

**Recommended Course Sequence**  
**Aerospace Engineering Option C – Avionics & Aerospace Systems (Co-op)**  
**2022-2023 Academic Year**

	SUMMER /1		FALL /2		WINTER /4	
YEAR 1			<b>AERO 201</b> <b>Intro to Flight &amp; Aero Systems</b> Prerequisite: ENGR 213 previously or concurrently 4.00		<b>ELEC 242</b> <b>Continuous-Time Signals &amp; Sys.</b> Prerequisite: ELEC 273; ENGR 213. 3.00	
			<b>COEN 243</b> <b>Programming Methodology I</b> Prerequisite: MATH 204 3.50		<b>ENCS 282</b> <b>Tech. Writing &amp; Comm.</b> Prerequisite: The Engineering Writing Test (EWT) or ENCS 272 must be completed prior to registering. 3.00	
			<b>ELEC 273</b> <b>Basic Circuit Analysis</b> Prerequisite: ENGR 213 previously or concurrently; PHYS 205. 3.50		<b>ENGR 233</b> <b>Applied Advanced Calculus</b> Prerequisite: MATH 204; MATH 205 3.00	
			<b>ENGR 213</b> <b>Applied Ord. Differential Eq.</b> Prerequisite: MATH 204 previously or concurrently; MATH 205 3.00		<b>ENGR 243</b> <b>Dynamics</b> Prerequisite: ENGR 213, 242 3.00	
			<b>ENGR 242</b> <b>Statics</b> Prerequisite: ENGR 213 previously or concurrently; PHYS 204; MATH 204. 3.00		<b>ENGR 244</b> <b>Mechanics of Materials</b> Prerequisite: ENGR 213; ENGR 242 or 245; ENGR 233 previously or concurrently 3.75	
YEAR 2	<b>ENGR 201</b> <b>Professional Practice &amp; Resp.</b> Prerequisite: none 1.50		<b>WORK TERM 1</b>  (You must complete ENCS 282 before your first work-term)		<b>AERO 290</b> <b>Introduction to Aircraft Design</b> Prereq: AERO 201; ENCS 282 previously or concurrently. 3.00	
	<b>ENGR 202</b> <b>Sust. Dev. Enviro. Stewardship</b> Prerequisite: none 1.50				<b>AERO 371</b> <b>Modelling and Control Systems</b> Prerequisite: PHYS 205; ENGR 213, 243; ENGR 311 or ELEC 342 or ELEC 364 previously or concurrently. 3.50	
	<b>ENGR 251</b> <b>Thermodynamics I</b> Prerequisite: MATH 203 3.00				<b>ELEC 342</b> <b>Discrete-Time Signals and Systems</b> Prerequisite: ELEC 242 or 264. 3.50	
	<b>ENGR 371</b> <b>Probability &amp; Stats in Eng.</b> Prerequisite: ENGR 213, 233 3.00				<b>COEN 244</b> <b>Programming Methodology II</b> Prerequisite: COEN 243 or MECH 215 or MIAE 215. 3.00	
	<b>ENGR 391</b> <b>Numerical Methods in Eng.</b> Prerequisite: ENGR 213, 233; COMP 248 or COEN 243 or MECH 215 or MIAE 215 or BCEE 231 3.00				<b>ENGR 301</b> <b>Engr. Manage. Principles Econ</b> Prerequisite: ENCS 282; ENGR 201, 202 3.00	
YEAR 3	<b>COEN 212</b> <b>Digital Systems Design I</b> Prerequisite: MATH 204 3.50		<b>AERO 390</b> <b>Aero Engineering Design Project</b> Prerequisite: AERO 290, 371; ENCS 282. 3.00	<b>WORK TERM 2</b>		
	<b>COEN 231</b> <b>Intro. to Discrete Mathematics</b> Prerequisite: MATH 204 3.00		<b>AERO 417</b> <b>Standards, Reg. and Certification</b> Prerequisite: ENGR 201. 3.00			
	<b>ENGR 361</b> <b>Fluid Mechanics I</b> Prerequisite: ENGR 213, 233, 251 3.00		<b>COEN 311</b> <b>Comp. Organization and Software</b> Prerequisite: COEN 212, 243. 3.50			
	<b>ENGR392</b> <b>Impact of Technology on Society</b> Prerequisite: ENCS 282; ENGR 201, 202 3.00		<b>COEN 352</b> <b>Data Structures and Algorithms</b> Prerequisite: COEN 231, 244. 3.00			
			<b>General Studies</b> (Undergrad Calendar, Sec. 71.110) 3.00			
YEAR 4	<b>WORK TERM 3</b>		<b>AERO 482</b> <b>Avionic Navigation Systems</b> Prerequisite: ENGR 371 or COMP 233; AERO 371 or ELEC 372 or MECH 370 or SOEN 385. 3.00	<b>AERO 483</b> <b>Integration of Avionics Systems</b> Prerequisite: AERO 482. 3.00		
				<b>ELEC 483</b> <b>Real-Time Comp. Control Systems</b> Prereq: AERO 371 or ELEC 372; ELEC 342 or 364. 3.50		
				<b>SOEN 341</b> <b>Software Process and Practices</b> Prerequisite: COMP 352 or COEN 352 previously or concurrently; ENCS 282 previously or concurrently. 3.00		
			<b>Technical Electives</b> (UGRAD Calendar, Sec. 71.55) ---			
			<b>AERO 490</b> <b>Capstone Aerospace Engineering Design Project</b> Prerequisite: 75 credits in the program; AERO 390; ENGR 301. 4.00			

