not seem clear. Despite the connection between lab and lecture, the material presented in lecture, especially the initial signals topics, did not seem explained adequately before the corresponding labs. Overall, these issues did not reduce the value of the labs and lectures they merely deterred my immediate understanding. In previous courses, the syllabus and aim of the course remained static throughout the semester, whereas the pilot nature of the course led to a more dynamic schedule.

3. Identify one additional good aspect of the course.

   During the lectures, the technology briefs provided excellent context for the types of resistive sensing equipment, signal processing, and display technologies. As a break from occasional example problems, these briefs often motivated the methods and techniques introduced in other lectures.

4. Identify one additional bad aspect of the course.

   Despite the sense of practical applications of circuits, I felt that the course did not develop a clear approach to solving circuit problems and more complicated linear systems. I often felt that I did not have the intuition or tools to adequately complete the homework and had to reference the book or other sources. In other courses, the notes presented in class or posted on Black Board acted as my main reference points. The absence of consistently structured notes made the course more challenging than I anticipated.

5. Was the pace of the dc circuits material too fast, too slow, just about right, or something else?

   The pace of the dc circuits material was fast and disjoint from the beginning of the class focused on signals, Fourier analysis, and convolution. In previous courses, the organization of the syllabus would lend a cumulative progression, and the dc circuits appeared to come and go very quickly.

6. How was the pace of the signals and Fourier transform material?

   The Fourier transform material began a very generic or abstract level and became clearer with more RC-Circuit examples. At certain points in the beginning of the semester, the circuits portion seemed to diverge from the circuits until we moved away from the complex value-function theories to more circuit and filter examples. Computing the Fourier transform and using the table of transformations was too difficult, given my previous experience with La

Place transforms in Differential Equations. However, some of the convolution and aliasing examples were difficult to grasp at first glance.

7. If you reordered the presentation of some material across circuits and signals portions, how would you order the topics you have seen so far?

   The first few weeks would start with dc circuit analysis to establish a sound understanding and intuition of basic circuit analysis. Following dc circuits, AC circuits should come by continuous time Fourier analysis and circuit analysis in parallel. Equally weighing the two approaches, then introduce op-amps and filters in both contexts. Rather than starting with discrete time, continuous time, and other variants of Fourier transforms, each relevant application of those concepts should come in closer proximity to each concept's introduction. For example, much of the discrete time Fourier transform material was lost to me, as we quickly covered the material to perform a Matlab lab then revisited the material much later in analog-to-digital conversion. Alternatively, if the material regarding the A/D and CT/DT conversions came at the same time as the lab, there would be less lost in earlier lectures.

8. What was the least useful lab?

   The DTFT lab (lab #3) was not necessarily the least useful, but most challenging. I think some of the concepts of generating artificial signals in Matlab were not necessary to consider, while revisiting the lab later with the short-term Fourier Transform resolved some of the issues I had regarding sampling and the function of the window in the algorithm.

9. What was the most useful lab?

   The first instrumentation amplifier lab (lab #7) was most useful in becoming comfortable with circuit layout and op-amp design and analysis.

10. Have the labs been too long or too short?

    Many of the labs have been longer than expected. In the future, if students have access to the PAL boards outside of class or breadboards were a required course material, one might expedite the circuit development component of the labs. The

11. Other than length, have the labs been too difficult or too easy or about right?

    Aside from the length of the labs (most that dealt with measurement and estimation), the labs were just challenging enough. In some cases, particularly the early signals labs, I found that I needed to constantly reevaluate the code I was writing on the fly, whereas in previous courses, we could work with a code developed offline then tested in class.

12. Is the coordination of the labs with the class ok, good, excellent, poor, or bad?

    The coordination of the later labs, following the initial Matlab labs, and the lecture coincided well with on another. There were some concepts that were left to experiment with in the lab and determine independently, yet that is the intention and design of most labs to augment the material addressed in lecture.

13. Give one suggestion that would improve the labs.

    Assigning more prelab questions and providing a template or structure to format Matlab code would improve the success rate in lab. The prelab homework would force students to revisit their notes before the lab and prepare them to ask meaningful questions during lab.

