

Electrical Engineering Technical Electives

Course Number	Course Title	Credits	Noted Prerequisites	Terms
CS314	Software Development Methods	3	CS253 with a minimum grade of C	F, S
CS320	Algorithms--Theory and Practice	3	CS165 with a minimum grade of C; CS220 with a minimum grade of C; MATH161 with a minimum grade of C; MATH229 with a minimum grade of C or MATH369 with a minimum grade of C	F, S
CS356	Systems Security	3	CS220 with a minimum grade of C; CS253 with a minimum grade of C; CS270 with a minimum grade of C or ECE251 with a minimum grade of C; STAT201 or STAT204 or STAT301 or STAT307 or STAT311 or STAT315	F, S
CS370	Operating Systems	3	CS220 with a minimum grade of C; CS253 with a minimum grade of C or CS270 with a minimum grade of C or (CS155 with a minimum grade of C; CS156 with a minimum grade of C); ECE251 with a minimum grade of C	F, S
CS410	Introduction to Computer Graphics	4	CS253 with a minimum grade of C; MATH229 with a minimum grade of C or MATH369 with a minimum grade of C	F
CS414	Object-Oriented Design	4	CS314 with a minimum grade of C	F
CS420	Introduction to Analysis of Algorithms	4	CS320 with a minimum grade of C	F
CS430	Database Systems	4	CS314 with a minimum grade of C or CS370 with a minimum grade of C	S
CS440	Introduction to Artificial Intelligence	4	CS253 with a minimum grade of C; CS320 with a minimum grade of C	F
CS445	Introduction to Machine Learning	4	CS320 with a minimum grade of C	S
CS453	Introduction to Compiler Construction	4	CS314 with a minimum grade of C	S
CS455	Introduction to Distributed Systems	4	CS370 with a minimum grade of C	S
CS475	Parallel Programming	4	CS370 with a minimum grade of C	F
CS481A1	Introduction to Database Technology	4	CS314 with a minimum grade of C or CS370 with a minimum grade of C	SS
CS510	Image Computation	4	CS410	S
CS520	Analysis of Algorithms	4	CS420	S
CS530	Fault-tolerant Computing	4	CS370	S
CS540	Artificial Intelligence	4	CS440	S
CS545	Machine Learning	4	CS440	F
CS553	Algorithmic Language Compilers	4	CS453	F
CS555	Distributed Systems	4	CS455	F
CS556	Computer Security	4	CS356 or CS455	F
CS557	Advanced Networking and the Internet	4	CS457	S
CS575	Parallel Processing	4	CS475	F
ECE4XX	Any ECE course at the 400 level	3-4	Varies - check course for details	F, S
ECE495 ^{1,2}	Independent Study	1-6		F, S, SS
ECE5XX	Any ECE course at the 500 level	3-4	Varies - check course for details	F,S
ENGR581A2	Coupled Electromechanical Systems	3	ECE202 or ECE204	F
MATH417	Advanced Calculus I	3	MATH369; MATH317	F
MATH418	Advanced Calculus II	3	MATH417	S
MATH419	Introduction to Complex Variables	3	MATH261	F
MATH450	Intro to Numerical Analysis I	3	MATH255 or MATH261; CS156 or CS163 or CS164 or CS253 or MATH151	F
MATH451	Intro to Numerical Analysis II	3	MATH340 or MATH345; CS156 or CS163 or CS164 or CS253 or MATH151	S

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Course Number	Course Title	Credits	Noted Prerequisites	Terms
MATH460	Information and Coding Theory	3	MATH360; MATH369 or MATH366	S
MATH466	Abstract Algebra I	3	MATH235 or MATH360 or MATH366	F
MATH469	Linear Algebra II	3	MATH369	S
MATH474	Introduction to Differential Geometry	3	MATH261; MATH369	F, Odd
MECH564	Fundamentals of Robot Mechanics & Controls	3	MECH 417 (will substitute ECE411 and ECE455 - must take both)	S
PH315	Modern Physics Lab	2	PH314, may be taken concurrently	S
PH425	Advanced Physics Laboratory	2	PH315; PH451	S
PH451	Introductory Quantum Mechanics I	3	MATH340 or MATH345; PH314	F
PH452	Intro to Quantum Mechanics II	3	PH451	S
PH462	Statistical Physics	3	MATH340; PH 314; PH361	F
STAT421	Introduction to Stochastic Processes	3	MATH229 or MATH369; STAT420 (will substitute ECE/STAT303 for STAT420)	S

¹ A total of 6 credits of Independent Study may apply towards total degree requirements. This includes credits awarded for ECE395 and ECE495 combined.

² Biomedical Engineering - Electrical Engineering (EE) double degree students may apply a total of up to 3 credits of independent study (ECE495) toward their EE degree requirements.