

A.D Flight to the Future

Curriculum

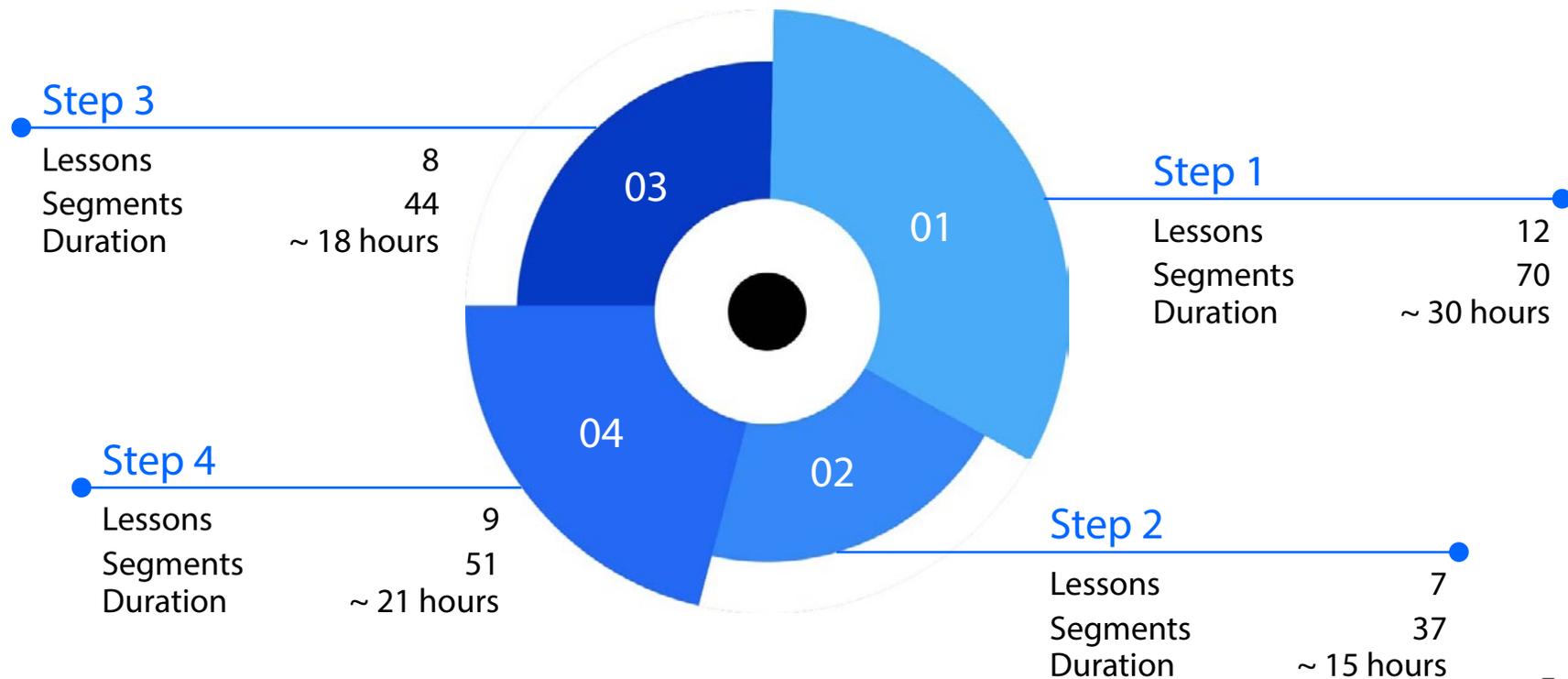


A.D
Aquila Drones

A.D Flight to the Future Curriculum

Metrics

Lessons	36	Videos	64
Segments	202	Assessment	28
Duration	~ 85 hours	Library	189



Curriculum | Step 1



1.1 Prepare for takeoff!

Welcome to the future of aviation. This is step 1 in the Flight to the Future program. At the completion of this step, you will become an FAA licensed commercial drone pilot.

From understanding how drones are made, to the rules of operating them in the National Airspace, you'll learn about topics that will help you pass the FAA Part 107 exam for drone pilots.