14. Has the homework been too difficult, too easy, or about right?

The circuits homework varied from difficult (Thevenin Equivalents and Complicated op-amp circuits) to reasonable (transfer functions and complex impedances).

15. What could we do to improve the homework?

Offer more office hours or provide a recitation/TA meeting time to review the circuits problems

16. Are there any additional comments and suggestions you would like to make?

Introduction to Circuits and Signals (Pilot Section)
Midterm Feedback Form – 8 Nov 2012

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1. **Considering the course & lab as a whole, what has been particularly good about this course?**

This course convers branch of materials, that I am able to learn more stuff about circuits. Also, just ten students in this class so that would make one on one procedure,especially in lab.

2. **Considering the course & lab as a whole, what has been particularly bad about this course?**

We don't have a systematic textbook in signal part, the one we have right now is talking more about how to solve a problem but not explanation on some detail stuff. Instructors' note is probably not enough for exam preparation. Personally, signal part is a bit too fast.

3. **Identify one additional good aspect of the course.**

It is such a changeling class that contains applicable experimental materials.

4. **Identify one additional bad aspect of the course.**

The way to explain in signal part period is abstract.

5. **Was the pace of the dc circuits material too fast, too slow, just about right, or something else?**

It was normal.

6. **How was the pace of the signals and Fourier transform material?**

It was a bit too fast (personally).Probably, I did not do well in the basic stuff so that I could not easily catch up with others in class.

7. **If you reordered the presentation of some material across circuits and signals portions, how would you order the topics you have seen so far?**

Signal and circuit part would be presented over for separate week.

8. **What was the least useful lab?**

The first lab was the least.

9. **What was the most useful lab?**

The one we did two weeks before. Lab 8

10. **Have the labs been too long or too short?**

Generally, it seems like no one could finish the lab in the last few weeks. Time is a bit short for the labs we done.

11. **Other than length, have the labs been too difficult or too easy or about right?**

It is medium. We all know pilot section is not as like the regular class. Yes, it is difficult, but just takes times.

12. **Is the coordination of the labs with the class ok, good, excellent, poor, or bad?**

It is ok.

13. **Give one suggestion that would improve the labs.**

If the instructor was supposed to make a long lab or a challenging one, the lab could be extended for one or two weeks. It means like we could finish one lab in 2 lab periods.

14. **Has the homework been too difficult, too easy, or about right?**

It is not too difficult. But it is not easy. It always takes time to figure out all of them especially the signal part. Since all materials in course are all basic ones.

15. **What could we do to improve the homework?**

We could get 15-20 minutes in class period for homework discussion with instructors once a week if possible.

16. **Are there any additional comments and suggestions you would like to make?**

It would be better to set up a recitation class, which would focus more on homework question.

1. **Considering the course & lab as a whole, what has been particularly good about this course?**
I find the hands on experience we get from the lab when we apply the concepts we learn in class to be very useful to me in the course.
2. **Considering the course & lab as a whole, what has been particularly bad about this course?**
The signals lectures' materials are very often dense. The signals lectures go very fast, jumping from one concept to the next without giving us a chance to fully understand or even comprehend one.
3. **Identify one additional good aspect of the course.**
The labs give the student lots of freedom and the TA / instructors are often very helpful in leading us along the learning process.
4. **Identify one additional bad aspect of the course.**
The transition from little knowledge of signals to the signals material is a rough transition. It needs to be smoother.
5. **Was the pace of the dc circuits material too fast, too slow, just about right, or something else?**
Just about right
6. **How was the pace of the signals and Fourier transform material?**
Too fast
7. **If you reordered the presentation of some material across circuits and signals portions, how would you order the topics you have seen so far?**
Introduce the relationship between the Fourier Transforms and Laplace Transforms earlier.
8. **What was the least useful lab?**
For me the Matlab parts were least useful because I was not sufficiently prepared for it
9. **What was the most useful lab?**
The one where we built the EKG and took signals from it into the oscilloscope
10. **Have the labs been too long or too short?**
Too long until recently
11. **Other than length, have the labs been too difficult or too easy or about right?**
A bit difficult but manageable (except for the Matlab parts, which were too difficult)
12. **Is the coordination of the labs with the class ok, good, excellent, poor, or bad?**
Good
13. **Give one suggestion that would improve the labs.**
Either give us some Matlab intro's that would greatly prepare us for the Matlab portions of the labs, or make them easier
14. **Has the homework been too difficult, too easy, or about right?**
Circuits – about right, signals – too difficult
15. **What could we do to improve the homework?**
The signals part is sometimes hard to read. Make it more legible. Also provide us with an easier transition into the material.
16. **Are there any additional comments and suggestions you would like to make?**

