

Memorandum

To: EE Faculty  
Cc: Dean Murthy

From: Greg Pottie, Chair, UCLA EE Department

Date: 1/6/15

Re: Proposed Department Name Change to Electrical and Computer Engineering

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At last spring's mini-retreat it was suggested that we investigate changing the name of the Department and its degree programs to Electrical and Computer Engineering. It received a supportive response at the time from those present. This idea has subsequently been informally discussed with several colleagues, also with a supportive response. It has been conveyed to the Chair of the CS department to solicit concerns from their perspective. The following memo outlines the major reasons why I believe such a change is now both desirable and urgent, and some that explain why it has been approached cautiously.

The EE Department is pursuing several initiatives to make its undergraduate program more attractive to prospective qualified freshmen and transfer students, and to students already in the major. It is imperative that the number of undergraduates grows from its present number (88 in Fall 2015) back towards having an upper division class size in the range of 180-200 students. This will yield a better balance between our undergraduate and graduate student population and allow EE to contribute to the increased enrollment being demanded of HSSEAS. It will also in part justify faculty FTE for the Department. We are pursuing initiatives such as exporting our courses to community college partners (to increase the pool of qualified transfer students) and improving retention of students admitted to EE via more hands-on training in courses and extracurricular activities, the new honors/fast track program, as well as an increased focus on providing internship and research opportunities. We will also be improving our outreach including a revamped approach to the recruitment leading up to and including Open House. However, to increase the pool of freshmen admits, it is argued that a further step is required: changing the name of the Department and the degree program to Electrical and Computer Engineering.

High school students will pick programs based upon degree titles. Right now, all of our UC peers have "computer" in the degree titles, either in EECS or ECE (along with USC). Our distinction raises the question of the "friendliness" of our program towards computer engineering. Even if we do a better job of advertising the ways students can pursue a focus area in computer engineering, the title of the degree will be a barrier. The impact of the change will be to steer good students who might otherwise go to other UC ECE departments or USC to instead come to UCLA. For a point of reference, when we first established the computer engineering "option" in the 1990s, up to 40% of our students pursued it. But this was in part by shifting students who had applied to CS to us. This is no longer being done at the School level, and so we must capture the applicants directly.

It is only by attracting such students that we can reasonably expect to meet the enrollment growth targets without reducing student quality.

Some changes in the undergraduate curriculum will be needed to make the computer engineering component more visible. In particular the sequence M16 (digital logic), CS 33 (assembly programming), M116C (computer architecture) and M116L (computer lab) needs to be reformed to have theory and practice side by side, give students the programming experience they need for jobs and research, and prepare students for more challenging embedded systems capstone design experiences. The current structure is essentially a clone of computer engineering from the CSE program as it existed in the 1990s; it is well past time to offer a streamlined modern version. It should be stressed that this is something we will pursue regardless of changing the Department name; but such changes will enhance the recruitment appeal and the retention of students. We will also be explicit in giving students interested in CE two paths within EE (making use of a CS TBA): one focused on embedded systems, and the other on data processing and management. Thus we will make CE more visible with relatively modest changes that maintain a single, broad undergraduate degree.

The name change will also improve our graduate recruiting prospects. There are many examples of strong EE students taking their degree and applying to CS programs. A name change, accompanied by changes in the descriptions of our courses to highlight how they already contribute to current hot research topics in information processing and embedded systems could help us to divert some of that flow back to EE. As a reference point, in the past year the take rate for S&S offers went up. Many of these students are customizing their course sets to emphasize big data processing.

There have been concerns on the impact of a name change on the CS department, and in particular on its undergraduate CSE degree. However, we are now in a situation where there are in excess of 7000 freshmen applicants to CS vs. 1500 to EE. CS is overwhelmed with undergraduate students, and has little room to further increase enrollment over the short time frame in which it is required. Given that we are not establishing a new degree program to explicitly compete with CSE, but rather continuing with an EE-centric curriculum, we will be drawing from a distinct pool of applicants. Increased EE enrollment will result in more students in CS programming courses, and in students who pursue CS TBA's. But the impact of this is far less than admitting more CS students. Thus, the change is opportune in that future instructional burden can be shifted to the EE department.

From the EE side, there are also concerns about how a name change affects our identity as electrical engineers (both faculty and students). It is understandable that some colleagues will be opposed to taking this step. I was personally resistant to making the change on these grounds and also to avoid potential upsets in relations with CS, but now believe the practical imperatives require it. Therefore, there will be a full discussion of the merits at the upcoming faculty meeting on January 13. Any faculty member (or group of faculty) who wish to circulate a memo arguing for retention of the current name are encouraged to do so in advance of the vote that will be held later this month.