Electrical Engineering: Aerospace Concentration (prior to Fall 2025)
Electrical Engineering Technical Electives
Degree Total: 6 credits

Course Number	Course Title	Credits	Noted Prerequisites	Terms
ATS 550	Atmospheric Radiation and Remote Sensing	3	MATH261; PH142	F
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; ECE/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 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 MATH369 with a C or higher	SU
CS 5XX[1]	Any CS course numbered 500-579	4	Varies - check course 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
CS 580B3[1]	AI for Software Engineering	4	CS314 with a B or higher; CS345 with a B or higher	S
DSCI 475	Topological Data Analysis	2	DSCI369 or MATH369	S
ECE 4XX	Any ECE course at the 400 level	2-4	Varies - check course for details	F,S
ECE 495[2,3]	Independent Study	1-6		F,S,SU
ECE 5XX	Any ECE course at the 500 level	1-4	Varies - check course for details	F,S
ENGR 430	Engineering with Drones	3	PH141; MATH340	S
ENGR 570	Coupled Electromechanical Systems	3	ECE202 or ECE206	F, Even
MATH 417	Advanced Calculus I	3	DSCI369 or MATH369; MATH317	F
MATH 418	Advanced Calculus II	3	MATH417	S
MATH 419	Introduction to Complex Variables	3	MATH261	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
MATH 466	Abstract Algebra I	3	MATH235 or MATH360 or MATH366	F
MATH 469	Linear Algebra II	3	MATH161; DSCI369 or MATH369	S
MATH 474	Introduction to Differential Geometry	3	MATH261; DSCI369 or MATH369	F, Odd
MECH 403	Energy Engineering	3	MECH237 or MECH337 or MECH339	F

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MECH 518[4]	Orbital Mechanics	3	MATH340; PH142	F
MECH 519[4]	Aerospace Vehicles Trajectory and Performance	3	MATH340; PH142	S
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
PH 315	Modern Physics Lab	2	PH314 or concurrent registration	S
PH 425	Advanced Physics Laboratory	2	PH315; PH451	S
PH 451	Introductory Quantum Mechanics I	3	MATH340 or MATH345; PH314 with a C or higher	F
PH 452	Intro to Quantum Mechanics II	3	PH451	S
PH 462	Statistical Physics	3	MATH340; PH 314; PH361	F
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	SYSE501 or concurrent registration	S

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

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

[3] Biomedical Engineering - Electrical Engineering (EE) dual degree students may apply a maximum of 3 credits of independent study (ECE395 and ECE495) toward their EE degree requirements.

[4] 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.