Computer Engineering: Networks and Data Concentration
Technical Electives
Degree Total: 7-10 credits

Course Number	Course Title	Credits	Prerequisites	Terms
CS 314	Software Engineering	3	CS214 with a C or higher or CS253 with a C or higher	F, S
CS 345	Machine Learning Foundations and Practice	3	CS220 with a C or higher; CS150B with a C or higher or CS152 with a C or higher or CS165 with a C or higher; MATH159 with a C or higher or MATH160 with a C or higher; ECE303/STAT 303 with a C or higher	F, S
CS 370	Operating Systems	3	CS165 with a C or higher; ECE251 with a C or higher	F, S
CS 420	Introduction to Analysis of Algorithms	4	CS320 with a C or higher	F
CS 435	Introduction to Big Data	4	CS320 with a C or higher or CS370 with a C or higher	F
CS 440	Introduction to Artificial Intelligence	4	CS345 with a C or higher; CS320 with a C or higher	F
CS 445	Introduction to Machine Learning	4	CS165 with a C or higher; CS345 with a C or higher; MATH369 or DSCI369 with a C or higher or MATH229 with a C or higher	S
CS 455	Introduction to Distributed Systems	4	CS370 with a C or higher	S
CS 456	Modern CyberSecurity	4	CS356 with a C or higher	F
CS 458	Blockchain Principles and Applications	4	CS314 with a C or higher	S
CS 462	Engaging in Virtual Worlds	4	CS214 with a C or higher or CS253 with a C or higher; DSCI369 with a C or higher or MATH229 with a C or higher or MATH369 with a C or higher	F
CS 464	Principles of Human-Computer Interaction	4	CS214 with a C or higher or CS253 with a C or higher	S
CS 545	Machine Learning	4	CS440	F
CS 559	Quantitative Security	4	CS356 with a B or higher; ECE303 with a B or higher - will need override from CS for STAT course	F
ECE 340	Electromagnetics for Computer Engineering	3	ECE202 with a C or higher; MATH161 with a C or higher	F
ECE 445	Digital Logic Synthesis	3	ECE102 with a C or higher	S, Even
ECE 480A6	Optical Computing	3	ECE102 with a C or higher; ECE311 with a C or higher; MATH340 with a C or higher	S, Even
ECE 495[1]	Independent Study	1-3		F, S, SS
ECE 514	Applications of Random Processes	3	ECE303 with a C or higher; ECE312 with a C or higher	F
ECE 519	Network Centric Systems	3	CS165 with a C or higher; ECE303 with a C or higher or ECE312 with a C or higher or ECE421 with a C or higher or ECE456 with a C or higher or MATH369 with a C or higher	S, Even
ECE/CS 528	Embedded Systems and Machine Learning	4	ECE251 with a C or higher	F
ECE 544	Silicon Photonics in Computing Systems	3	ECE251; PH142. PH141; ECE 303 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
ECE580C6	Storage System: Device to System	3	ECE202 with a C or higher	S
MATH 360	Mathematics of Information Security	3	MATH161; MATH229 or DSCI369 or MATH369	F
MATH 460	Information and Coding Theory	3	MATH360 or MATH366; DSCI369 or MATH369	S
MATH 463	Post-Quantum Cryptography	3	MATH360 or MATH366 or MATH466; DSCI369 or MATH369 or MATH469	S, Odd
STAT 421	Introduction to Stochastic Processes	3	MATH229 or MATH369; STAT420 (will substitute ECE303/STAT303 for STAT420)	S

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