

Engineering Faculty Document No. EFD 44-22
January 18, 2022

Memorandum

To: The College of Engineering Faculty**From:** The Elmore Family School of Electrical and Computer Engineering**Re:** new Software Engineering Concentration

The faculty of the Elmore Family School of Electrical and Computer Engineering has approved the following new concentration from the College of Engineering. This action is now submitted to the Engineering Faculty with a recommendation for approval.

Description: The Software Engineering Concentration prepares students to work in software-oriented jobs or research areas. It covers topics in software engineering (how do you build good software) and software tools (what modern frameworks do software developers need to know), as well as electives that give students an opportunity to hone their software development skills.

Reasons: Increasingly, students taking the BSCmpE are not choosing to enter “core” computer engineering fields (embedded systems, hardware design) but instead are pursuing opportunities in the software field. In fact, a significant fraction of our students pursue jobs in software development. This concentration gives them an opportunity to build up a catalog of skills relevant to software development, as well as a portfolio of software projects they can highlight when searching for jobs or graduate school positions.



Milind Kulkarni
Associate Head of Teaching and Learning
Professor of Electrical and Computer Engineering

Concentration in Software Engineering for the Bachelor of Science in Computer Engineering

Proposing [Sub]area

This is proposed by Milind Kulkarni, after discussions with faculty in the research areas of Computer Engineering (broadly construed)

Target Degree

It will apply to the BSCmpE degree.

Concentration Requirements

Core: Required

ECE 39595 Software Engineering Tools (1 credit)

Selectives:

- ECE 46100 Software Engineering (3 credits) or
ECE 59500 Advanced Software Engineering (3 credits)
- ECE 49595 Open Source Software Senior Design (4 credits)
- With approval of the Associate Head of Undergraduate Programs or Associate Head of Teaching and Learning, can include up to 3 hours of:
 - VIP 37920 (2 credits)
 - VIP 47920 (2 credits)
 - ECE 49600 (1-3 credits)

Electives:

Take at least one of the following courses:

- ECE 30862 Object-Oriented Programming in C++ and Java (3 credits)
- ECE 46800 Introduction to Compilers and Translation Engineering (4 credits) or
ECE 57300 Compilers and Translator Writing Systems (3 credits)
- ECE 46900 Operating Systems Engineering (4 credits)
- ECE 40400 Introduction to Computer Security (3 credits)
- ECE 59500 Applied Algorithms (3 credits)
- With approval of the Associate Head of Undergraduate Programs or Associate Head of Teaching and Learning, can include up to 3 hours of:
 - VIP 37920 (2 credits)
 - VIP 47920 (2 credits)
 - ECE 49600 (1-3 credits)

Note: VIP and/or Research can only be used to satisfy a Selective or an Elective requirement, and may not be used for both.