

Student ID: _____ Catalog: _____
Student Name: _____ Program: Individualized Degree, B.S.
Advisor Name: _____ Minimum Credits Required: _____

Individualized Degree in Aerospace Systems Engineering Technology, B.S.

Students interested in pursuing a Bachelor of Science in the field of Aerospace Systems Engineering Technology may do so through the Individualized Degree Program (IDP), which allows for a combination of suggested coursework across multiple departments with the flexibility to meet the needs of the individual student.

All IDP students are required to submit an IDP proposal for approval. If you have not done so already, please schedule an appointment with an IDP advisor for more information and for access to the Canvas IDP Student Center.

Degree/Graduation Requirements

- Ethnic Studies and Social Justice Course (3)
 - Students may fulfill the multicultural requirement by taking approved courses within one of the following categories: Arts and Humanities; Historical; Natural and Physical Sciences; Or Social and Behavioral Sciences
- Senior Experience (3) AES 4603 or AES 3980 as needed

General Requirements

General Studies Suggested Requirements

- Written Communication: 6 credits
 - Recommended: ENG 1010: Composing Arguments (3), and ENG 1020: Research & Argument Writing (3)
- Oral Communications: 3 credits
 - Recommended: COMM 1010: Presentational Speaking (3)
- Quantitative Literacy: 3 credits
 - Recommended: MTH 1110: College Algebra (4) – or higher level
- Arts and Humanities: 6 credits
 - Recommended: PHI 1030: Ethics (3) and any approved Arts and Humanities course (3)
- Historical: 3 credits
- Natural & Physical Sciences: 5 credits
 - Recommended: PHY 2311: General Physics I (4) PHY 2321: Laboratory (1)
- Social and Behavioral Sciences: 6 credits
 - Recommended: ECO 2010: Principles of Macroeconomics (3) and ECO 2020: Principles of Microeconomics (3)
- Global Diversity: 0-3 credits
 - Students may fulfill the Global Diversity requirement by taking approved courses within one of the following categories: Arts and Humanities; Historical; Natural and Physical Sciences; Or Social and Behavioral Sciences

Total of required credits for General Studies: 33-39 credits

Overview of Major Requirements

- Core classes (60+ credits)
- Elective classes (additional credits needed to reach 120 total credits)

See below for courses

Major Suggested Requirements (60+ credits)

Aerospace Systems Engineering Technology Courses

- AES 2050: Aviation History & Aerospace History Dev (3)
- AES 2607: Intro to Aerospace Sys Sim (3)*
- AES 3000: Aircraft Systems & Propulsion (3)
- AES 3600: Space Flight Operations I (3)*
- AES 3610: Elements of Spacecraft Design I
- AES 3607: Orbital Mechanics & Aerospace Systems Simulations (3)
- AES 3620: Aerospace Systems Project and Mission Scheduling
- AES 4601: Space Flight Operations II (3)*
- AES 4602: Aerospace Comm Ops (3)*
- AES 4603: Aerospace Ops Syst Anal & Design (3)*
- CHE 1800: General Chemistry I (4)
- CS 1030: Computer Science Principles (4)
- CSS 2751: Principles of Cybersecurity (3)
- JMP 2610: Intro to Technical Writing (3)
- EET 2000: Electric Circuits and Machines (3)
- MET 1010: Manufacturing Processes (3)
- MET 1200: Technical Drawing I (3)
- MET 1310: Principles of Quality Assurance (3)
- CET 2150: Mechanics I – Statics (3)
- MET 2200: Materials of Engineering (3)
- MET 3110: Thermodynamics (3)
- MET 3160: Mechanics II – Dynamics (3)
- CET 3135: Mechanics of Materials w/Lab (4)
- MET 3185: Fluid Mechanics I (3)
- MET 3410: Geom Dimensioning & Tol (3)
- MET 4000: Project Engineering (3)
- MTH 1410: Calculus I
- MTH 2410: Calculus II
- PHY 2311: General Physics I (4) and PHY 2321: Laboratory I (1)
- PHY 2331: General Physics II (4) and PHY 2341: Laboratory I (1)
- *Other courses as suggested by your IDP Faculty Advisor*

Electives

Students will need to take electives not listed here to meet the 120 credit hours and 39 upper division credits to complete the degree requirements.

