

Computer Engineering: VLSI and Integrated Circuits Concentration
Technical Electives
Degree Total: 4-8 credits

Course Number	Course Title	Credits	Prerequisites	Terms
ECE 4XX	Any ECE course at the 400 level	3-4	Varies - check course description for details	F, S
ECE 495 ¹	Independent Study	1-3		F, S, SS
ECE 520	Optimization Methods-Control and Communication	3	DSCI369 or MATH369; MATH 317	S
ECE/CS 528 ²	Embedded Systems and Machine Learning	4	ECE251 with a C or higher	F
ECE 534	Analog IC Design	4	ECE332 with a C or higher	As needed
ECE 536	RF Integrated Circuit Design	3	ECE332	F, Even
ECE 538	Design & Analysis of Analog Digital Interface Circ	3	ECE312 with a C or higher; ECE332 with a C or higher; ECE451 with a C or higher	As needed
ECE 541	Applied Electromagnetics	3	ECE342 with a C or higher or ECE340 with a C or higher	F, Even
ECE 544	Silicon Photonics for Computing Systems	3	PH141; ECE303 with a C or higher	F
ECE 545	FPGA Signal Processing/Software-Defined Radio	3	ECE312 with a C or higher; ECE451 with a C or higher	S, Odd
ECE 554	Computer Architecture	3	ECE452	S, Even
ECE 558	Manycore System Design Using Machine Learning	3	ECE452 with a C or higher	F
ECE/CS 561	Hardware/Software Design of Embedded Systems	4	ECE251 with a C or higher or ECE452	S, Odd
ECE 571	VLSI System Design I	4	ECE451	S
MATH 450	Introduction to Numerical Analysis I	3	CS150B or CS152 or CS163 or CS164 or CS165 or CS253 or MATH151; MATH 261	F
MATH 451	Introduction to Numerical Analysis II	3	CS150B or CS152 or CS163 or CS164 or CS165 or CS253 or MATH151; MATH340 or MATH345	S
STAT 421	Introduction to Stochastic Processes	3	MATH229 or MATH369; STAT420 (will substitute ECE303/STAT303 for STAT420)	S

¹A total of 3 credits of Independent Study may apply towards degree requirements. This includes credits awarded for ECE395 and ECE495 combined.

²ECE 528 may count as a Technical Elective ONLY when CS 356 is also taken. CS 356 will be applied to toward the major requirement. The course cannot count as credit toward both major and technical elective requirements.