CpE Technical Requirements

Courses that satisfy CpE technical electives are shown below. Four courses (12 credits) must be taken, one of which must meet the Probability and Statistics requirement[5]

Course	Course Title	Semester Offered[1]	Pre-requisites[2]
BIOE 3700[3]	Bioinstrumentation and Bioimaging	Fall & Spring	MATH 2080 and ECE 2020 or ECE 2070; Co-req BIOE 3701
BIOE 4310[3]	Medical Imaging	Infrequent	MATH 2080 and ECE 2020 or ECE 2070; Prereq or concurrent enrollment BIOE 3700
BIOE 4350[3]	Computer Modeling of Multiphysics Problems	Fall	MATH 2080
BIOE 4710[3]	Biophotonics	Fall	MATH 2080, PHYS 2210, and ECE 2020 or ECE 2070
ECE 3210[3]	Electronics II	Fall, Spring & Summer	ECE 3200[2]
ECE 4100	Industrial Control and Automation in ECE	Spring	ECE 4090[2]
ECE 4160	Smart Grid	Spring	SR standing
ECE 4270[5]	Communications Systems	Fall, Spring & Summer	ECE 3170[2] and ECE 3300[2]
ECE 4290	Organization of Computers	Infrequent	ECE 2720[2]
ECE 4300[5]	Digital Communications	Infrequent	ECE 3170[2], ECE 3300[2] and consent of instructor
ECE 4310	Introduction to Computer Vision	Fall	ECE 2230[2]
ECE 4380	Computer Communications	Spring & Summer	Senior standing
ECE 4400[5]	Performance Analysis of Local Computer Networks	Spring	ECE 2720[2] and ECE 3170[2]
ECE 4420	Knowledge Engineering	Fall	ECE 3170[2] or MATH 4000[2] or STAT 3090[2]
ECE 4490	Computer Network Security	Fall	Senior standing; Co-req ECE 4491
ECE 4550	Robot Manipulators	Summer	MATH 2060[2] and MATH 3110[2]
ECE 4590[3]	Integrated Circuit Design	Fall	ECE 3200[2] ; Co-req ECE 4591
ECE 4670	Introduction to Digital Signal Processing	Fall	ECE 3300[2]
ECE 4680	Embedded Computing	Spring	ECE 2230[2] and ECE 3710[2]; Co-req ECE 4681
ECE 4730	Introduction to Parallel Systems	Fall	ECE 3220[2] or ECE 3290[2]
ECE 4740	Fault Tolerance & Reliability in High Performance Computing	Infrequent	ECE 3220[2] or ECE 3290[2]; ECE 4730 recommended
Other Course Options			
ECE 4050[4]	Design Projects	Fall & Spring	ECE 3300[2] or ECE 4090[2] and consent of project supervisor
ECE 4910[4]	Undergraduate Honors Research	Fall & Spring	Consent of faculty member/mentor
ECE 4920[4]	Special Problems	Fall & Spring	Consent of faculty member/mentor
ECE 4930[4]	Selected Topics	Fall & Spring	Consent of instructor
ECE 4980[4]	Research in Electrification of Transportation	Fall & Spring	Consent of faculty member/mentor
ECE 4990[4]	Creative Inquiry	Fall & Spring	Consent of faculty member/mentor

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ECE 4270[5]	Communications Systems	Fall, Spring & Summer	ECE 3170[2] and ECE 3300[2]
ECE 4300[5]	Digital Communications	Infrequent	ECE 3170[2], ECE 3300[2] and consent of instructor
ECE 4400[5]	Performance Analysis of Local Computer Networks	Spring	ECE 2720[2] and ECE 3170[2]

[1] *Semesters offered may be subject to change. Courses may be cancelled due to low enrollment.*

[2] A student can enroll in ECE courses (excluding ECE 2070, 2080, 3080) only when all prerequisites have been passed with a grade of C or better.

[3] No more than 2 courses (6 credits) collectively from the Biomedical Systems and Electronics areas can be used to satisfy Technical Elective Requirements.

[4] A maximum of 3 credits from all courses listed under **Other Course Options** may be used to satisfy a Technical Elective Requirement.

[5] ECE 4270, ECE 4300, and ECE 4400 meet the probability and statistics requirement. Although these courses can also be taken as technical elective requirements, **no double counting** is permitted between the prob/stats requirement and the technical requirements.

Additional courses permissible but not scheduled: ECE 4600 (Computer-Aided Analysis and Design)

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