



# Aviation Pilots

The Aviation Pilots program of study focuses on occupational and educational opportunities associated with the principles and science of flight. This program of study includes the exploration and understanding of aviation engineering, air navigational aids, air traffic controls, and communications equipment to ensure conformance with federal safety regulations.



## Courses for High School Credit

<b>Level 1</b>	• Introduction to Aerospace and Aviation
<b>Level 2</b>	• Introduction to Unmanned Aerial Vehicle Flight
<b>Level 3</b>	• Aerospace Engineering (PLTW) • Aviation Ground School • Aviation Scientific Research and Design
<b>Level 4</b>	• Practicum in Aviation Pilots

## Aligned Industry-Based Certifications

- FAA Part 107 Remote Drone Pilot

## Work-Based Learning and Expanded Learning Opportunities

<b>Work-Based Learning Activities</b>	<ul style="list-style-type: none"> <li>• Shadow a commercial airline pilot for to learn about pre- and post-flight routines</li> <li>• Intern at a technology company that produces drones to learn about aerial robotics and drone pilot requirements</li> </ul>
<b>Expanded Learning Opportunities</b>	<ul style="list-style-type: none"> <li>• Explore virtual aviation websites</li> <li>• Participate in SkillsUSA</li> </ul>



## Example Postsecondary Opportunities



### Apprenticeships

- Air Transport Pilot Apprentice

### Associate Degrees

- Airline/Commercial/Professional Pilot and Flight Crew

### Bachelor's Degrees

- Airline/Commercial/Professional Pilot and Flight Crew

### Additional Stackable IBCs/License

- Airman Certificate

## Example Aligned Occupations

*(Based on statewide employment data)*



### Commercial Pilots

Median Wage: \$108,120

Annual Openings: 663

10-Year Growth: 20%

### Airline Pilots, Copilots, and Flight Engineers

Median Wage: \$180,060

Annual Openings: 1,204

10-Year Growth: 14%



For more information visit:  
<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources>



Successful completion of the Aviation Pilots program of study will fulfill requirements of the Business and Industry endorsement.



# Aviation Pilots Course Descriptions:

## Introduction to Aerospace and Aviation- AVI1000 (1 Credit)

Level: 1 Course Fee: None  
Prerequisites: None GPA Weight: Regular

The Introduction to Aerospace and Aviation course will provide the foundation for advanced exploration in the areas of professional pilot, aerospace engineering, and unmanned aircraft systems. Students will learn about the history of aviation, from Leonardo da Vinci's ideas about flight to the Wright brothers and the space race. Along the way students will learn about the innovations and technological developments that have made today's aviation and aerospace industries possible. The course includes engineering practices, the design process, aircraft structure, space vehicles past and present, and a look toward future space exploration. Students will also learn about the wide variety of exciting and rewarding careers available to them. The Introduction to Aerospace and Aviation course will inspire students to consider aviation and other aerospace careers while laying the foundation for continued study in grades 10-12.

## Introduction to Unmanned Aerial Vehicle Flight- AVI2300 (1 credit)

Level: 2 Course Fee: None  
Prerequisites: None GPA Weight: Regular

The Introduction to Unmanned Aerial Vehicle (UAV) Flight course is designed to prepare students for entry-level employment or continuing education in piloting UAV operations. Principles of UAV is designed to instruct students in UAV flight navigation, industry laws and regulations, and safety regulations. Students are also exposed to mission planning procedures, environmental factors, and human factors involved in the UAV industry.

## Aviation Ground School- AVI5001 (1 credit)

Level: 3 Course Fee: None  
Prerequisites: None GPA Weight: Regular

This course is designed to extend student interests in all aspects of aviation while preparing students to take the formal ground requisite exam for the Federal Aviation Administration (FAA) FAA Airman Knowledge Test which is required to obtain a private pilot's license. The rigor of the course challenges students with complex aeronautical, engineering, weather, management and judgement concepts. Rules, regulations, obligations, and commitments to discipline and focus are foundational throughout the course. The ability to grasp flight without actually flying a real aircraft extends well beyond the classroom as students learn navigation, weather science, attention to detail (mathematical fuel and load planning), health and mental well-being related to flight planning and piloting aircraft.

**This course is designed to extend student interests in all aspects of aviation while preparing students to take the formal ground requisite exam for the Federal Aviation Administration (FAA) Airman Knowledge Test which is required in order to obtain a private pilot license.**

**Course taught exclusively at the Tomball Innovation Center.**

## Aviation Scientific Research & Design- AVI5002 (1 credit)

Level: 3 Course Fee: None  
Prerequisite: 1 Science credit GPA Weight: Regular

Aviation Scientific Research and Design is a broad-based course designed to allow districts and schools considerable flexibility to develop local curriculum to supplement any program of study or coherent sequence. The course has the components of any rigorous scientific or engineering program of study from the problem identification, investigation design, data collection, data analysis, formulation, and presentation of the conclusions. These components are integrated with the career and technical education emphasis of helping students gain entry-level employment in high-skill, high-wage jobs and/or continue their education. Students must meet the 40% laboratory and fieldwork requirement. Students may take this course with different course content for a maximum of three credits.

**Note: This course satisfies a science credit requirement for students on the Foundation High School Program.**

**Course taught exclusively at the Tomball Innovation Center.**

## Aerospace Engineering - STE3100H (1 credit)

Level: 3 Course Fee: None  
Prerequisites: None GPA Weight: Advanced

In this course, students explore the fundamentals of flight in air and space as they bring the concepts to life by designing and testing components, such as an airfoil, propulsion system, and a rocket. They learn orbital mechanics concepts and apply these by creating models using industry standard software. Students simulate a progression of operations to explore a planet, including creating a map of the terrain and using the map to execute a mission using an autonomous robot. Building enthusiasm while learning real-world skills related to the aerospace industry is a primary goal of the course. This course prepares students for college, a career, or the military by deepening their knowledge of aerospace concepts, developing students problem-solving skills, transportable skills (such as communication and ethical reasoning), and exposing them to a variety of careers.

## Practicum in Aviation Pilots- AVI4000 (2 Credits)

Level: 4 Course Fee: None  
Prerequisites: Aviation Ground School GPA Weight: Regular

Practicum in Aviation Pilots is designed to give students practical application of knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience such as internships, mentorships, independent study, or laboratories. The Practicum can be either school lab-based or work-based.

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