Resolution about ECE Core Courses

Resolution of intent

Your ECE Curriculum Committee (members: Tangul Basar, Stephen Bishop, Nikita Borisov, Patrick Chapman, Brian Cunningham, Matthew Frank, Seth Hutchinson, Wen-Mei Hwu, Jianming Jin, Douglas Jones, Erhan Kudeki, Stephen Levinson, Chang Liu, Michael Oelze, Ada Poon, Naresh Shanbhag, Richard Sproat, Pramod Viswanath, and Bruce Wheeler) adopts the following resolution

> All ECE core (required) and advanced core (select from a list) courses in the Electrical Engineering and Computer Engineering curricula, other than the capstone design courses (ECE 411 and 445) should be, both in course number and in content, aimed at junior-level (or earlier) students and targeted at the students who will NOT necessarily specialize in that area.

Rationale

Given the breadth of our discipline and its continued rapid expansion, we can no longer hope that our undergraduates can learn everything that might be useful in any possible electrical or computer engineering career. Thus,

- Our core and advanced core courses (since they're required of all or the majority of our students) should focus only on basic, fundamental material relevant to the success of **most** electrical or computer engineers in their careers.
- Our students select from dozens of more specialized technical electives in preparation for hundreds of distinct career paths, so any courses required of all or most students should target the material of use to the vast majority of students in the course who will NOT specialize in that area. (Those specializing in the area will take further technical electives to gain the specialized knowledge needed for that particular field.)
- Foundational courses required of all or most students should be prerequisites for more advanced and specialized technical electives, so they should be aimed at junior-level students or earlier to give them the opportunity to build on this knowledge in subsequent courses.

Current progress and future plans

Recent or planned course revisions from several areas (for example, the changes of ECE 413 to ECE 313 and ECE 461 to 361 in the Communications area) reflect widespread, spontaneous sentiment across the department for change in this direction. The Curriculum Committee believes that a proactive, coordinated effort to review, revise, and reposition our Core and Advanced Core courses in both curricula will yield stronger curricula than either the status quo or piecemeal change. The Curriculum Committee is currently drafting a consensus list of core material considered essential to the curricula, and will use this as a guideline for assessing both the content of our core courses and which courses (and with what revisions) should be in the Core and Advanced Core.

Courses possibly affected

"R" means currently required, "AC" means "advanced core".

Required first-year courses

- ECE 110 (R CompE, R EE)
- ECE 190 (R CompE, R EE)

Required second-year courses

- ECE 210 (R CompE, R EE)
- ECE 290 (R CompE, R EE)
- CS 225 (R CompE, AC EE)

Required third and fourth-year courses (excluding capstone design courses)

- ECE 329 (R CompE, R EE)
- ECE 385 (R CompE, R EE)
- ECE 440 (R CompE, R EE)
- ECE 313 (R CompE, R EE)
- ECE 391 (R CompE, AC EE)

Advanced core (third or fourth year)

- ECE 410 (AC EE)
- ECE 430 (AC EE)
- ECE 442 (AC EE)
- ECE 450 (AC EE)

Any courses we might choose to add to the required list or advanced core.

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