

Curricular Affairs Committee of the Faculty Senate

MEMO

To: The UVM Faculty Senate

From: Curricular Affairs Committee of the Faculty Senate, Colby Kervick, Co-Chair

Date: December 7, 2023

Re: Approval of a Proposal from College of Engineering and Mathematics to Change the Name of the Electrical Engineering (EE) program to Electrical and Computer Engineering (ECE) and to Create a New Computer Engineering course prefix (CMPE)

On December 7, 2023 the Curricular Affairs Committee approved the actions recommended in the following memo.

The Curricular Affairs Committee unanimously approved a proposal from the Electrical and Biomedical Engineering Department (EBE) in the College of Engineering and Mathematics to change the name of their Electrical Engineering (EE) program to Electrical and Computer Engineering (ECE). Over the last several years the program has grown with the addition of themes (Power/Energy, Automation, and Semiconductor/Computers) that describe the breadth of the discipline and better prepare students for careers in the field.

The Electrical Engineering (EE) program offers an undergraduate curriculum that covers the fundamentals needed to pursue careers and advanced studies in the various subfields that make up the breadth of the discipline. The EE major includes elective “themes” which are currently: (1) Power/Energy, (2) Automation, and (3) Semiconductor/Computers. Each theme has strong faculty research interests:

| Energy Systems | Autonomous Systems | Computer Engineering |
|-----------------------|---------------------------|------------------------------|
| Almassalkhi | Duffaut Espinosa | Anderson |
| Chevalier | Frolik | Gallagher |
| Pandey | Kay | Xia |
| | Ossareh | Other CS and Physics faculty |

To better describe its current program the Electrical and Biomedical Engineering Department (EBE) proposes to change its program name from Electrical Engineering to the Electrical and Computer Engineering (ECE). As documented, the department has “... been providing “computer engineering” instruction, we wish now to have our program reflect that”. The faculty within the EE program are internationally recognized for their expertise in areas that are heavily involved in Computer Engineering (CompE) as well as EE, but this is not well-known to the campus community or prospective students.

Additionally, the CAC approved the request for the creation of a new course prefix (CMPE) to better identify computer engineering courses that would be of interest to students in other majors. The Computer Engineering theme leverages foundations of analog and digital circuits and augments that with chip design, embedded program, and computer architectures. Many of these topics are already taught by faculty in the EE Program, but others (e.g., computer architecture and computer networks) are taught by faculty in Computer Science. Thus, to better identify these “computer engineering” courses, EBE proposes creating a new course prefix “CMPE”. The use of the CMPE prefix will highlight computer engineering courses that students from both EE and Computer Science may wish to take. These include:

| Course Title | Existing Prefix and Number | New Prefix and Number | Delete (no part in new curriculum) | Crosslist Number |
|--------------------------------|-----------------------------------|------------------------------|---|-------------------------|
| Fundamentals of Digital Design | EE 2810 | CMPE 2810 | X | |
| Embedded Programming in C | EE 2830 | CMPE 2810 | X | |
| Microcontroller Systems | EE 3815 | CMPE 3815 | X | |
| Digital VLSI Circuit Design | | CMPE 5410 | | EE 5410 |
| Digital Computer Design I | | CMPE 5810 | | EE 5810 |
| Real-time Control Systems | | CMPE 5540 | | EE 5440 |

The proposers note there is synergy with the expertise in the department of Computer Science and that increasing interactions are occurring with many excited about the prospect of computer engineering being highlighted at UVM. A letter of support from Dr. Christian Skalka (Chair of Computer Science) echo's these sentiments as well as supporting the program name change and the new prefix creation.

The Registrar confirmed that both ECE and CMPE were available. The CEMS Curriculum Committee voted unanimously to support both changes and the College also approved (37 for, 2 against and 4 abstain). There were no public comments submitted while the proposal circulated.

In summary, changing the undergraduate program name from Electrical Engineering to the Electrical and Computer Engineering (ECE) will only serve to highlight to prospective students the breadth of the program being offered by EBE. Similarly, the creation of a new prefix (CMPE) will make it easier for students in other majors (most likely CS) to identify engaging and appropriate courses for electives. The CAC reviewed the proposal and the supporting documents and has approved the new course prefix and recommend the Faculty Senate approve the program name change request.