

**From:** ECE Curriculum Committee

**To:** ECE Faculty

**Re:** Plans for EE and Comp E curricula revisions

Your colleagues on the ECE Curriculum Committee (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) has been hard at work reviewing our curricula and considering how we might improve them. Several areas for improvement or concerns have been identified, including gaps between the 200-level courses in the "ECE core" and our mostly 400-level "advanced core" courses (such as the "3-of-5 list"), over-specialization of the material in the advanced core courses, and gradual drift in the content of required courses or accretion of additional material that may result in gaps, over-specialization, or a workload inconsistent with the credit hours given. A number of you have expressed similar concerns, and several faculty and areas (such as the Communications area) have already begun revising courses to address these concerns. Considerable discussion and reflection has produced a strong consensus within the Curriculum Committee, reflected in the following resolution, which will guide our curricula revision efforts next year.

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.

Our rationale is as follows: 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.

Recent or planned course revisions from several areas (for example, the changes of ECE 413 to ECE 313 and the new ECE 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.

Your Curriculum Committee looks forward to working with the area committees, course directors, and

instructors as we together evaluate and revise our departmental core curricula and courses. We encourage the participation of all faculty in this process; please share your thoughts, ideas, and concerns with any of your colleagues on the Curriculum Committee, or join us at our meetings. All of our agenda, minutes, and working documents are instantly accessible to all ECE faculty on the Curriculum Committee webpage <http://my.ece.uiuc.edu/currcmte>, and we look forward to engaging you in the vital task of renewing our curricula.

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