**DETAILED COURSE INFORMATION**  
**Aerospace - Option C 2022-23**

COURSE	TITLE	CREDIT	PRE-REQUISITE	CO-REQUISITE	SUM 1	SUM 2	FALL	WIN
AERO 201	Introduction to Flight and Aerospace Systems	4.00		ENGR 213			X	
AERO 290	Introduction to Aircraft Design	3.00	AERO 201	ENCS 282				X
AERO 371	Modelling and Control Systems	3.50	PHYS 205; ENGR 213, 243	ENGR 311 or ELEC 342 or ELEC 364				X
AERO 390	Aerospace Engineering Design Project	3.00	AERO 290, 371; ENCS 282				X	
AERO 417	Standards, Regulations and Certification	3.00	ENGR 201		X		X	
AERO 471	Aircraft Hydro-Mechanical and Fuel Systems	3.50	AERO 201 or permission of the Department					X
AERO 472	Aircraft Pneumatic and Electrical Power Systems	3.50	AERO 201; ENGR 361					
AERO 480	Flight Control Systems	3.50	AERO 371 or ELEC 372 or MECH 371 or SOEN 385				X	
AERO 482	Avionic Navigation Systems	3.00	ENGR 371 or COMP 233; AERO 371 or ELEC 372 or MECH 370 or SOEN 385				X	
AERO 483	Integration of Avionics Systems	3.00	AERO 482					X
AERO 490	Capstone Aerospace Engineering Design Project	4.00	75 credits in the program; AERO 390; ENGR 301				X	
COEN 212	Digital Systems Design I	3.50	MATH 204		X		X	X
COEN 231	Introduction to Discrete Mathematics	3.00	MATH 204		X		X	X
COEN 243	Programming Methodology I	3.00	MATH 204			X	X	X
COEN 244	Programming Methodology II	3.00	COEN 243 or MECH 215 or MIAE 215			X	X	X
COEN 311	Computer Organization and Software	3.50	COEN 212, 243		X		X	X
COEN 313	Digital Systems Design II	3.50	COEN 212, 231		X		X	X
COEN 317	Microprocessor Systems	3.50	COEN 311 or COMP 228 or SOEN 228; COEN 313				X	X
COEN 320	Introduction to Real-Time Systems	3.00	COEN 346 or COMP 346				X	X
COEN 346	Operating Systems	3.50	COEN 311; COMP 352 or COEN 352				X	X
COEN 352	Data Structures and Algorithms	3.00	COEN 231, 244				X	X
COEN 366	Communication Networks and Protocols	3.50	COEN 346				X	X
COEN 413	Hardware Functional Verification	3.00	COEN 313					X
COEN 421	Embedded Systems Design	4.00	COEN 317, 320; SOEN 341					X
COEN 498	Topics in Computer Engineering	3.00			n/a	n/a	n/a	n/a
ELEC 242	Continuous-Time Signals and Systems	3.00	ELEC 273; ENGR 213		X		X	X
ELEC 251	Fundamentals of Applied Electromagnetics	3.00	ELEC 273 or ENGR 273	ENGR 233	X		X	X
ELEC 273	Basic Circuit Analysis	3.50	PHYS 205	ENGR 213	X		X	X
ELEC 311	Electronics I	3.50	ELEC 273			X	X	X
ELEC 331	Fundamentals of Electrical Power Engineering	3.50	ELEC 251, 273				X	X
