

Electrical Engineering: Aerospace Concentration (prior to Fall 2025)

Aerospace Technical Electives

Degree Total: 12 credits

Course Number	Course Title	Credits	Noted Prerequisites	Terms
ATS 550	Atmospheric Radiation and Remote Sensing	3	MATH261; PH142	F
ECE 404	Experiments in Optical Electronics	2	Concurrent registration in ECE441	S
ECE 411	Control Systems	3	ECE312 with a C or higher	F
ECE 412	Digital Control and Digital Filters	3	ECE411	S
ECE 415	Semiconductor Physics and Junctions	2	MATH 340 with a C or higher; PH 142 with a C or higher	As Needed
ECE 421	Telecommunications	3	ECE303 with a C or higher or STAT303 with a C or higher; ECE312 with a C or higher	F
ECE 441	Optical Electronics	3	ECE340 with a C or higher or ECE342 with a C or higher	F
ECE 444	Antennas and Radiation	3	ECE340 with a C or higher or ECE342 with a C or higher	F
ECE 452	Computer Organization and Architecture	3	ECE251 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; ECE303 with a C or higher or STAT303 with a C or higher; ECE311 with a C or higher	S
ECE 461	Power Systems	4	ECE332 with a C or higher	F
ECE 512	Digital Signal Processing	3	ECE312 with a C or higher	F
ECE 514	Applications of Random Processes	3	ECE303 with a C or higher or STAT303 with a C or higher; ECE312 with a C or higher	F
ECE 516	Information Theory	3	ECE303 with a C or higher or STAT303 with a C or higher; ECE421	F
ECE 520	Optimization Methods-Control & Communication	3	DSCI369 or MATH369; MATH261 with a C or higher	S
ECE 521	Satellite Communication	3	ECE421	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 529 <small>(580C9)</small>	Signal Processing and Artificial Intelligence	3	ECE312 with a C or higher	S, Odd
ECE 536	RF Integrated Circuit Design	3	ECE332	F, Even
ECE 540	Computational Electromagnetics	3	ECE340 with a C or higher or ECE342 with a C or higher	As Needed
ECE 541	Applied Electromagnetics	3	ECE340 with a C or higher or ECE342 with a C or higher	F, Even
ECE 548	Microwave Theory and Component Design	3	ECE342 with a C or higher	S, Odd
ECE 549	Radar Systems and Design	3	ECE340 with a C or higher or ECE342 with a C or higher	S, Odd
ECE 553 <small>(580C8)</small>	Adaptive Systems and Machine Learning	3	ECE303 with a C or higher or STAT303 with a C or higher; ECE312 with a C or higher	S
ECE 554	Computer Architecture	3	ECE452	S, Odd

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ECE 556	AI for Radar and Remote Sensing	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; ECE303 with a C or higher or STAT303 with a C or higher; DSCI369 with a C or higher or MATH369 with a C or higher	S
ECE/CS 561	Hardware/Software Design of Embedded Systems	4	ECE251 with a C or higher or ECE253 with a C or higher or ECE452	S, Even
ECE 562	Power Electronics	3	ECE332 with a C or higher	S, Even
ECE/ENGR 565	Electrical Power Engineering	3	ECE332 with a C or higher; ECE342 with a C or higher	F, Odd
ECE 572	Semiconductor Transistors	1	ECE331 with a C or higher; ECE415 or concurrent registration	As Needed
ECE 578	Satellite Data Analysis	3	ECE303 with a C or higher or STAT303 with a C or higher; ECE311 with a C or higher	F, Odd
ECE 579	Global Navigation Satellite Systems	3	ECE311 with a C or higher; MATH261 with a C or higher; PH142 with a C or higher; 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	As Needed
ENGR 430 <small>(480A1)</small>	Engineering with Drones	3	PH141; MATH340	S
ENGR 570	Coupled Electromechanical Systems	3	ECE202 with a C or higher or ECE206 with a C or higher	F
MECH 518 ²	Orbital Mechanics	3	MATH340; PH142	F
MECH 519 ²	Aerospace Vehicles Trajectory and Performance	3	MATH340; PH142	S
MECH 580B6 ³	Aerospace Guidance, Navigation, and Control	3	MATH340; PH142	S
SYSE 574 <small>(580A6)</small>	AI-Augmented Systems Engineering	3	SYSE501 or concurrent registration or ECE532/SYSE532 or concurrent registration	S

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

² 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.