Computer Engineering
Technical Electives
Degree Total: 3-17 credits

Course Number	Course Title	Credits	Prerequisites	Terms
CS/IDEA 310H	Design Thinking Toolbox: Mixed Reality Design	3	CS214 with a C or higher or CS253 with a C or higher or IDEA210	F, Even
CS 314	Software Engineering	3	CS214 with a C or higher or CS253 with a C or higher	F,S
CS 320	Algorithms--Theory and Practice	3	CS165 with a C or higher; CS220 with a C or higher; MATH160 with a C or higher; MATH229 with a C or higher or DSCI369 with a C or higher or MATH369 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 STAT303 with a C or higher	F,S
CS 356	Systems Security	3	CS214 with a C or higher or CS253 with a C or higher or CS370 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 5XX[1]	Any CS course numbered 500-579	4	Varies - check course description for details	F,S
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, Even
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
DSCI 475	Topological Data Analysis	2	MATH369 or DSCI369	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
ECE 4XX	Any ECE course at the 400 level	3-4	Varies - check course description for details	F,S
ECE 495[3]	Independent Study	1-3		F,S,SU
ECE 5XX	Any ECE course at the 500 level except **ECE532**	3-4	Varies - check course description for details	F,S
ENGR 430 (480A1)	Engineering with Drones	3	PH141; MATH340	S
ENGR 478	Applied Engineering Data Analytics	3	ECE102	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
MECH 564[4]	Fundamentals of Robot Mechanics & Controls	3	MECH 417 (substitute ECE411)	S
MECH 580B6[4]	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
SYSE 580A6	AI--Augmented Systems Engineering	3	SYSE 501 or concurrent registration	S, Even

[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.