IOWA STATE UNIVERSITY
Department of Aerospace Engineering

4-Year Plan for Undergraduates

2021 catalog/graduation requirements

Fall 15 Credits	Calculus I Math 165 4 Credits	Chemistry for Engineers Chem167/177 4 Credits	Engineering Problem Solving AerE 160/H 3 Credits	Library Instruction Libr 160 1 Credit	English Composition I Engl 150 3 Credits	Engineering Orientation Engr 101		First Year
Spring 15 Credits	Calculus II Math 166 4 Credits	Classical Physics I Phys 231 & 231L 5 Credits	Num., Graph., & Lab Techniques AerE 161/H 3 Credits	General Education GenEd 3 Credits	Aerospace Seminar AerE 192/H			
Fall 18 Credits	Multi-variable Calculus Math 265 4 Credits	Classical Physics II Phys 232 & 232L 5 Credits	Intro to Performance & Design AerE 261 3 Credits	Statics for Engineers CE 274 3 Credits	English Composition II Engl 250 3 Credits			Second Year
Spring 16 Credits	Differential Equations Math 267 4 Credits	Dynamics ME 345 3 Credits	Intro to Material Sci & Engrg MatE 273 3 Credits	Mechanics of Materials EM 324 3 Credits	Technical Comm Engl 309/314 3 credits			
Fall 17 Credits	Flight Structures AerE 321 3 Credits	Structures Lab AerE 322 2 Credits	Thermo-dynamics ME 231 3 Credits	Aero-dynamics I AerE 310 3 Credits	Astro-dynamics I AerE 351 3 Credits	Flight Dynamics & Control AerE 355 3 Credits	Flight Experience AerE 301	Third Year
Spring 18 Credits	Advanced Flight Structures AerE 421 3 Credits	Comp. Tech-niques for Aero. Design AerE 361 3 Credits	Aerospace Systems AerE 362 3 Credits	Aerodynam-ics/Propul-sion Lab AerE 344 3 Credits	Aero-dynamics II AerE 311 3 Credits	Flight Con-trol Systems AerE 331 3 Credits		
Fall 15 Credits	Technical Elective TechE 3 Credits	Astronautics Requirement 3 Credits (see chart, page 2)	Design Methodology AerE 461 3 Credits	Aerospace Vehicle Propulsion AerE 411 3 Credits	General Education GenEd 3 Credits			Fourth Year
Spring 15 Credits	Technical Elective TechE 3 Credits	Technical Elective TechE 3 Credits	Design of Aerospace Systems AerE 462 3 Credits	General Education GenEd 3 Credits	General Education GenEd 3 Credits			

Basic Program

Course Groups

Aerospace Requirement	*Technical Elective*	*Engineering Fundamentals*	
Mathematics	*Chemistry & Physics*	*General Education*	*Seminars*

Basic Program - 24 credits

Must be completed (Basic Program GPA > 2.0 and Cumulative GPA > 2.0) before 200-Level Engr courses

Calculus I	Math 165	4	Calculus II	Math 166	4
Chemistry	Chem 167/177	4	Physics I	Phys 221	5
Engrg Prob Solving	AerE 160/H	3	English 150	Engl 150	3
Engrg Orientation	Engr 101		Library Instruction	Libr 160	1

English Proficiency - 9 credits

Grade of C or better is required in both ENGL 150 and ENGL 250

English Comp I Engl 150	3
English Comp II Engl 250	3
Technical Comm Engl 309 or 314	3

General Education - 12 credits

GenEd

US Diversity (3); International Perspective (3); (6) from list approved by department. Two semester sequence in a single foreign language may be applied per ISU Foreign Language Requirements.

Aerospace Engineering - 50 credits in 8 areas of study

Aerodynamics	Aerodynamics I	AerE 310	3
	Aerodynamics II	AerE 311	3
	Aerodynamics/Propulsion Lab	AerE 344	3
Propulsion	Propulsion	AerE 411	3
Structures	Flight Structures	AerE 321	3
	Aero Structures Lab	AerE 322	2
	Adv Flight Structures	AerE 421	3
Controls	Flight Dynamics & Control	AerE 355	3
	Flight Control Systems	AerE 331	3
Astrodynamics	Astrodynamics I	AerE 351	3
Systems and Design	Performance and Design	AerE 261	3
	Aerospace Systems	AerE 362	3
	Design Methodology	AerE 461	3
	Design of Aero Systems	AerE 462	3
Software and Numerics	Num., Graph. Techniques	AerE 161/H	3
	Comp. Techniques for Aero. Design	AerE 361	3
Astronautics Requirement	One of:		
	(a) Rocket Propulsion	AerE 415	3
	(b) Spacecraft Dynamics	AerE 433	3

Technical Electives - 9 credits - Adviser Approval Required

Make to Innovate/ Undergrad Research

AerE 294- Freshman and Sophomores (credits do not count towards graduation). AerE 494 - Juniors and Seniors (maximum of 6 credits may count towards graduation). See Make to Innovate Coordinator for registration procedure.

Technical Electives

Group-**A** Aerospace Electives (3 credits), group-**B** Technical/Engineering Electives (3 credits) and group-**C** Career Electives (3 credits). Consult advisers for the current approved technical elective list. Group A and B electives may be used for group C.