

Recommended Course Sequence
Aerospace Engineering Option B – Structures and Materials (September Entry)
2024-2025 Academic Year

	SUMMER /1	FALL /2	WINTER /4
YEAR 1		AERO 201 Intro to Flight & Aero Systems (4.00) The following course must be completed previously or concurrently: ENGR 213.	ENCS 282 Technical Writing & Comm. (3.00) Students must have satisfied the requirements in Section 71.20.7 Writing Skills Requirement, by passing the Engineering Writing Test (EWT) or by passing ENCS 272 with a grade of C- or higher, prior to enrolling.
		ENGR 213 Applied Ord. Differential Eq. (3.00) The following course must be completed previously or concurrently: MATH 204 (Cegep Mathematics 105). The following course must be completed previously: MATH 205 (Cegep Mathematics 203).	ENGR 233 Applied Advanced Calculus (3.00) The following course must be completed previously: MATH 204 (Cegep Mathematics 105); MATH 205 (Cegep Mathematics 203).
		ENGR 201 Professional Practice & Resp. (1.50) Prerequisites: none.	ENGR 243 Dynamics (3.00) The following courses must be completed previously: ENGR 213, ENGR 242.
		ENGR 242 Statics (3.00) The following course must be completed previously or concurrently: ENGR 213. The following courses must be completed previously: PHYS 204; MATH 204.	ENGR 244 Mechanics of Materials (3.75) The following courses must be completed previously: ENGR 213; ENGR 242 or ENGR 245. The following courses must be completed previously or concurrently: ENGR 233.
		MIAE 215 Programming for Mech & Indu Eng. (3.50) The following course must be completed previously: MATH 204 (Cegep mathematics 105).	ENGR 251 Thermodynamics I (3.00) The following course must be completed previously: MATH 203 (Cegep Mathematics 103).
YEAR 2		ENGR 202 Sust. Dev. Enviro. Stewardship (1.50) Prerequisites: none.	AERO 290 Introduction to Aircraft Design (3.00) The following course must be completed previously: AERO 201. The following course must be completed previously or concurrently: ENCS 282.
		ENGR 371 Probability & Stats in Eng. (3.00) The following courses must be completed previously: ENGR 213, ENGR 233.	AERO 371 Modelling and Control Systems (3.50) The following courses must be completed previously: PHYS 205; ENGR 213, ENGR 243. The following course must be completed previously or concurrently: ENGR 311 or ELEC 342 or ELEC 364.
		ENGR 311 Transform Calc. & Partial Diff. Eq. (3.00) The following courses must be completed previously: ENGR 213, ENGR 233.	ENGR 361 Fluid Mechanics I (3.00) The following courses must be completed previously: ENGR 213, ENGR 233, ENGR 251.
		MIAE 221 Materials Science (3.00) The following course must be completed previously: CHEM 205 (Cegep Chemistry 101).	MECH 343 Theory of Machines (3.50) The following courses must be completed previously: ENGR 213, ENGR 233, ENGR 243.
		MIAE 211 Mech. Engineering Drawing (3.50) Prerequisites: none.	MIAE 313 Machine Drawing and Design (3.50) The following course must be completed previously: MECH 211 or MIAE 211.
YEAR 3		AERO 390 Aerospace Engr. Design Project (3.00) The following courses must be completed previously: AERO 290, AERO 371; ENCS 282.	ENGR 391 Numerical Methods in Engr. (3.00) The following courses must be completed previously: ENGR 213, ENGR 233; COMP 248 or COEN 243 or MECH 215 or MIAE 215 or BCEE 231.
		AERO 417 Standards, Reg. and Certification (3.00) The following course must be completed previously: ENGR 201.	ENGR 392 Impact of Technology on Society (3.00) The following courses must be completed previously: ENCS 282; ENGR 201, ENGR 202.
		AERO 481 Materials Engr. for Aerospace (3.50) The following course must be completed previously: MECH 221 or MIAE 221.	ENGR 301 Engr. Manage. Principles Econ (3.00) Prerequisites: none.
		MECH 373 Instrumentation & Measurements (3.50) The following courses must be completed previously: ENGR 311; AERO 371 or MECH 370.	MECH 352 Heat Transfer I (3.50) The following courses must be completed previously: ENGR 311, ENGR 361.
		MIAE 311 Manufacturing Processes (3.00) The following course must be completed previously: MECH 313 or MIAE 313.	MECH 375 Mechanical Vibrations (3.50) The following course must be completed previously: AERO 371 or MECH 370.
		MIAE 312 EDML Lab (1.00) The following course must be completed previously or concurrently: MIAE 311.	
YEAR 4		AERO 431 Principles of Aeroelasticity (3.50) The following courses must be completed previously: ENGR 361; MECH 375.	AERO 487 Design of Aircraft Structures (3.00) The following course must be completed previously: AERO 486.
		AERO 486 Aircraft Stress Analysis (3.00) The following courses must be completed previously: ENGR 243, ENGR 244.	MECH 460 Finite Element Analysis (3.75) The following courses must be completed previously: ENGR 244, ENGR 391.
		MECH 412 Computer-Aided Mech. Design (3.50) The following course must be completed previously: MECH 313 or MIAE 313.	General Studies (3.00) (Undergraduate Calendar, Sec. 71.110)
		AERO 490 Capstone Aerospace Engineering Design Project (6.00) The following courses must be completed in advance: AERO 390; ENGR 301. Students must have completed 75 credits in the program prior to enrolling.	

