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








A grade of C or better in both English 150 and 250; part of basic program

|  |                                |   |
|--|--------------------------------|---|
|  | 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 - 47 credits in 7 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 |
|                              |   | Structures Lab                    | AerE 322   | 3 |
|                              |   | Adv Flight Structures             | AerE 421   | 2 |
| <b>Controls</b>              |  | Flight Dynamics & Control         | AerE 355   | 3 |
|                              |   | Control Systems                   | AerE 331   | 3 |
| <b>Astrodynamics</b>         |  | Astrodynamics I                   | AerE 351   | 3 |
| <b>Systems and Design</b>    |  | Aerospace Systems                 | AerE 362   | 3 |
|                              |   | Design Methodology                | AerE 461   | 3 |
|                              |   | Design of Aero Sys                | AerE 462   | 3 |
| <b>Analysis and Numerics</b> |  | Num., Graph., & Lab Techniques    | AerE 161/H | 3 |
|                              |   | Aerospace Analysis II             | AerE 261   | 3 |
|                              |   | Comp. Techniques for Aero. Design | AerE 361   | 3 |

**Technical Electives - 12 credits - Adviser Approval Required**

|  |   |   |
|--|---|---|
|  | Make to Innovate M:2:I/<br>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. |
|--|---|---|

|  |                     |  |
|--|---------------------|--|
|  | Technical Electives | (A) Aerospace Electives (3): Propulsion - AerE 412, Experimental Mechanics - AerE417, Structures - AerE 422, Composites - 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<br>(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<br>(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 |
|--|---------------------|--|