## **IOWA STATE UNIVERSITY**

**Department of Aerospace Engineering** 

**Program** 

# 4-Year Plan for Undergraduates

2021 catalog/graduation requirements

Chemistry &

**Physics** 

**Mathematics** 

General

Education

Seminars

Fall 15 Credits Chemistry **Engineering** Library **English** Engineering Calculus I for **Problem** Instruction Composition I Orientation **Math 165 Engineers** Solving **Libr 160 Engl 150 Engr 101** First Year Chem167/177 AerE 160/H 4 Credits 3 Credits 1 Credit 4 Credits 3 Credits Num., Classical General Calculus II Graph., & Lab Aerospace **Physics I** Education **Math 166 Techniques Seminar Phys 221** GenEd **AerE 161/H AerE 192/H** 4 Credits 5 Credits 3 Credits 3 Credits Multi-Classical 18 Credits Intro to Statics for **English** variable Physics II **Performance Engineers Composition II** Calculus Phys 232 & & Design AerE 261 Second Year **Engl 250 CE/EM 274** Math 265 232L 3 Credits 3 Credits 3 Credits **4 Credits 5 Credits** Spring 16 Credits Intro to Technical Differential **Mechanics Dynamics Material Sci** Comm **Equations** of Materials **ME/EM 345** & Engrg Engl **Math 267 EM 324 MatE 273** 309/314 3 Credits 4 Credits 3 Credits 3 Credits 3 credits Fall 17 Credits **Flight Flight Structures** Thermo-Aero-Astro-**Flight Dynamics & Structures** Lab dynamics dynamics I dynamics I **Experience Control ME 231 AerE 321 AerE 322 AerE 310 AerE 351** Third Year AerE 355 **AerE 301** 3 Credits 3 Credits 2 Credits 3 Credits 3 Credits 3 Credits **Advanced** Comp. Tech-Aerodynam-**Aerospace** Aero-Flight Con-**Flight** niques for ics/Propul-**Systems** dynamics II trol Systems **Structures** Aero. Design sion Lab **AerE 362 AerE 311 AerE 331 AerE 361 AerE 421** AerE 344 3 Credits 3 Credits 3 Credits 3 Credits 3 Credits 3 Credits Fall 15 Credits Aerospace **Astronautics Technical** General Design **Vehicle** Requirement **Elective Education** Methodology **Propulsion** 3 Credits **AerE 461 TechE** GenEd Fourth Year **AerE 411** 3 Credits 3 Credits 3 Credits (see chart, page 2) 3 Credits Design of **Technical Technical** General General **Aerospace Elective Elective Education Education Systems TechE** TechE GenEd GenEd **AerE 462** 3 Credits 3 Credits 3 Credits 3 Credits 3 Credits Course Technical **Engineering** Aerospace **Basic** Fundamentals Requirement **Elective** Groups

#### Basic Program - 24 credits

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

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

#### 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

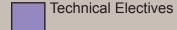


Aerodynamics	Aerodynamics I	AerE 310	3
	Aerodynamics II	AerE 311	3
	Aerodynamics/Propulsion Lab	AerE 344	3
Propulsion	Propulsion	AerE 411	3
Structures	Flight Structures	AerE 321	3
	Aero Structures Lab	AerE 322	2
	Adv Flight Structures	AerE 421	3
Controls	Flight Dynamics & Control	AerE 355	3
	Flight Control 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.



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.