~ 10 minutes



1.2 Drone systems

What are drones? From multi-rotors to fixed-wing, drones come in many shapes and sizes. In this lesson you'll learn how drones are made, what their vital components are, and the engineering that makes it all possible.

With emphasis on multi-rotors, you'll get a good understanding of the vital systems and technologies employed. For additional perspective, delve into the history of drones and discover how this technological marvel evolved.

~ 3 hours



1.3 Aerodynamics

The laws of physics that govern the flight of every drone are introduced in this lesson. Understand the forces involved, and the efforts to counter them in flight. With treatments for both multi-rotor and fixed-wing configurations, you'll learn about the conditions that enable a drone to stay airborne.

Going beyond the basics, get a glimpse of the future of drone flight, which is autonomous, enabled by developing sophisticated algorithms for flight control.

~ 3 hours



1.4 Performance

Like for manned aircraft, drone performance can be defined in ways that are measurable. A number of factors affect performance. In this lesson, you'll see how atmospheric and weather conditions can influence drone flights.

High performance drones exist in a variety of categories. From racing drones, to autonomously controlled swarms, discover some of the cutting-edge efforts that are being made to improve capabilities.

~ 3 hours

Curriculum | Step 1



1.5 Weight and balance

All aircraft have weight and balance restrictions. Drones are no exception. In order to safely operate drones, you'll need to understand the ways in which weight and balance affect flight and the procedures to achieve stability.

Payloads play a crucial role and you'll learn how to properly follow loading rules based on the drone capability. You'll also get a closer look at some heavy-lift UAV configurations that are being pioneered for cargo and passengers.

~ 3 hours



1.6 Aeronautical decision-making

Aeronautical decision-making or ADM is the mental process used by pilots to determine the best course of action in an aviation environment. ADM skills are crucial for operating aircraft in a safe and responsible manner.

In this lesson, you'll learn best practices and ADM procedures to ensure good risk management for drone operations. For greater context, explore the history of ADM and learn how pilots get trained in this evolving arena.

~ 3 hours



1.7 The FAA's role in aviation

The Federal Aviation Administration or FAA is a government agency that falls under the US Department of Transportation and is responsible for the safety of all civilian aviation in the United States.

In this lesson you'll learn about the important role the FAA plays in commercial drone operations and the services, regulations and partnerships they have in place to facilitate the expansion of the UAV industry.

~ 3 hours



1.8 Airports and the National Airspace

Learn about airports and how they are categorized by the FAA. Airports influence the classification of airspace, so a good grasp of this knowledge is essential for safe and authorized drone operations.

Airports, along with the airspace and air traffic control facilities, constitute the National Airspace System or NAS. This ecosystem of assets, personnel and regulations forms one of the most complex aviation systems in the world.

~ 3 hours

Curriculum | Step 1



1.9 Aviation weather and UAV procedures

Weather reporting and prediction along with defined and accurate procedures can greatly influence performance and safety. Combined and properly utilized, they will enhance the measure of your success.

In this lesson, you'll learn how to apply the various sources of weather reports and forecasts along with proven industry procedures, including emergency, radio communications, and maintenance/preflight inspections to your drone operations.

~ 4 hours



1.10 Federal Aviation Regulations

Airspace is categorized as regulatory or non-regulatory by the FAA. Within these two groups, there are four types of airspace, determined by aircraft density, location, operational significance and other considerations.

A range of advisories are applicable for each type of airspace. In this lesson, you'll learn about the different FAA advisories across the National Airspace, and how they impact drone operations.

~ 3 hours



1.11 FAA exam and certification

You've come this far and mastered the topics that are relevant to the FAA Part 107 exam for licensing commercial drone pilots. In this lesson, we'll take a closer look at the examination and the process for taking it.

From finding the nearest testing center to signing up for the exam, best practices and approaches are discussed. Finally, a realistic practice test is available to gauge your expertise and prepare you for the main event.

~ 2 hours



1.12 I'm certified! What's next?

Now that you are a FAA licensed commercial drone pilot, a world of opportunities await you. With Flight to the Future, you have access to cloud technologies, IoT connectivity and AI based analytics.

In step 2 of the program, you'll learn about these cutting-edge technologies and start using some of them to plan and execute drone missions. You are ready now, to experience the power of the AD Cloud.

