

ECE Curriculum Committee Meeting

Thursday, May 11th, 2023

Attending: Arabshahi , Chen, Hauck, Hussein, Hwang, Kirschen, Makhsous, Moritz, Overly, Swanson, Thomas, Van Fossen, Wilson

Minutes of April 13th, 2023: Approved

Minutes of April 27th, 2023: Approved

Consent Agenda:

1. Proposal for permanent graduate section for EE 482 (Anantram) [Postponed – No quorum]

Agenda:

1. EE 271 Lab Structure (Arabshahi)
2. Review of revisions to “Capstone Design Requirements” document (Chen) [Postponed for time]
3. Presentation of new Intro to Robotics course (Makhsous) [Postponed for time]

EE 271 Lab Structure (Arabshahi)

An issue raised by students (through the ECE Student Advisory Council) regarding the core courses in the undergraduate curriculum is that of instructional consistency, and a desire for greater consistency in how the courses are implemented from quarter to quarter. Pertaining to this concern is the use of different lab structures used in EE 271: Digital Circuits and Systems which is a Core Course in for the BSECE degree. Along with the issue of consistency, students have also expressed a desire for more “hands-on” applications in the labs, with a desire among students to “build.” With these student concerns in mind, the Core Curriculum Group recommended to the larger committee that instructors of EE 271 follow the lab structure as outlined in course Master Course Description for EE 271 which states the following:

“Laboratory: There are weekly laboratory projects. Students are loaned a laboratory kit including an FPGA board, some simple TTL chips, and supporting elements. For each laboratory, the students have to design the circuit, construct it and demonstrate it to the instructor and/or teaching assistant.”

In the Autumn 2022 offering of EE 271, a new lab structure was implemented, with the use of a “remote lab.” (Similar to the one currently used, and implemented for the past couple of academic years, in EE 371: Design of Digital Circuits and Systems.) Arabshahi brought the matter to the committee to discuss the recommendations of the Core Courses Group that instructors should consistently implement the lab structure as stated in the MCD.

- Arabshahi reviewed recent enrollment numbers in both EE 271 and EE 371 for context.
- Arabshahi reviewed lab kit costs for the physical kits.
- Hauck provided background on the evolution of the lab structure for EE 271, and how it led to the implementation outlined in the current MCD.
- Hauck stated the opinion that a change to the implementation of the lab component of a course requires a change to the MCD. Since the current MCD states that the course is to use a physical lab kit, instructors should use the physical kit.

ECE Curriculum Committee Meeting

Thursday, May 11th, 2023

- Makhsous discussed how the Core Courses Group came to its recommendation that instructors follow the implementation outlined in current EE 271 MCD.
 - Students are concerned about consistency in the core courses.
 - Students desire more “hands-on” physical building experiences.
 - The recommendation applied to courses in the core and did not pertain to courses outside the core.
- Hussein mentioned that she was unaware that there was an issue with her Autumn 2022 implementation of the lab that used the “remote lab.”
 - Her offering received good reviews.
 - Learning outcomes for the class remained the same.
 - There are no indications that the lab implementation affected those students in continuing on to being successful in EE 371.
 - The decision to change the lab implementation was made with strong consideration of pedagogical aspects.
 - The implementation strengthened aspects of the lab experience, such as verification.
 - It is her belief that the process is still a “hands-on” experience.
 - It is Hussein’s view that the MCD should be seen as a living document, and not a restriction, and that choices in how the course is taught should be more inclusive.
 - She requested a chance to present her implementation to the committee when she has a chance to be more prepared.
- Arabshahi mentioned that the MCD does not just state the lab should be “hands-on,” but actually describes components of a physical kit to be used.
- Wilson reiterated that the issue of consistency came up because of comments raised by students.
 - Swanson mentioned that discussion of the EE 271 lab came up when ECE Dept. Chair Klavins was attending the SAC town hall.
 - Hussein stated that applying “consistency” to how a course is taught gets in the way of academic freedom. It is her belief that student feedback should be strongly considered, but that there need to be limits and that faculty have far more experience to determine final methods used in a course.
 - In the end, it is the outcomes that matter.
- Arabshahi stated his belief that there are a lot of cases since the start of the pandemic where students have not had a chance to physically build things.
 - Hussein reiterated her view that her lab was still “hands on,” and that it is just implemented differently.
- Kirschen stated that it is the belief among a large number of the faculty that physical labs are important. Also, the committee is looking at the consistency of the core courses and how they are delivered.
- Wilson wondered if a hybrid model could be used, with physical kits for a portion of the labs, and remote for others.
 - Arabshahi asked Hauck if such a hybrid approach would work.

ECE Curriculum Committee Meeting

Thursday, May 11th, 2023

- Hauck replied if students did the first 5 to 6 labs with physical kits and the last couple using the remote implementation, that could still be consistent with the course objectives.
- Arabshahi mentioned that the issue needed to be resolved by the Autumn 2024 quarter when Hussein will again be the instructor for EE 271.
- With the meeting's time running out, Arabshahi recommended that the committee meet again, and that Hussein have a chance to present to the committee so members can have a stronger understanding of her implementation.

Meeting complete, with the committee agreeing on further discussion in a subsequent meeting.