

**Computer Engineering  
Technical Electives  
Prior to Spring 2022**

Course Number	Course Title	Credits	Prerequisites	Terms
CS/IDEA 310H	Design Thinking Toolbox: Mixed Reality Design	3	CS253 or IDEA210	F, Even
CS 314	Software Engineering	3	C253 with a minimum grade of C	F, S
CS 320 <sup>1</sup>	Algorithms--Theory and Practice	3	CS165 with a minimum grade of C; CS220 with a minimum grade of C; MATH160 with a minimum grade of C; MATH229 with a minimum grade of C or MATH369 with a minimum grade of C	F, S
CS 345	Machine Learning Foundations and Practice	3	CS165 with a minimum grade of C; CS152 with a minimum grade of C or CS220 with a minimum grade of C; ECE/STAT303 with a minimum grade of C	F, S
CS 356	Systems Security	3	CS253 with a minimum grade of C or CS370 with a minimum grade of C	F, S
CS 4XX	Any CS course at the 400 level <b>except CS457 and CS470</b>	4	Varies - check course description for details	F, S, SS
CS 5XX	Any CS course at the 500 level	4	Varies - check course description for details	F, S
DSCI 475	Topological Data Analysis	2	MATH369 or DSCI369	S
ECE 340	Electromagnetics for Computer Engineering	3	ECE202 with a minimum grade of C; MATH161 with a minimum grade of C	F
ECE 4XX	Any ECE course at the 400 level	3-4	Varies - check course description for details	F, S
ECE 495 <sup>2</sup>	Independent Study	1-3		F, S, SS
ECE 5XX	Any ECE course at the 500 level except <b>ECE532</b>	3-4	Varies - check course description for details	F, S
ENGR 380A4	Engineering Data Analytics	3	ECE102 or ECE103	S
MATH 360	Mathematics of Information Security	3	MATH161; MATH229 or MATH369	F
MATH 450	Intro to Numerical Analysis I	3	CS156 or CS163 or CS164 or CS253 or MATH151; MATH255 or MATH261	F
MATH 451	Intro to Numerical Analysis II	3	CS156 or CS163 or CS164 or CS253 or MATH151; MATH340 or MATH345	S
MATH 460	Information and Coding Theory	3	MATH360; MATH369 or MATH366	S
MATH 480A1	Post Quantum Cryptography	3	MATH360 or MATH366 or MATH466; MATH369 or MATH469	S
MECH 564	Fundamentals of Robot Mechanics & Controls	3	MECH 417 (will substitute ECE411 and ECE455 - must take both)	S
MECH 580B3	Orbital Mechanics	3	MATH340; PH142	S, Even
MECH 580B4	Trajectory and Performance	3	MATH340; PH142	S, Even
STAT 421	Introduction to Stochastic Processes	3	MATH229 or MATH369; STAT420 (will substitute ECE303/STAT303 for STAT420)	S

<sup>1</sup> CS320 may count as a Technical Elective ONLY when ECE332 is also taken. ECE332 will be applied towards the Junior Year requirement. The course cannot count as credit towards both requirements.

<sup>2</sup> A total of 3 credits of Independent Study may apply towards degree requirements. This includes credits awarded for ECE395 and ECE495 combined.