

NOTE: The specific order of classes in this curriculum guide are flexible. This is a four-year degree planning sample, and it is recommended to consult with your academic advisor about your options.

Curriculum for B.S. Degree in Aerospace Engineering Sciences
Applies to students who enter program in Fall 2024
C- is the minimum grade for all course prerequisites

First Year – Fall Semester			Prerequisites (PR) & Corequisites (CR)	
APPM 1350 or MATH 1300	Calculus I for Engineers	4		
ASEN 1400, 1403, GEEN 1400, ECEN 1400	Engineering Projects	3		
PHYS 1110	General Physics I	4	(PR or CR) APPM 1350	
COEN 1830	Special Topics (Engineering First-Year Seminar ²)	1		
	Humanities/Social Science ¹	3		
CREDIT HOURS		15		

Humanities & Social Sciences (H&SS) include: 9 credit hours of lower division or upper division, 6 hours of upper division, & 3 hours of writing. **Total: 18 hours**

ASEN 1320, PHYS 1110, and Engineering Projects can be taken in either Fall or Spring Semester.

First Year – Spring Semester			Prerequisites (PR) & Corequisites (CR)	
APPM 1360 or MATH 2300	Calculus II for Engineers	4	(PR) APPM 1350	
ASEN 1320	Aerospace Computing & Eng. Applications	4	(PR or CR) APPM 1235 or APPM 1350	
MCEN 1024	Chemistry for Energy and Materials Science	3		
	Humanities & Social Science ¹	3		
	Humanities & Social Science ¹	3		
CREDIT HOURS		17		

ASEN sophomore level courses require students to have earned a “C-” or better in the following prerequisite courses: **APPM 1350, APPM 1360** (or math equivalents), **PHYS 1110**, and one of the following programming courses: **ASEN 1320 or CSCI 1300** (or transferable equivalents).

Sophomore Year – Fall Semester			Prerequisites (PR) & Corequisites (CR)	
APPM 2360 or MATH 3430 & MATH 2130	Intro Diff Equations w/ Linear Algebra	4	(PR) APPM 1360	
ASEN 2401	Statics	3	(PR) APPM 1360; PHYS 1110	
ASEN 2402	Thermodynamics	3	(PR) APPM 1360; PHYS 1110 (Recommended PR or CR); MCEN 1024	
ASEN 2501	Introduction to Astronautics	3	(PR) APPM 1360; PHYS 1110; ASEN 1320	
	Free Elective	3		
CREDIT HOURS		16		

Sophomore Year – Spring Semester			Prerequisites (PR) & Corequisites (CR)	
APPM 2350 or MATH 2400	Calculus III for Engineers	4	(PR) APPM 1360	
ASEN 2403	Dynamics	3	(PR) ASEN 2401; ASEN 1320; (PR or CR) APPM 2360	
ASEN 2502	Introduction to Aeronautics	3	(PR) APPM 1360; ASEN 1320; PHYS 1110	
PHYS 1120	General Physics II	4	(PR) PHYS 1110; (PR or CR) APPM 1360	
	Free Elective	3		
CREDIT HOURS		17		

PHYS 1120 can also be taken in the summer before junior year or fall semester of junior year.

1. Courses from approved Humanities, Social Sciences and Writing Requirements (<https://www.colorado.edu/engineering-advising/get-your-degree/degree-requirements/humanities-social-sciences-and-writing-requirements/>).
2. Students may elect to apply this course towards either free electives or Humanities and Social Sciences credits (but not both).

Junior Year – Fall Semester			Prerequisites (PR) & Corequisites (CR)
ASEN 3401	Aerospace Structures	3	(PR) ASEN 2401 (Recommended PR); APPM 2350; APPM 2360
ASEN 3402	Aerospace Heat Transfer	3	(PR) ASEN 2402; APPM 2360 (PR or CR); APPM 2350
ASEN 3404	Aerospace Dynamics & Control	3	(PR) ASEN 2403 or MCEN 2043 or CVEN 3111; APPM 2350, APPM 2360
ASEN 3501	Aerospace Experimental Methods	3	(PR) ASEN 2402; ASEN 2403; APPM 2350, APPM 2360 (Recommended PR) ASEN 2501; ASEN 2502
	Math and Science Elective ³	3	
CREDIT HOURS		15	
Junior Year – Spring Semester			Prerequisites (PR) & Corequisites (CR)
ASEN 3403	Aerodynamics	3	(PR) ASEN 2402; APPM 2350; APPM 2360
ASEN 3405 or ASEN 3406	Astrodynamics or Aircraft Dynamics ⁶	3	(PR) ASEN 2501; (PR or CR) ASEN 3404 (PR) ASEN 2502; ASEN 3403
ASEN 3502	Aerospace Computational Methods	3	(PR) ASEN 2402; ASEN 2403; APPM 2350; APPM 2360 (Recommended PR); ASEN 2501; ASEN 2502
ASEN 3503	Aerospace Electronics	3	(PR) ASEN 2403; APPM 2360; PHYS 1120
	Humanities & Social Science ¹	3	
CREDIT HOURS		15	

Senior Year – Fall Semester			Prerequisites (PR) & Corequisites (CR)
ASEN 4013	Foundations of Propulsion	3	(PR) ASEN 3403; MCEN 1024
ASEN 4018	Senior Projects I: Design Synthesis	4	(PR) All 2000 level ASEN courses; ASEN 3501 or ASEN 3502; Three of (ASEN 3401 or ASEN 3402 or ASEN 3403 or ASEN 3404 or ASEN 3503)
	Aerospace Engineering Elective ⁴	3	
	College-Approved Writing Course ¹	3	
	Technical Elective ⁵	4	
CREDIT HOURS		17	
Senior Year – Spring Semester			Prerequisites (PR) & Corequisites (CR)
ASEN 4028	Senior Projects II: Design Practicum	4	(PR) ASEN 4018
ASEN 4401 or ASEN 4402	Aerospace Communication Systems or Aerospace Materials and Structural Analysis ⁶	3	(PR) ASEN 2501; ASEN 3503 (PR) ASEN 3401; MCEN 1024
	Humanities & Social Science ¹	3	
	Technical Elective ⁵	3	
	Technical Elective ⁵	3	
CREDIT HOURS		16	

Senior Projects I & II must be completed in the same academic year, starting in the fall.

3. A full listing of approved math and science elective courses can be found in the degree audit.

4. Any ASEN course at the 4000-level or above that is not a required course can be used to satisfy the Aerospace Engineering Elective requirement. Additionally, for Astronautics Focus students, either ASEN 3406 or ASEN 4402 can be used to satisfy the Aerospace Engineering Elective requirement, while for Aeronautics Focus students, either ASEN 3405 or ASEN 4401 can be used to satisfy the Aerospace Engineering Elective requirement.

5. A technical elective is generally a course in math, engineering, or science at the 3000 level or above. Any ASEN course at the 4000 level or above that is not a required course can be used as a technical elective. Upper-division independent study courses from technical areas (math, science and engineering) are acceptable for up to 6 credit hours of technical elective credit. A full listing of approved technical elective courses can be found in the degree audit.

6. Students select from either the Aeronautics Focus or the Astronautics Focus and complete 6 credit hours of required coursework in that area. Astronautics Focus: ASEN 3405 & ASEN 4401. Aeronautics Focus: ASEN 3406 & ASEN 4402