Circuit Pilot Course Feedback

1.) The talk of filters in the lecture has connected very nicely with the lab content.
2.) Signals lectures need a lot of work; the only signals lecture that I have gotten anything out of so far was when we looked at the impulse responses of low-pass/high-pass filters. Also, aside from the Fourier transform, I don't really see the connection between the signals lectures and the lab content.
3.) Overall workload is about right.
4.) Tech briefs are fun, but use up valuable time.
5.) For me personally, the pace of DC circuits was too slow; the only new concepts that I did not already know through the first half of the course were Thevenin/Norton Equivalents and Op-amps.
6.) The pace of the signals/Fourier transform lectures is much too fast.
7.) Course should start with circuits lectures before signals lectures. Resistive circuits first, then op-amps, then rlc circuits. After rlc circuits, signals should introduce Fourier transform **in the context of circuits.** Perhaps there could then be a lesson or two on reducing rlc circuits to differential equations.
8.) Least useful lab: lab 3. Not only was it dull, but MATLAB's fft functionality makes it somewhat obsolete.
9.) Most useful lab: any EKG lab.
10.) Labs have been a little too long.
11.) Labs have been just right on difficulty.
12.) Lab coordination with lecture: good.
13.) There should be more breadboard work.
14.) Circuits homework has been about right. Signals homework has been too hard.
15.) Signals homework should be concrete examples rather than just proofs. Signals homework should also be typed.
16.) For question 16, I have compiled a list:

- Signals lectures could be improved by removing some of the depth, but preserving the main ideas.
- Signals notes on blackboard are incomprehensible.
- It would be nice if professor Erdogmus had more office hours.
- The ratio of circuits to signals should be increased (more circuits).
- Based on conversations I have had with students in the normal circuits section, I feel that the only additional information we would need to build an EKG machine would be knowledge of high-pass/low-pass filters (which I think are a pretty simple concept). Therefore, I believe that the lecture of the EKG section should look more like the standard lecture.

Midterm Feedback

1) What has been good about this course is that it has exposed us to how the math of digital signal processing works and how Fourier transforms work. Also what we did in the labs once we got to building the ekg signal helped solidy my wanting to be an ECE.

2) What was bad about that was that I had no idea what a transform was before the course. What the CTFT and DTFT do should be explained better, with hardly any experience with math on this level, it was almost impossible to understand this stuff at first.

3) Another good aspect is that I feel like I'm ahead of all the other EE students.

4) Another bad aspect is that I still don't know what convolution is. Also not even the tutors for linear

Systems knew how to do our signals homework somehow.

5. It was a little fast but doable.

6. Way too fast. You can't introduce most of signal processing in the first 2 weeks of an intro to ECE course. We aren't grad students.

7. 1. Circuits -> KVL and KCL
2. Voltage dividers and op-amps
3. What a transform is
4. CTFT as it relates to La Place
5. LTI
6. DTFT
7. RC circuits and filters
And some matlab stuff at the beginning of labs because we don't really know how to use it yet.

8. The one where we had to design the DTFT in matlab

9. I think Lab 7 when we designed the first Ekg circuit.

10. Mostly too long.

11. Mostly too difficult in the beginning (Labs 1-6). After that I finally began to understand circuit design.

12. They were mostly good. Some of the matlab ones didn't make sense.

13. Have 1 or 2 labs in the beginning be a crash course in matlab and a little bit of Pspice

14. Circuits HW was about right. Signals way too hard.

15. Try to make them more connected (each problem) connected to one lesson at a time, this is hard stuff and we can't do it all at once.

6. Overall, this was by far my hardest course, which is not a bad thing. Being so hard is one of the reasons I am an ECE major, it's very interesting. But my foundation on this stuff wasn't good enough to understand the grad level course work later on. I felt like I was being asked to do some impossible things.