~ 10 minutes

Curriculum | Step 2



2.1 Introduction to Total Planetary Protection

Welcome to Step 2 in Flight to the Future. In this step, you'll discover the powerful digital technologies that are poised to transform the commercial drone industry.

See how cloud computing and LTE communications are becoming the catalyst for technological convergence, bringing in artificial intelligence and edge computing to deliver a 21st century Internet of Things.

~ 10 minutes



2.2 Introduction to cloud technology

Cloud technologies have revolutionized the way business operate. By offering a wide array of on-demand computing services, cloud computing helps organizations save money, improve scalability and expand their portfolio.

In this lesson, you'll learn about the different cloud architectures and the types of service models that are available to small and large businesses alike. As you'll discover, the value propositions within, have significant implications for the UAV industry.

~ 3 hours



2.3 IoT and AI

In some ways, these are two sides of the same coin. With widespread cloud connectivity and the Internet of Things or IoT, a convergence of data can occur. Via proper analysis, meaningful insights can be gleaned from this data, often in real-time.

AI driven data analysis is key to this scenario, where an ever-increasing amount of information is being generated by both user interactions in the digital space and physical IoT devices. By analyzing large data sets, increasingly sophisticated algorithms can help in decision-making.

~ 3 hours



2.4 The modules of AD Cloud

The AD Cloud is a specialized, hybrid cloud, tailored for UAVs. It offers full life cycle service platforms for anything related to UAVs, including training, flight control, operations management, MRO services and more.

By employing a modular approach, tailored services can be provided to UAS businesses in a very flexible manner. A range of industry-leading service platforms are being launched on the AD Cloud for UAVs in 2021.

~ 3 hours

Curriculum | Step 2



2.5 Mission planning

The core module for UAV missions and flights is AD Command and Control or C2. This module is fundamental for flight control and the overall pilot experience. It is also FAA compliant and will be LAANC enabled for UAV missions.

The core component is the C2 dashboard, available through a browser. The secondary component is the C2 Pilot app, which is the on-field framework for pilots. Both components work in tandem to deliver an advanced UAV management platform.

~ 3 hours



2.6 Managing your operations

Operations managers will use the main C2 dashboard to view details about their UAV missions. With LTE capability, the C2 Pilot component will sync data from on-field operations with the main dashboard, allowing real-time oversight of larger, more complex missions.

With cloud connected hardware, the power of C2 is unprecedented in the industry. In this lesson, we'll take a tour of the C2 dashboard from the perspective of operations and asset management.

~ 3 hours



2.7 Full life cycle management with TPP

Total Planetary Protection or TPP is a grand connectivity initiative, powered by the AD Cloud. As crucial components of any ecosystem are cloud connected, the stage is set for more advanced features.

Cloud connected drones will be part of a larger construct involving communication networks, smart cities and connected transportation. With the coming advances in wireless connectivity and more powerful AI agents, a great disruption is on the horizon.

~ 10 minutes

Curriculum | Step 3



3.1 Market demand for commercial UAV solutions

Welcome to step 3 in Flight to the Future. You are now ready to gain a higher level of expertise in commercial drone applications.

Understand the potential across applications and select an industry of your choice to begin your advanced training. Be prepared for extensive simulator training.

~ 10 minutes



3.2 UAS 101

As a UAS provider, you need to put the conceptual and information-based knowledge you have gained towards real-world applications. The first step in this regard, is understanding the industry landscape for UAV applications.

UAVs are used in just about any industry out there. As in step 1, we'll remain focused on passive drone applications, where there is only a sensor payload. We'll explore some of the more popular applications out there from the perspective of market demand.

~ 3 hours



3.3 Videography

With a variety of sensors providing optical, thermal/IR and night vision capabilities, drone videos are being generated at an ever-increasing rate. The AD Cloud C2 module provides features that allow drone operators to get the most from their video data.

Storage and real-time streaming, with analytics tailored for optical, night vision and IR formats, along with AI based image recognition and real-time image analysis are some of the features your potential clients will appreciate when you deliver video solutions using commercial drones.

~ 3 hours



3.4 Surveying and mapping

UAV sensor data and external data can be leveraged to produce detailed models of a physical region. Actual video footage from the UAV can be utilized for map overlays - providing deeper insights. As such, a drone is very useful for aerial surveying.

