Progress Report to Advisory Board

Undergraduate Program Update

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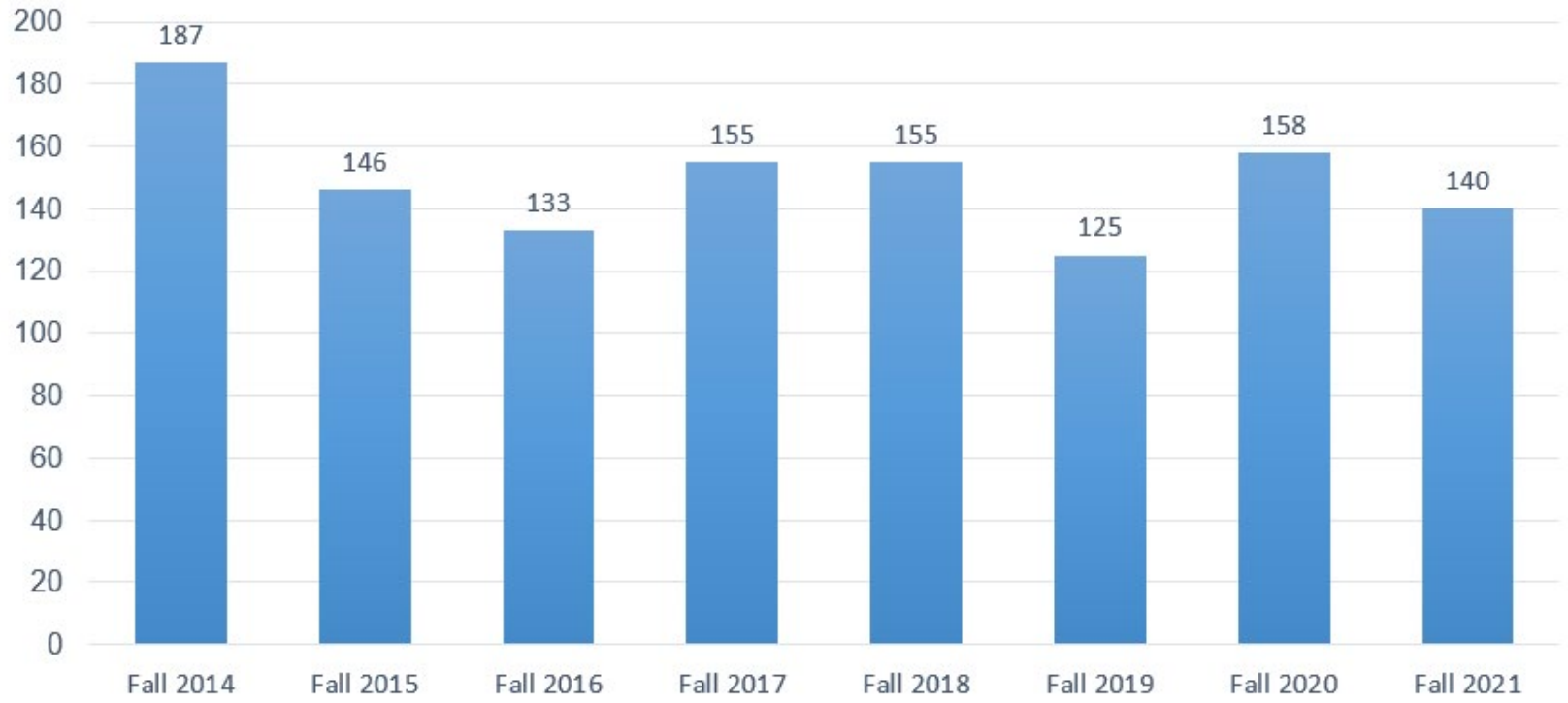
December 10, 2021