DETAILED COURSE INFORMATION
Aerospace - Option B 2024-25

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, ENGR 243	ENGR 311 or ELEC 342 or ELEC 364			X	X
AERO 390	Aerospace Engineering Design Project	3.00	AERO 290, AERO 371; ENCS 282				X	
AERO 417	Standards, Regulations and Certification	3.00	ENGR 201		X*		X	
AERO 431	Principles of Aeroelasticity	3.50	ENGR 361; MECH 375				X	
AERO 481	Materials Engineering for Aerospace	3.50	MECH 221 or MIAE				X	
AERO 486	Aircraft Stress Analysis	3.00	ENGR 243, ENGR 244				X	
AERO 487	Design of Aircraft Structures	3.00	AERO 486					X
AERO 490	Capstone Aerospace Engineering Design Project	6.00	AERO 390; ENGR 301. Students must have completed 75 credits in the program.				X	
ENCS 282	Technical Writing and Communication	3.00	Passing the Engineering Writing Test (EWT) or ENCS 272 with a grade of C- or higher.		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
ENGR 213	Applied Ordinary Differential Equations	3.00	MATH 205 (Cegep Mathematics 203)	MATH 204 (Cegep Mathematics 105)	X		X	X
ENGR 233	Applied Advanced Calculus	3.00	MATH 204 (Cegep Mathematics 105); MATH 205 (Cegep Mathematics 203)		X	X	X	X
ENGR 242	Statics	3.00	ENGR 213	PHYS 204; MATH 204	X		X	X
ENGR 243	Dynamics	3.00	ENGR 213, ENGR 242		X		X	X
ENGR 244	Mechanics of Materials	3.75	ENGR 213; ENGR 242 or ENGR 245	ENGR 233		X	X	X
ENGR 251	Thermodynamics I	3.00	MATH 203		X	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, ENGR 233		X	X	X	X
ENGR 361	Fluid Mechanics I	3.00	ENGR 213, ENGR 233, ENGR 251		X		X	EC
ENGR 371	Probability and Statistics in Engineering	3.00	ENGR 213, ENGR 233		X	X	X	X
ENGR 391	Numerical Methods in Engineering	3.00	ENGR 213, ENGR 233; COMP 248 or COEN 243 or MECH 215 or MIAE 215 or BCEE 231			EC	EC	EC
ENGR 392	Impact of Technology on Society	3.00	ENCS 282; ENGR 201, ENGR 202		X	X	X	X
Gen. Ed.	General Education Elective	3.00	See section 71.7110 of the Undergraduate Calendar		X	X	X	X
MECH 343	Theory of Machines	3.50	ENGR 213, ENGR 233, ENGR 243				X	X
MECH 352	Heat Transfer I	3.50	ENGR 311, ENGR 361				X	X
MECH 373	Instrumentation and Measurements	3.50	ENGR 311; AERO 371 or MECH 370				X	
MECH 375	Mechanical Vibrations	3.50	AERO 371 or MECH 370			X	X	X
MECH 412	Computer-Aided Mechanical Design	3.50	MECH 313 or MIAE 313				X	
MECH 460	Finite Element Analysis	3.75	ENGR 244, ENGR 391					X
MIAE 211	Mechanical Engineering Drawing	3.50			X		X	X
MIAE 215	Programming for Mechanical and Industrial Engineers	3.50	MATH 204 (Cegep mathematics 105)			X	X	X
MIAE 221	Materials Science	3.00	CHEM 205 (Cegep Chemistry 101)				X	X
MIAE 311	Manufacturing Processes	3.00	MECH 313 or MIAE 313		X		X	
MIAE 312	Engineering Design and Manufacturing Processes Lab	1.00		MIAE 311	X**		X	
MIAE 313	Machine Drawing and Design	3.50	MECH 211 or MIAE 211				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 March 2024.

*AERO 417 reserved for AERO students
**MIAE 312 reserved for Co-op students