



UNMANNED AERIAL SYSTEMS (UAS)

Program of Study



Why a UAS - Drones Program?

Regardless of what you call these fascinating machines, they represent cutting-edge technology that are becoming a major factor in a large variety of global industries. In order to prepare students to enter into this field, QTL/ExplorNet developed a three-level program for ninth through twelfth graders where the curriculum spans the spectrum from the basics of aviation, regulations, design, industry specific applications, troubleshooting, and flight planning. AND, students can earn the **FAA Part 107 Remote Pilot Certificate** by the end of the second level.

Jobs! Jobs! Jobs!

Forbes noted that “the legalization of commercial drones will create more than \$80 billion in economic impact (such as revenue, job creation) between 2015 and 2025.”

Opportunity for UAS industry applications include:

- Agriculture and Conservation
- Archaeology and Geology
- Real Estate
- Construction
- Inspection
- Drone Repair & Maintenance
- Aerial Terrain Mapping
- Forestry Management & Research
- Public Safety
- Videography

Unmanned Aerial Systems I

The UAS I course introduces the development and use of drones, safety and regulations, aviation principles, UAS structure and assembly, and basic operations. Students will build a drone and execute appropriate mission planning and flight procedures.

Unmanned Aerial Systems II

Building upon the Level I course, students continue to demonstrate appropriate regulations and procedures to fly drones safely. New concepts include: troubleshooting, airspace, interpreting sectional charts and weather reports, operational procedures, and 3D design and printing. Students will develop and execute a UAS mission for an industry-specific scenario. Preparing for and passing the FAA Part 107 Certification test is an integral part of the Level II course.

Unmanned Aerial Systems III

Designed for students to culminate their learning in a real-world setting, students will complete a variety of projects (either on campus or off campus) for business and community partners designed to utilize their knowledge and skills and expand their learning related to UAS applications. The third level helps them prepare for drone-related career and entrepreneurial opportunities.

Key Points

- Developed by teachers and industry experts.
- Updated annually.
- Aligned with **FAA Part 107 Remote Pilot Certification** test.
- **Flex course** available for use with other program areas such as agriculture, business, construction or film/video.

Training

Training is provided by QTL/ExplorNet each summer. Participants will be provided in-depth training in UAS concepts, curriculum options, resources and best-practice strategies for teaching the courses. Training fee includes a drone kit that meets course requirements which teachers will build, fly and take back to their class, as well as the first year subscription to teacher resources.

We can come to you!

Contact Us!

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UAS I Frameworks

101. Understand the Basics of UAS.
102. Understand Why Safety Considerations and Regulations are Necessary.
103. Understand Principles of Flight.
104. Understand Propulsion and Power.
105. Understand Types of Control.
106. Understand Materials Science.
107. Understand Core Components.
108. Perform UAS Assembly.
109. Execute Pre- and Post-Flight Operations.
110. Execute In-Flight Operations.

UAS II Frameworks

201. Review Current Regulations and Industry Applications.
202. Execute Troubleshooting.
203. Perform Maintenance and Repair.
204. Understand Aeronautical Principles.
205. Understand Weather Reports and Impact.
206. Understand and Demonstrate UAS Operations.
207. Examine Digital Design and Manufacturing.
208. Execute Mission.

UAS III Frameworks

301. Execute Mission Planning.
302. Execute Mission Preparation and UAV Design.
303. Execute Advanced UAV Construction.
304. Create and Execute Mission Flight Plan.
305. Analyze and Evaluate the Mission.

View Sample Resources
Password: ExplorNetGuest

UNMANNED AERIAL SYSTEMS

Course Resources

Course resources are *created by a team of teachers and industry experts* and are *updated annually*. Resources include:

- PowerPoints to introduce key terms and concepts for each objective
- Two-column note-taking guides for each PowerPoint
- Key terms and definitions for each objective
- Student activities sheet with suggested activities, links, videos and accompanying documents
- Teacher lesson guides
- Test question bank
- Best practice strategy recommendations
- ***Aligned to industry certification tests***

Access to course resources available in two ways:

1. ***Blended learning environment*** using Moodle or Canvas includes:
 - Pre-built courses with all resources as listed above
 - Pre-built unit assessments for review or tests
 - Quizlet/crossword/word games for vocabulary review
 - ***Customizable***; teachers can add or remove documents, links, videos, etc.
 - Secure log-in
 - Teacher Resources Moodle for access to resources, sharing ideas, and asking and receiving help
 - ***Ongoing support***
2. ***Downloadable Resources***
 - If you use an alternative learning management system such as Google Classroom or no online system at all, we will provide all resource documents in a downloadable format
 - Teacher Resources Moodle for access to resources, sharing ideas, and asking and receiving help
 - ***Ongoing support***

UAS - Drone Pricing

The Unmanned Aerial Systems courses are available through a subscription which includes all resources for Levels I-III courses per teacher per school. ***NO PER STUDENT FEE!*** Subscription valid July 15 - June 15 each year.

- UAS Levels I-III Yearly Subscription ONLY \$995!
- Second teacher at same school \$495, a 50% discount!
- UAS Flex Course Subscription \$595
- Second teacher at same school \$295, a 50% discount!
- ***NEW!*** Introduction to Drones Module Subscription \$295
- ***NEW!*** Programming with Drones Module Subscription \$295
- Three-year subscription receives 10% discount!

Click below to download a pricing sheet for subscriptions and training.