Space Commercialization Certificate

Students completing AES 2607, 3600, 4601, 4602, and 4603 (see * in above list) will also earn an MSU Denver certificate in Space Commercialization. This certificate will provide the student with the knowledge to seek opportunities in an important and expanding part of the Colorado and national economy, as well as expand opportunities for those currently employed in the industry.

Total Aerospace Systems Engineering Technology Credits: 60+ credit hours, 34+ upper division

Total Credits: 120+ credit hours, 39 upper division

Faculty from Key Department: Dr. Michael Botyarov, Aviation and Aerospace Sciences

Contact for the Center for Individualized Learning (IDP): Dr. Sara Jackson Shumate

Contact the Center for Individualized Learning here: [CIL Website](#) and [CIL Contact Form](#)

Academic Plan – Aerospace Systems Engineering Technology

<p><u>Semester 1 – Fall</u></p> <ul style="list-style-type: none"> • ENG 1010 Composing Arguments (3) • COMM 1010 Presentational Speaking (3) • MET 1010 Manufacturing Processes (3) • MTH 1110 College Algebra (4) • AES 2050 Av. History & Aerospace History Dev (3) <p>Total Credit Hours 16</p>	<p><u>Semester 2 – Spring</u></p> <ul style="list-style-type: none"> • ECO 2010 Principles of Macroeconomics (3) • ENG 1020 Research & Argument Writing (3) • MET 1200 Technical Drawing I (3) • MTH 1400 Precalculus • Arts and Humanities elective (3) • CHE 1800 General Chemistry I (4) <p>Total Credit Hours 16</p>
<p><u>Semester 3 – Fall</u></p> <ul style="list-style-type: none"> • MET 1310 Principles of Quality Assurance (3) • MTH 1410 Calculus I (4) • PHI 1030 Ethics (3) • JMP 2610 Intro to Technical Writing (3) • ECO 2020 Principles of Microeconomics (3) <p>Total Credit Hours 16</p>	<p><u>Semester 4 – Spring</u></p> <ul style="list-style-type: none"> • PHY 2311 Gen Physics I (4) • PHY 2321 Gen Physics I Lab (1) • MTH 2410 Calculus II (4) • History elective (3) • CET 2150 Mechanics I – Statics (3) <p>Total Credit Hours 15</p>
<p><u>Semester 5 – Fall</u></p> <ul style="list-style-type: none"> • AES 3600 Space Flight Operations I (3) • PHY 2331 Gen Physics II (4) • PHY 2341 Gen Physics II Lab (1) • MET 2200 Materials of Engineering (3) • MET 3160 Mechanics II – Dynamics (3) <p>Total Credit Hours 14</p>	<p><u>Semester 6 – Spring</u></p> <ul style="list-style-type: none"> • MET 3110 Thermodynamics (3) • AES 4601 Space Flight Operations II (3) • MET 3185 Fluid Mechanics I (5) • AES 2607 Intro to Aerospace Sys Sim (3) <p>Total Credit Hours 14</p>
<p><u>Semester 7 – Fall</u></p> <ul style="list-style-type: none"> • AES 4602 Aerospace Comm Ops (3) • AES 4603 Aerospace Ops Syst Anal & Design (3) • AES 3530 Aerodynamics (3) • MET 4000 Project Engineering (3) • ESSJ course (3) <p>Total Credit Hours 15</p>	<p><u>Semester 8 – Spring</u></p> <ul style="list-style-type: none"> • MET 3410 Geom Dimensioning & Tol (3) • AES 3620 Aerospace Systems Project and Mission Scheduling (3) • Major electives (9) <p>Total Credit Hours 15</p>