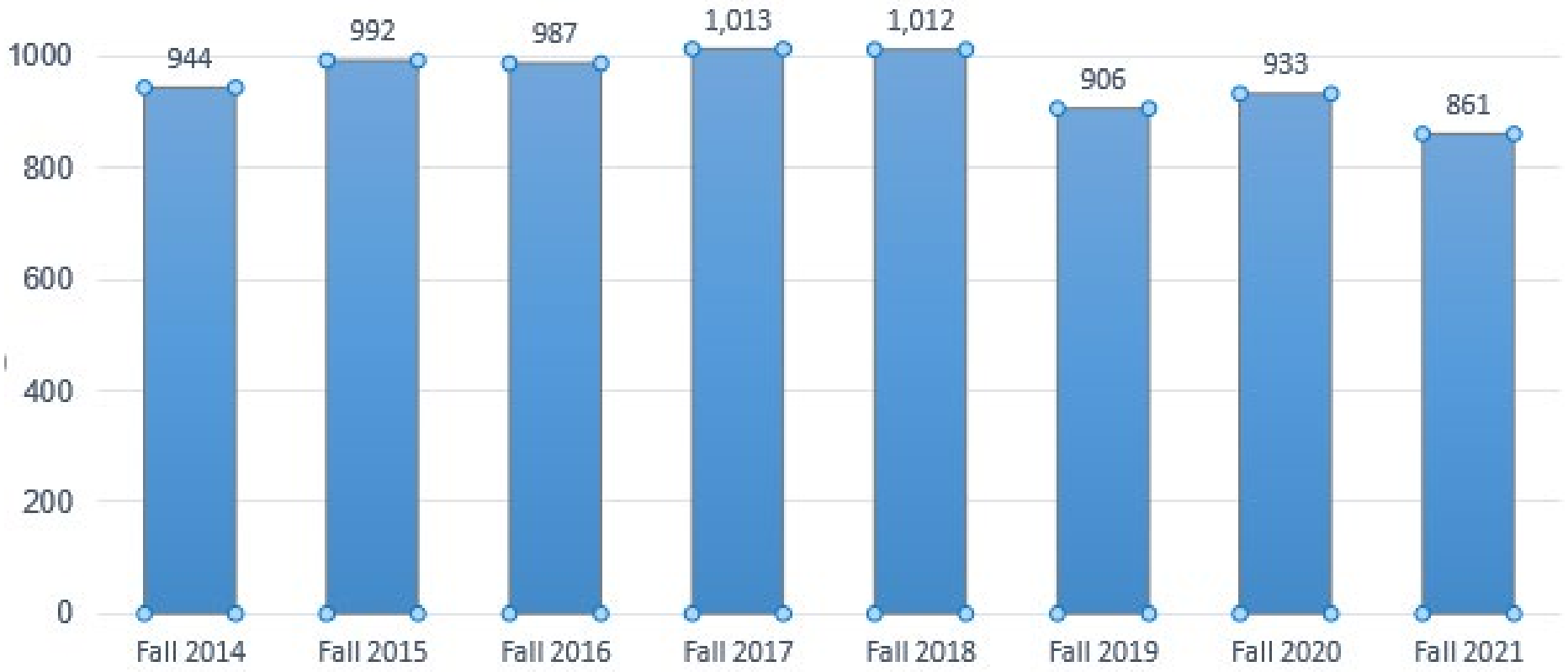
ECE New Freshmen

- Fall 2021 entering freshmen: 140 students
  173 new students including transfers



