Computer Engineering: Embedded & IoT Systems Concentration
Technical Electives
Degree Total: 12-15 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 with a C or higher or 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 4XX	Any CS course numbered 400-479 **except CS408, CS457 and CS470**	4	Varies - check course description for details	F,S,SU
CS 480A7	Principles of Empirical Software Engineering	4	CS314 with a C or higher; STAT301 with a C or higher or STAT315 with a C or higher	S
CS 482A	Study Abroad-Japan: 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 **Credit not allowed for CS462 and CS482A**	SU
CS 545[1]	Machine Learning	4	CS440	F
CS 553[1]	Algorithmic Language Compilers	4	CS453	F
CS 559[1]	Quantitative Security	4	CS356 with a B or higher; ECE303 with a B or higher or STAT303 with a B or higher - will need override from CS for STAT course	F
CS 575[1]	Parallel Processing	4	CS475	F
CS 580B[1]	Trustworthy Machine Learning	4	CS345	F
CS 580B2[1]	Human/Social Factors in Software Engineering	4	CS314 with a C or higher; STAT301 with a C or higher or STAT315 with a C or higher	F
CS 580B3[1]	AI for Software Engineering	4	CS314 with a B or higher; CS345 with a B or higher	S
CT 307	High Performance Programming in Rust	2	CS165	S
ECE 340	Electromagnetics for Computer Engineering	3	ECE202 with a C or higher or ECE206 with a C or higher; MATH161 with a C or higher	F, Even
ECE 445	Digital Logic Synthesis	3	ECE102 with a C or higher or ECE252 with a C or higher	S
ECE 455	Introduction to Robot Programming/Simulation	3	CS150B with a C or higher or CS152 with a C or higher or CS162 with a C or higher or CS163 with a C or higher or CS164 with a C or higher	F
ECE 456	Computer Networks	4	CS150B with a C or higher or CS152 with a C or higher or CS162 with a C or higher or CS163 with a C or higher or CS164 with a C or higher; ECE251 with a C or higher or ECE253 with a C or higher; ECE303 with a C or higher or STAT303 with a C or higher; ECE311 with a C or higher	S
ECE 495[2]	Independent Study	1-3		F,S,SU
ECE 519	Network Centric Systems	3	CS165 with a C or higher; ECE303 with a C or higher or STAT303 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 520	Optimization Methods--Control and Comm.	3	DSCI 369 or MATH 369; MATH261 with a C or higher	S
ECE/CS 528	Embedded Systems and Machine Learning	4	ECE251 with a C or higher or ECE253 with a C or higher	F
ECE 544	Silicon Photonics in Computing Systems	3	PH141; ECE303 with a C or higher or STAT 303 with a C or higher	F
ECE 554	Computer Architecture	3	ECE452	S, Odd
ECE/CS 561	Hardware/Software Design of Embedded Systems	4	ECE251 with a C or ECE253 with a C or higher or ECE452	S, Even
ECE 571	VLSI System Design I	4	ECE450; ECE451	S
ECE 564	Semiconductor Memory	3	ECE202 with a C or higher or ECE206 with a C or higher	S
ENGR 430	Engineering with Drones	3	PH141; MATH340	S
MATH 301	Introduction to Combinational Theory	3	MATH161	F,S,SU
MATH 331	Inroduction to Mathematical Modeling	3	DSCI369 or concurrent registration or MATH369 or concurrent registration; MATH161	F
MATH 360	Mathematics of Information Security	3	MATH161; CS220	F
MATH 450	Intro to Numerical Analysis I	3	CS150B or CS152 or CS163 or CS164 or CS165 or CS253 or MATH151; MATH 261	F
MATH 451	Intro to Numerical Analysis II	3	CS150B or CS152 or CS163 or CS164 or CS165 or CS253 or MATH151; MATH340 or MATH345	S
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

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Course Number	Course Title	Credits	Prerequisites	Terms
MECH 580B6[3]	Aerospace Guidance, Navigation, and Control	3	MATH340; PH142	S
STAT 421	Introduction to Stochastic Processes	3	DSCI369 or MATH369; STAT420 with a C or higher (substitute ECE303/STAT303 for STAT420)	S

[1] Contact the CS instructor regarding registration and overrides for CS 500 level courses.

[2] A total of 6 credits of Independent Study may apply towards degree requirements. This includes credits awarded for ECE395 and ECE495 combined.

[3] Override required for registration - Must have a minimum 3.0 gpa or higher or consent of instructor.

Courses used to fulfill major and concentration requirements will not be counted as Technical Elective credits.