Progress Report to Advisory Board

Undergraduate Education

Don Yeung, Associate Chair for Undergraduate Education
Kathryn Weiland, Director of Undergraduate Studies

- Electrical Engineering Curriculum Revision
- Senior-level Computer Engineering Courses
- Advising and Mentoring

EE Curriculum Revision Committee

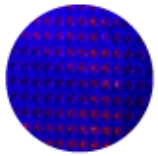
- Committee chaired by Professors Neil Goldsman and Richard La
  - Pamela Abshire
  - Tom Antonsen
  - Shuvra Bhattacharyya
  - Carol Espy-Wilson
  - Nuno Martins
  - Tom Murphy
  - Andre Tits
  - Don Yeung
- Goals:
  - Modernize curriculum
  - Reduce requirements, allow flexibility (reduce breadth)
  - Area Tracks: Allow more depth / specialization in yrs 3 & 4

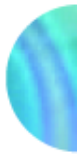
Major Changes (1)

- One 4 credit ECE Math course in 2nd year
  - Linear algebra
  - Differential equations
  - Some complex numbers and variables
  - Replaces MATH 246: Differential Equations

  - Provides better math preparation for 300-level courses

Major Changes (2)





- Tracks: Microelectronics, Systems, and Electrophysics
  - One required 300-level course in each area for all EE majors
    ENEE30X (ENEE 303/313), ENEE 32X (ENEE 322), ENEE 38X (ENEE 380/381)
  - "Possible" two versions of some 300-level courses
  - Each group will decide whether to offer two versions or just a single version
  - Probability and Statistics: Possible Two Versions: 324 (Sys) and 324 (ME/EP)

Major Changes (3)

- Track concept continues into EE technical electives
  - Minimum of 26 credits for every track (currently 25 credits)
    At least 20 credits must be ENEE courses (currently 13 credits)
  - 6 credits can be non-EE
- Greater depth enabled by reducing Gen-Tech electives
  - No more 400-level MATH elective
  - Total Gen-Tech electives (non-math) reduced from 3 to 1

- Gen-Ed requirement reduced from 5 to 4, using ENEE 200

Breakdown of Credits

- Basic Science + Math: eight (8) courses for 30 credits
  - Chem 135 (3), Phys 1 – 3 (11), Calculus 1 – 3 (12), ECE Math (4)
- Five (5) Gen. Ed. courses, including ENEE 200 (Engr. Ethics): 15 credits
- Two (2) English courses: 6 credits (ENGL 101 and ENGL 393)
- One (1) ENES course: 3 credits (ENES 100)
- "Required" ENEE courses: eleven (11) courses for 37 credits
  - 1st year: 6 credits – 101 (3), 150 (3)
  - 2nd year:13 credits – 2xx (1), 20X (4), 22X (4), 24X (4)
  - 3rd year:18 credits – 30X(4), 32X (4), 38X (4), 324S (3)/324M-E (3), 350 (3)
- ENEE electives for track: minimum 26 credits, at least 20 credits in ENEE, including one (1) capstone design (3 credits) and one (1) lab (2 credits)

  One (1) non-EE 400-level Tech. Electives (3 credits)

- Total credits: 120+ credits

400-Level Computer Engineering Courses

- The new Computer Engineering requirements started in Fall 2019
  - Eliminated ENEE 307
  - Made ENEE 303 or ENEE 322 a choice
  - Created 5 credits for more 400-level courses
- Currently very few ENEE electives specific to Computer Engineering
  - ENEE 440 Microprocessors
  - ENEE 457 Computer Security
  - ENEE 439M Machine Learning

New 400-level Courses

- Adding 3 ENEE Technical Electives:
  - ENEE 459V Intro to Embedded Systems
  - ENEE 44X Intro to VLSI Design
  - ENEE 459X System-on-Chip Design
- Adding 1 new capstone design:
  - ENEE 408M – Embedded Software Design
- Adding 1 new advanced lab:
  - ENEE 459D – Design and Testing w/ Systems Verilog

Undergraduate Advising

- Director, 2 Full-time Advisors, 1 Graduate Assistant Advisor, Program Coordinator
- Only department in the Clark School with 2 majors
  - Minor in Computer Engineering
  - Academy of Machine Learning

- Group Advising for first-year students in the fall semesters
- Transitioned to virtual advising in March 2020

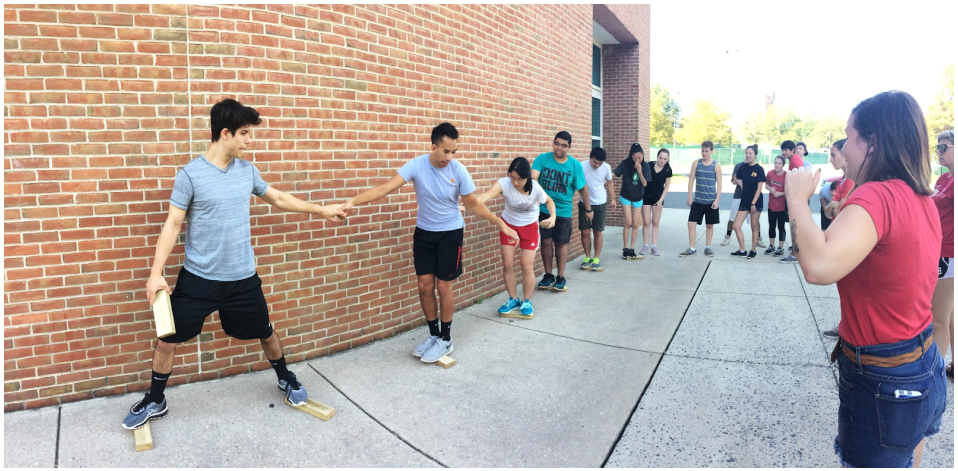
ECE Peer Mentoring

- Currently sponsored by Texas Instruments
- 21 Peer Mentors, 31 Mentees, 3 Leadership Team Members
- Past Events
  - UMD Challenge Course
  - Resume & Cover Letter Critique Night
  - Game Nights
  - Escape Room Team Challenge
  - Ice Cream Social
  - Internships/Co-Ops 101
  - Study Abroad Info Session
  - End of the Year Celebration Dinner

ECE Peer Mentoring

"I liked building a relationship with me mentee and getting to hear about their experience. Lots of my mentee's questions and problems reminded me of the things I went through as a freshman. I enjoyed being able to pass on knowledge to make my mentee feel supported."

- 2019 Peer Mentor



"I felt like I had someone to rely on, and I thought my peer mentor was very knowledgeable. I liked that I was able to receive advice from someone who had already taken the classes I was taking."

- 2019 Peer Mentee