LIDAR stands for Light Detection and Ranging, and can be used to produce very precise surface maps of any terrain. This is often used in geological and civil infrastructure surveys. Finally, smaller drones can be very effective in mapping large interior spaces in precise detail.

~ 3 hours

Curriculum | Step 3



3.5 Security

This encompasses a large range of drone applications. Common types include line monitoring for perimeter and border security, surveillance for policing and private security purposes and mission monitoring during emergency response operations.

In this lesson, you'll discover how multi-spectrum sensor capabilities, along with AI driven visual inspection and autonomous flight capabilities are coming together to provide advanced UAV support in security-oriented missions.

~ 3 hours



3.6 Asset inspection

The most widespread use of commercial drones is in asset inspection. Asset heavy industries can incur huge cost savings and operational efficiencies by employing drones for assessing the health of their assets.

Drones are able to reach remote assets efficiently, without risk to employees, leading to better maintenance and improved ROI. Industries include wind and solar farms, telecommunications, energy and utilities, mining, chemicals and petroleum, civil infrastructure and construction.

~ 3 hours



3.7 Flora and fauna

Drones specialized with thermal and spectroscopic sensors can gather data that help with flora and fauna management. Based on this data, detailed models of the areas can be generated for business and environmental purposes.

Livestock monitoring and wildlife survey missions also fall in this category. In tandem with specialized software, drones can provide high-end services that help farmers, ranchers, asset heavy industries and environmental organizations.

~ 3 hours



3.8 Maintaining your competitive edge

Ok. You now possess the knowledge and know-how to conduct advanced commercial drone missions. This is a crucial part of your portfolio – but it's not the end of the story.

In the next step, you'll learn about the best business practices that are key to success. AD offers a full spectrum of such services to get you going.

~ 10 minutes

Curriculum | Step 4



4.1 Getting to know your drone business

Welcome to Step 4 in Flight to the Future. You are now ready to start and operate your commercial drone business.

Learn about the best business practices and AD services for business, insurance and marketing. Select your drone equipment plan and get ready to start your real-world missions.

~ 10 minutes



4.2 UAS 102

Here we will present the ways in which you can make money with your commercial drone, by putting it to work for pay and generate a revenue stream for your business.

You will also be able to obtain expert mentoring and essential small business support to start and run your own drone services business efficiently and effectively.

~ 3 hours



4.3 Business plan

It is important that you, as a UAV operator, know how to create and deliver value with your drone, by identifying and understanding your target customers and developing deep insights into specialty needs.

Above all, it is key that you seek to build solid business relationships with customers who are willing to pay for drone services.

~ 3 hours



4.4 Business services

Where should you begin? To get started, it is vital that you have the appropriate legal and administrative assistance for your UAV business.

You will work with expert mentors to develop the initial financial models required to seek growth capital and leverage their experience to set up budgets and manage accounting.

~ 3 hours

Curriculum | Step 4



4.5 Financial services

Receive support from experts to seek, obtain, apply and optimize funds within your UAV business models.

Work with experienced mentors to seek non-dilutive grants and contracts that will enable the successful launch of your drone services business.

~ 3 hours



4.6 Mission assets

We will look into specific requirements for successful UAV missions, from procurement options to decisions that enable growth.

Your business will receive access to proven and certified vendors and is automatically qualified via an AD line of credit, so that orders may be placed to launch operations.

~ 3 hours



4.7 Drone equipment

It is essential that you get to know your AD Spartacus Hurricane drone and what its exact capabilities are.

We will present the unique mission capabilities of this model, with a specific focus on the capabilities required for your specific business to meet customer needs.

~ 3 hours



4.8 Communications

From websites and omnichannel campaigns, including social media, to particular trade media that may help you reach your target audience, you will learn how to differentiate your services, generate traction, monitor metrics and convert leads into paying customers.

Full-service marketing and communications services are available through AD's in-house agency.

~ 3 hours

Curriculum | Step 4



4.9 Keys to your success

Congratulations! You have graduated from Flight to the Future!

You are now a commercial drone business with a promising and exciting future. Begin your drone operations with the power of AD cloud. You now also have free membership to ADoD, Aquiline's Drone on Demand service.

~ 10 minutes