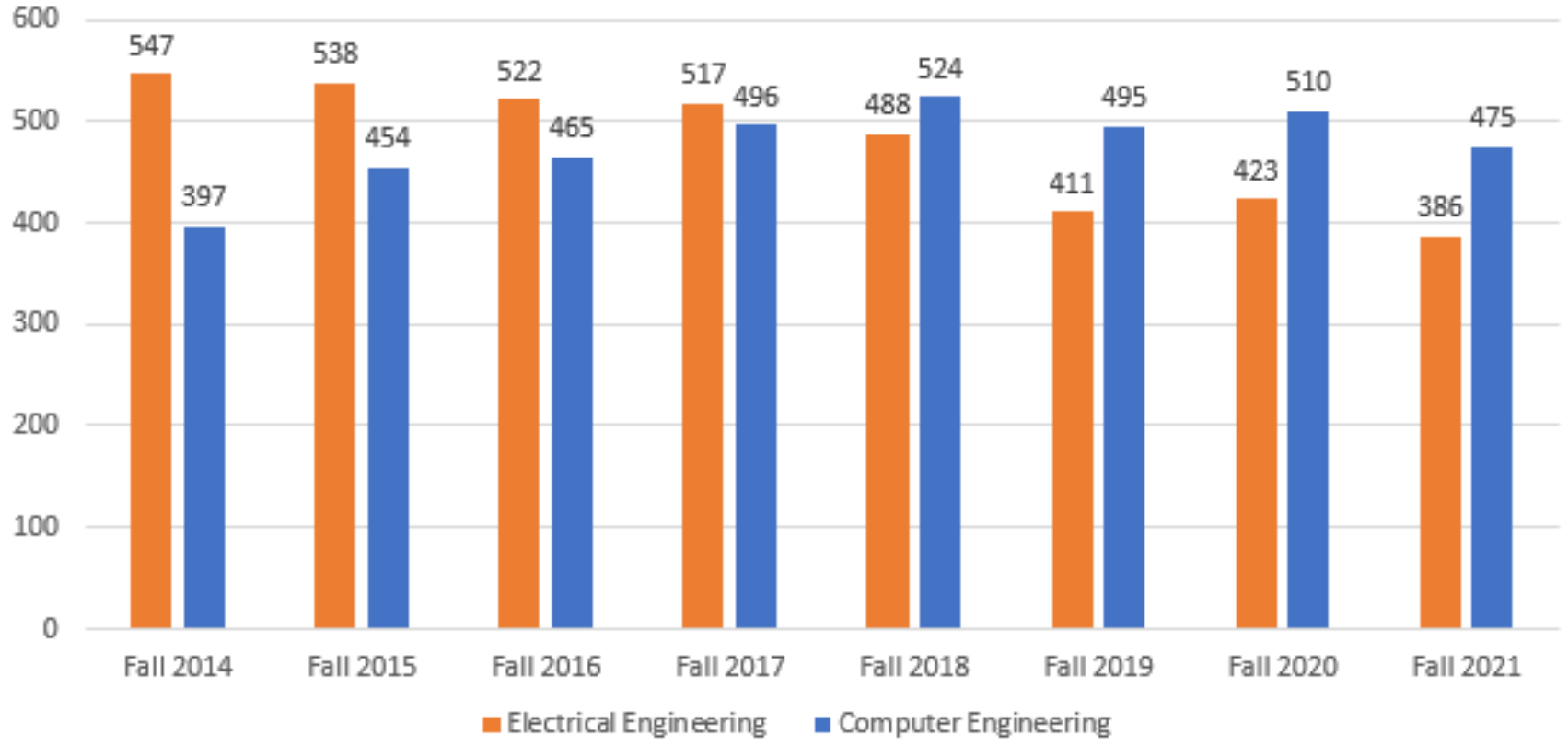
ECE Undergraduate Enrollments

- Total enrollment has decreased due to pandemic



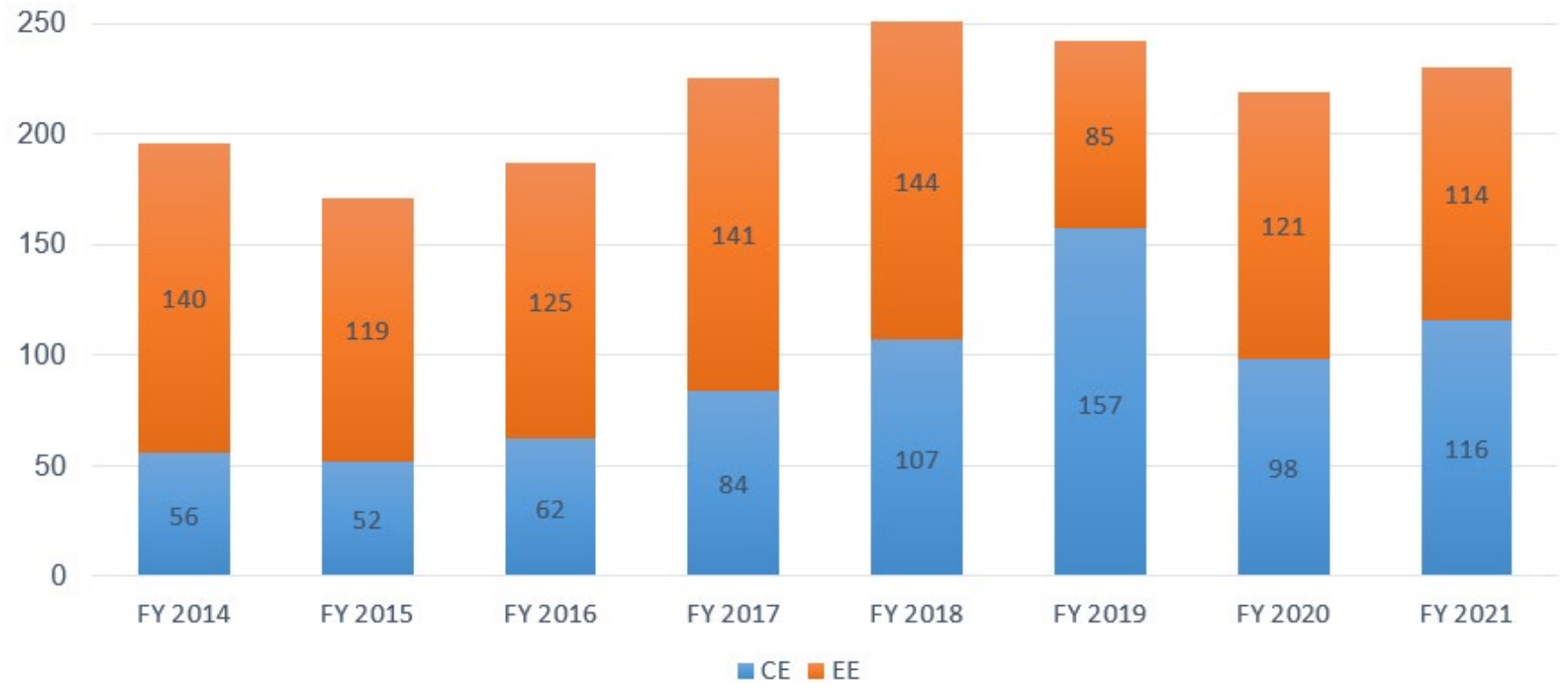
Undergraduate Enrollment Breakdown

- More Computer Engineers than Electrical Engineers



ECE Graduates

- Attrition is higher for Computer Engineering
- We're still graduating a healthy number of students



