

Recommended Course Sequence
Aerospace Engineering Option A – Aerodynamics and Propulsion (Co-op)
2022-2023 Academic Year

	SUMMER /1	FALL /2	WINTER /4
YEAR 1		AERO 201 Intro to Flight & Aero Systems Prerequisite: ENGR 213 previously or concurrently 4.00	ENCS 282 Tech. Writing & Comm. Prerequisite: The Engineering Writing Test (EWT) or ENCS 272 must be completed prior to registering. 3.00
		ENGR 201 Professional Practice & Resp. Prerequisite: none 1.50	ENGR 233 Applied Advanced Calculus Prerequisite: MATH 204; MATH 205 3.00
		ENGR 213 Applied Ord. Differential Eq. Prerequisite: MATH 204 previously or concurrently; MATH 205 3.00	ENGR 243 Dynamics Prerequisite: ENGR 213, 242 3.00
		ENGR 242 Statics Prerequisite: ENGR 213 previously or concurrently; PHYS 204; MATH 204. 3.00	ENGR 244 Mechanics of Materials Prerequisite: ENGR 213; ENGR 242 or 245; ENGR 233 previously or concurrently 3.75
		MIAE 215 Prog. for Mech & Indu Eng. Prerequisite: MATH 204 3.50	ENGR 251 Thermodynamics I Prerequisite: MATH 203 3.00
YEAR 2	ENGR 202 Sust. Dev. Enviro. Stewardship Prerequisite: none 1.50	WORK TERM 1 (You must complete ENCS 282 before your first work-term)	AERO 290 Introduction to Aircraft Design Prereq: AERO 201; ENCS 282 previously or concurrently. 3.00
	ENGR 311 Trans. Cal. & Partial Diff. Eq. Prerequisite: ENGR 213, 233 3.00		AERO 371 Modelling and Control Systems Prerequisite: PHYS 205; ENGR 213, 243; ENGR 311 or ELEC 342 or ELEC 364 previously or concurrently. 3.50
	ENGR 361 Fluid Mechanics I Prerequisite: ENGR 213, 233, 251 3.00		MIAE 221 Materials Science Prerequisite: CHEM 205 3.00
	ENGR 371 Probability & Stats in Eng. Prerequisite: ENGR 213, 233 3.00		MECH 343 Theory of Machines Prerequisite: ENGR 213, 233, 243 3.50
	MIAE 211 Mech. Engineering Drawing Prerequisite: none 3.50		MECH 352 Heat Transfer I Prerequisite: ENGR 311, 361 3.50
YEAR 3	AERO 417 Standards, Reg. and Certification Prerequisite: ENGR 201. 3.00	AERO 390 Aero Engineering Design Project Prerequisite: AERO 290, 371; ENCS 282. 3.00	WORK TERM 2
	ENGR 301 Engr. Manage. Principles Econ Prerequisite: none 3.00	AERO 481 Materials Engr. for Aerospace Prerequisite: MECH 221 or MIAE 221. 3.50	
	ENGR 391 Numerical Methods in Eng. Prerequisite: ENGR 213, 233; COMP 248 or COEN 243 or MECH 215 or MIAE 215 or BCEE 231 3.00	MECH 351 Thermodynamics II Prerequisite: ENGR 251 3.50	
	ENGR 392 Impact of Technology on Society Prerequisite: ENCS 282; ENGR 201, 202 3.00	MECH 361 Fluid Mechanics II Prerequisite: ENGR 361 3.50	
		General Studies (Undergrad Calendar, Sec. 71.110) 3.00	
YEAR 4	WORK TERM 3	AERO 462 Turbomachinery and Propulsion Prerequisite: MECH 351, 361. 3.00	AERO 446 Aerospace Vehicle Performance Prerequisite: MECH 361. 3.00
		AERO 464 Aerodynamics Prerequisite: MECH 361. 3.00	AERO 455 Comp. Fluid Dynamics for Aero Prerequisite: ENGR 311, 391; MECH 361. 3.75
		MECH 461 Gas Dynamics Prerequisite: MECH 361. 3.50	AERO 465 Gas Turbine Design Prerequisite: AERO 462 3.50
		Technical Electives (Undergraduate Calendar, Sec. 71.55) Review your advisement report for the number of credits required. Speak with your Undergraduate Program Assistant if you have any further questions ---	
		AERO 490 Capstone Aerospace Engineering Design Project Prerequisite: 75 credits in the program; AERO 390; ENGR 301. 4.00	

DETAILED COURSE INFORMATION
Aerospace - Option A 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 431	Principles of Aeroelasticity	3.00	ENGR 243, 361; MECH 375				X	
AERO 446	Aerospace Vehicle Performance	3.00	MECH 361					X
AERO 455	Computational Fluid Dynamics for Aerospace Applications	3.75	ENGR 311, 391; MECH 361					X
AERO 462	Turbomachinery and Propulsion	3.00	MECH 351, 361				X	
AERO 464	Aerodynamics	3.00	MECH 361				X	X
AERO 465	Gas Turbine Design	3.50	AERO 462					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 481	Materials Engineering for Aerospace	3.50	MECH 221 or MIAE 221				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 485	Introduction to Space Systems	3.00	MECH 351, 361					X
AERO 486	Aircraft Stress Analysis	3.00	ENGR 243, 244				X	
AERO 490	Capstone Aerospace Engineering Design Project	4.00	75 credits in the program; AERO 390; ENGR 301				X	
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 311	Transform Calculus and Partial Differential Equations	3.00	ENGR 213, 233		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
ENGR 412	Honours Research Project	3.00	ENCS 282; 75cr in the program; min. CGPA 3.00; permission of the Department		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
INDU 372	Quality Control and Reliability	3.00	ENGR 371					X
INDU 412	Human Factors Engineering	3.50	ENGR 371				X	
MECH 343	Theory of Machines	3.50	ENGR 213, 233, 243				X	X
MECH 351	Thermodynamics II	3.50	ENGR 251				X	X
MECH 352	Heat Transfer I	3.50	ENGR 311, 361				X	X
MECH 361	Fluid Mechanics II	3.50	ENGR 361				X	X
MECH 368	Electronics for Mechanical Engineers	3.50	PHYS 205	ENGR 311			X	X
MECH 375	Mechanical Vibrations	3.50	AERO 371 or MECH 370			X	X	X
MECH 411	Instrumentation and Measurements	3.50	ENGR 311; AERO 371 or MECH 370				X	
MECH 426	Stress and Failure Analysis of Machinery	3.00	ENGR 233, 244; AERO 481 or MECH 321					X
MECH 452	Heat Transfer II	3.50	MECH 351, 352, 361					X
MECH 453	Heating, Ventilation and Air Conditioning Systems	3.00	MECH 352					X
MECH 460	Finite Element Analysis	3.75	ENGR 244, 391					X
MECH 461	Gas Dynamics	3.50	MECH 361			X	X	
MECH 498	Topics in Mechanical Engineering	3.00			n/a	n/a	n/a	n/a
MIAE 211	Mechanical Engineering Drawing	3.50			X		X	X
MIAE 215	Programming for Mechanical and Industrial Engineers	3.50	MATH 204			X	X	X
MIAE 221	Materials Science	3.00	CHEM 205				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