ELEC 342	Discrete-Time Signals and Systems	3.50	ELEC 242 or 264		X		X	X
ELEC 351	Electromagnetic Waves and Guiding Structures	3.00	ELEC 251, 242; ENGR 233				X	X
ELEC 367	Introduction to Digital Communications	3.50	ELEC 342 or 364; ENGR 371				X	X
ELEC 433	Power Electronics	3.50	ELEC 311, 331				X	
ELEC 442	Digital Signal Processing	3.50	ELEC 342 or 364; ENGR 371					X
ELEC 458	Techniques in Electromagnetic Compatibility	3.00	ELEC 351		n/a	n/a	n/a	n/a
ELEC 464	Wireless Communications	3.00	ELEC 367				X	
ELEC 481	Linear Systems	3.50	AERO 371 or ELEC 372 or MECH 371				X	
ELEC 482	System Optimization	3.50	ENGR 391 or EMAT 391		X			
ELEC 483	Real-Time Computer Control Systems	3.50	AERO 371 or ELEC 372; ELEC 342 or 364					X
ELEC 498	Topics in Electrical Engineering	3.00			n/a	n/a	n/a	n/a
ENCS 282	Technical Writing and Communication	3.00	Engineering Writing Test (EWT), or ENCS 272 (min. C-)		X	X	X	X
ENGR 201	Professional Practice and Responsibility	1.50			X		X	X
ENGR 202	Sustainable Development and Environmental Stewardship	1.50			X	X	X	X
ENGR 213	Applied Ordinary Differential Equations	3.00	MATH 205	MATH 204	X		X	X
ENGR 233	Applied Advanced Calculus	3.00	MATH 204, 205		X	X	X	X
ENGR 242	Statics	3.00	MATH 204; PHYS 204	ENGR 213	X		X	X
ENGR 243	Dynamics	3.00	ENGR 213, 242		X		X	X
ENGR 244	Mechanics of Materials	3.75	ENGR 213 ; ENGR 242 or 245	ENGR 233		X	X	X
ENGR 251	Thermodynamics I	3.00	MATH 203			X	X	X
ENGR 301	Engineering Management Principles and Economics	3.00			X	X	X	X
ENGR 361	Fluid Mechanics I	3.00	ENGR 213, 233, 251		X		X	X
ENGR 371	Probability and Statistics in Engineering	3.00	ENGR 213, 233		X	X	X	X
ENGR 391	Numerical Methods in Engineering	3.00	ENGR 213, 233; COMP 248 or COEN 243 or MECH 215 or MIAE 215 or BCEE 2			X	X	X
ENGR 392	Impact of Technology on Society	3.00	ENCS 282; ENGR 201, 202		X	X	X	X
ENGR 411	Special Technical Report	1.00	ENCS 282; permission of the Department		X	X	X	X
Gen. Ed.	General Education Elective	3.00	List of courses available in the Undergraduate Calendar, Sec. 71.110		X	X	X	X
SOEN 341	Software Process	3.00		COMP 352 or COEN 352, ENCS 282			X	X
SOEN 342	Software Requirements and Specifications	3.00	SOEN 341				X	X
SOEN 343	Software Architecture and Design I	3.00	SOEN 341	SOEN 342			X	X

Note: In the case of discrepancies between this and the current Undergraduate Calendar, please contact your Undergraduate Program Assistant for clarification.  
This information was compiled 16/03/2022