EE Curriculum Revision

- New curriculum will give more flexibility to students
- Passed the ECE faculty vote in June 2021
- Transitioned to implementation phase
  - Working with faculty to fill in details on new courses

ENEE 290 – ECE Math course
Linear algebra, Differential equations, and Complex numbers

ENEE 222 – Signal and System Theory
Remove LA, add Fourier Series

ENEE 323 – Signals and Systems
Added a laboratory

ENEE 304 – Intro to Micro and Nanoelectronics
Combine circuits and devices

ENEE 305 – Micro and Nanoelectronics Laboratory
Add device-related labs

ENEE 382 – Electromagnetics
Combine statics and waves

- Submit to PCC committee by end of Fall semester

New 400-level Courses and CE Instructors

- Very few computer-focused technical electives
  - ENEE 436 – Foundations of Machine Learning
  - ENEE 440 – Microprocessors
  - ENEE 457 – Computer Systems Security
  - ENEE 459V – Intro to Embedded Systems
- Created two new electives from graduate courses
  - ENEE 459C – Digital CMOS VLSI Design Methods (Spring 2022)
    Derived from ENEE 640
  - ENEE 459X – Parallel Algorithms (Fall 2022)
    Derived from ENEE 651

New 400-level Courses and CE Instructors

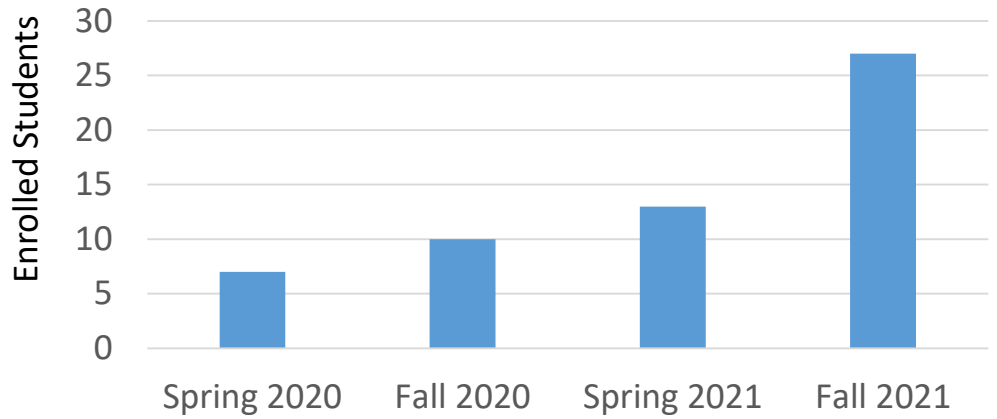
- Not enough capstone design options for CE students
  - Recently created ENEE 408M – Embedded Software Design, but still insufficient
  - Opening up more seats in existing courses, and relaxing pre-reqs when not absolutely needed
- Problem: not enough Computer Engineering instructors
  - Recent departures have really hurt (two TTK faculty and one full-time lecturer)
- Trying to hire in Spring 2022
  - Searching for a full-time lecturer
  - Searching for an assistant professor

ECE Honors Program

- Old honors program emphasized academic courses
- New honors program
  - Academic preparation (6 credits)
    - H or graduate courses
  - Experiential learning (at least 3 credits)
    - Research project
  - Service learning
    - ENEE 396 – Leadership, Creativity and Service course
    - Undergraduate Teaching Fellow, tutoring, *etc*.
- Currently under review at the college PCC
  - Approval in Spring 2022
  - Available to students in Fall 2022

Academy of Machine Learning (AML)

- AML launch was in Spring 2020
  - Started with 7 students; enrollment is now at 27 students



  - There are 13 applicants so far for Spring 2022
  - Some students reluctant to take on additional credits
- ENEE 439D – Design Experience in Machine Learning
  - Has been very successful at attracting industry support for projects

Quantum Education

- There has been significant investment in quantum research
  - Expect education programs as well
- A Quantum Science and Technology Education (QSTE) committee has been formed
  - Involves participants from several departments, including ECE, Physics, CS, ME, and MSE.
  - The committee is being led by ECE Professor Pat O'Shea
- Goal: develop a multi-departmental undergraduate minor, and a professional MS program
  - Resources are being requested for staff and lab facilities to support the QSTE programs
  - The hope was to have the undergrad minor in place by Fall 2022
  - But progress has been slow so far

Questions?