## **IOWA STATE UNIVERSITY**

**Program** 

## 4-Year Plan for Undergraduates

Requirement

Chemistry &

**Physics** 

**Groups** 

**Mathematics** 

**Elective** 

General

Education

**Fundamentals** 

Seminars

**Department of Aerospace Engineering** 2020 catalog/graduation requirements Fall 15 Credits Chemistry ngineering Library Calculus I ngineering **Problem** nstruction omposition **Math 165 Engineers** Orientation **Solving Engl 150 Libr 160 Engr 101** hem167/177 **4 Credits AerE 160/H** 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 4 Credits **AerE 161/H AerE 192/H** 5 Credits 3 Credits 3 Credits Multi-Classical Intro to 18 Credits Statics for **English** variable Physics II **Performance Engineers** Composition II Calculus & Design Second Year Phys 232 & **CE/EM 274** Math 265 232L **AerE 261** 3 Credits 3 Credits Credits 4 Credits **Credits** Intro to **Differential Mechanics** General **Dynamics Material Sci Equations** of Materials Education **ME/EM 345** & Engrg **Math 267** GenEd **EM 324 MatE 273** 3 Credits 4 Credits 3 Credits 3 Credits 3 Credits 17 Credits **Flight Flight Structures** Thermo-Aero-Astro-**Dynamics &** Flight dynamics I **Structures** Lab dynamics dynamics I Control Experience **ME 231 AerE 321 AerE 322 AerE 310 AerE 351 AerE 355 AerE 301** 3 Credits 2 Credits 3 Credits 3 Credits 3 Credits 3 Credits **Advanced** Comp. Tech-Aerodynam-**Aerospace** Aero-Flight Con-**Flight** niques for ics/Propul-**Systems** dynamics I 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 Technical **Aerospace Technical** Technical Design **Vehicle** Comm Methodology **Elective Elective Propulsion AerE 461 TechE TechE AerE 411** 309/314 3 Credits 3 Credits 3 Credits 3 Credits 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 **Basic** Technical **Engineering** Aerospace

Basic Program - 24 credits Must be completed (Basic Program GPA > 2.0 and Cumulative GPA > 2.0) before 200-Level Engr courses								
	Calculus I Chemistry Engrg Prob Solving Engrg Orientation	Math 165 Chem 167/177 AerE 160/H Engr 101		4 4 3	Calculus II Physics I English 150 Library Instruction	Math 166 Phys 221 Engl 150 Libr 160	4 5 3 1	
English Proficiency - 9 credits			A grade of C or better in both English 150 and 250; part of basic program					
Gene	English Comp I Engl 150 English Comp II Engl 250 Technical Comm Engl 309 or 314  General Education - 12 credits			3 3 3				
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 - 47 credits in 7 areas of study								
	Aero	dynamics		Aerody	namics I namics II namics/Propulsion Lab	AerE 310 AerE 311 AerE 344	3 3 3	

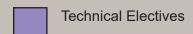
## **Propulsion** Propulsion AerE 411 3 Flight Structures AerE 321 3 **Structures** Structures Lab 3 AerE 322 Adv Flight Structures AerE 421 2 **Controls** Flight Dynamics & Control AerE 355 3 **Control Systems** 3 AerE 331 **Astrodynamics** Astrodynamics I AerE 351 3 Systems and Design Aerospace Systems AerE 362 3 Design Methodology AerE 461 3 Design of Aero Sys AerE 462 3 **Analysis and Numerics** Num., Graph., & Lab Techniques AerE 161/H 3 Aerospace Analysis II AerE 261 3

## Technical Electives - 12 credits - Adviser Approval Required

Make to Innovate M:2:I/ Undergraduate Research AerE 290- Freshman and Sophomores; Technical credits do not count towards graduation. AerE 490 - Juniors and Seniors; Max of 6 technical credits may count towards graduation. See Academic Adviser for registration procedure.

Comp. Techniques for Aero. Design AerE 361

3



(A) Aerospace Electives (3): Propulsion - AerE 412, Experimental Mechanics - AerE417, Structures - AerE 422, Composities - AerE 423, Design/Structures - AerE 426, Controls - AerE 432, Space Dyn & Ctrl. - AerE 433, V/STOL - AerE 442, Comp. Fluid Dynamics - AerE 446, Turbo. Mach. - AerE 448, Astrodynamics - AerE 451, Intro to Multi-disciplinary Design Optimization - AerE 463, Spacecraft Systems - AerE 464, Large Scale Complex Eng. Syst. - AerE 468, Aviation Safety/Piloting - AerE 471, Wind Energy - AerE 481

(B) Technical/Engineering Electives (3): Select from list approved by the Department; group (A) courses may be used to satisfy this requirement. Courses may need to be pre-approved by AER E Curriculum Committee

(C) Career (6): Select from the courses in (A) or (B) or from 300/400/500 level courses in the ISU Catalog. Courses may need to be pre-approved by AER E Curriculum Committee

March 2020