

# 4-Year Plan for Undergraduates

2021 & 2022 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
		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		
Spring	15 Credits							Second Year
		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		
Fall	18 Credits							Third Year
		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		
Spring	16 Credits							Fourth Year
		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	
Fall	17 Credits							First Year
		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	
Spring	18 Credits							Second Year
		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		
Fall	15 Credits							Third Year
		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		
Spring	15 Credits							Fourth Year

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 higher is required in both ENGL 150, ENGL 250 and ENGL 309/314



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



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