



U N M A N N E D
S A F E T Y
I N S T I T U T E ®

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sUAS Ground School

Offered in person or online

The sUAS Ground School Course sets a sturdy foundation of required aeronautical knowledge for remote pilots of UAS less than 55 pounds. The curriculum addresses all pertinent aeronautical knowledge factors outlined by the FAA for the Unmanned Aircraft General (UAG) examination and augments those with safety concepts and practices to develop well-informed and responsible remote pilots. Students who successfully complete the course receive a certificate of completion from ARGUS Unmanned and are well prepared to pass the UAG exam.

Course Overview

UNIT 1: SMALL UAS FOUNDATIONS

Examines terms of reference, major issues associated with Small Unmanned Aircraft Systems (sUAS) and the core components of an unmanned system

UNIT 2: UNMANNED AIRCRAFT

Examines the sub-components of Unmanned Aircraft (UA) and the factors affecting UAS aerodynamics and performance

UNIT 3: THE ELEMENTS

Examines the environment in which sUAS and remote pilots operate

UNIT 4: REGULATIONS & COMPLIANCE

Explores the limitations and authorities vested in remote pilots by 14 CFR 107

UNIT 5: OPERATING IN THE NAS

Explains the FAA established rules and policies for operating in the NAS

UNIT 6: HUMAN FACTORS OF UAS & CRM

Defines human limitations as they contribute to errors and violations that can be the causal factors in UAS accidents.

Crew Resource Management (CRM) introduces non- technical skills used to combat human errors

UNIT 7: AERONAUTICAL DECISION MAKING

Explores the process of assessing risks and examines the decision-making process once the operator has a clear picture of the risk

UNIT 8: PROFESSIONALISM AND Mx

Examines the ethical and legal requirements of the Remote Pilot in Command (RPIC). Establishes standards of practice as well as explores careers in unmanned aviation



sUAS Ground School Learning Objectives

UNIT 1: SMALL UAS FOUNDATIONS

- 1.1 Understand the term; Unmanned Aircraft System
- 1.2 Explore the changing view on UAS
- 1.3 Demonstrate an understanding of the evolution of commercial UAS operations in the United States
- 1.4 Identify the major challenges facing the UAS industry
- 1.5 Demonstrate an understanding of UAS component reliability and operational considerations

FAA KNOWLEDGE AREAS

None

UNIT 2: UNMANNED AIRCRAFT

- 2.1 Explore the field of robotics and the subset of aerial robots
- 2.2 Identify common components of unmanned aircraft
- 2.3 Demonstrate an understanding of energy sources available for UAS
- 2.4 Understand how robotic aircraft maneuver and navigate
- 2.5 Demonstrate an understanding of aircraft capabilities and limitations associated with different platform categories
- 2.6 Introduce UA aerodynamic principles and performance factors
- 2.7 Demonstrate an understanding of the four forces that act upon a UAS
- 2.8 Describe the six degrees of freedom.
- 2.9 Describe how stabilization, control, and power can be manipulated to fly a UAS
- 2.10 Describe the aerodynamic principles that affect UAS performance.
- 2.11 Explain the effects of weather, temperature, and system weight on unmanned aircraft performance.
- 2.12 Explain the differences in rotor and fixed-wing aerodynamics

FAA KNOWLEDGE AREAS

04 - Small unmanned aircraft loading;
08 - Determining the performance of small unmanned aircraft;

UNIT 3: THE ELEMENTS

- 3.1 Examine other elements that affect a UAS's operation
- 3.2 Describe aspects of the physical environment that pose a hazard to UAS
- 3.3 Understand the concepts of weather as they pertain to aviation
- 3.4 Explore official and unofficial sources of weather that can inform a remote pilot's preflight decisions
- 3.5 Interpret "official" sources of weather to make sound decisions

FAA KNOWLEDGE AREAS

03 - Aviation weather sources and effects of weather on small unmanned aircraft performance;



SUAS Ground School Learning Objectives

UNIT 4 & 5: REGULATIONS AND COMPLIANCE & OPERATING IN THE NATIONAL AIRSPACE

- 4.1 What is the FAA?
- 4.2 How does the FAA regulate aircraft, airmen, and airspace?
- 4.3 What is the National Airspace System [NAS]?
- 4.4 What are the regulatory limits on UAS?
- 4.5 Explain the regulations and policies currently in place for UAS operations
- 4.6 Demonstrate an understanding of Federal Aviation Regulations [FAR]
- 4.7 Explain the limitations and requirements of Visual Flight Rules [VFR]
- 4.8 Demonstrate an understanding of state and local rules and regulations governing UAS
- 4.9 Demonstrate an understanding of airspace
- 4.10 Interpret aeronautical charts to determine airspace for a given location
- 4.11 Explain the classes of airspace
- 4.12 Demonstrate an understanding of the Notices to Airmen information reporting system
- 4.13 Interpret center NOTAMs
- 4.14 Demonstrate an understanding of aviation communications
- 4.15 Explain the essential information required in aviation communications
- 4.16 Demonstrate an understanding of the *Aeronautical Information Manual* to make a radio call
- 4.17 Demonstrate an understanding of airport operations and Traffic-pattern protocols
- 4.18 Demonstrate an understanding of UAS limitations and regulations
- 4.19 Explain the reporting requirements for UAS operations

FAA KNOWLEDGE AREAS

- 01 - Applicable regulations relating to small unmanned aircraft system rating privileges, limitations, and flight operation;
- 02 - Airspace classification, operating requirements, and flight restrictions affecting small unmanned aircraft operations;
- 07 - Radio communication procedures;
- 11 - Airport operations;



SUAS Ground School Learning Objectives

UNIT 6: HUMAN FACTORS OF UAS & CRM

- 5.1 Describe the types and causes of human errors
- 5.2 Demonstrate an understanding of human limitations in perception, processing, and performance
- 5.3 Describe the physiological effects of drugs and alcohol
- 5.4 Explain the aspects of UAS design and operations that hinder or limit human function and cognition
- 5.5 Describe methods for dealing with automation and the lack of sensory cues
- 5.6 Examine the evolution of CRM as a control for error
- 5.7 Explain the purpose of CRM
- 5.8 Explore decision behaviors as a CRM skillset
- 5.9 Demonstrate an understanding of Situational Awareness [SA]
- 5.10 Identify and explain the need for standard communication
- 5.11 Understand non-technical skills that can improve the function and efficiency of a UAS crew

UNIT 7: AERONAUTICAL DECISION MAKING

- 6.1 Define aeronautical decision-making
- 6.2 Examine the steps for sound aeronautical decision-making
- 6.3 Identify hazards associated with UAS operations
- 6.4 Explore various models for decision-making
- 6.5 Apply good aeronautical decision-making
- 6.6 Describe strategies for dealing with task saturation or overloads
- 6.7 Demonstrate the ability to think independently while exercising adaptability and flexibility to stressful situations
- 6.8 Demonstrate an understanding of airworthiness inspections

UNIT 8: PROFESSIONALISM

- 7.1 Define professionalism and ethics
- 7.2 Describe the foundations of an ethical code of conduct for UAS operators
- 7.3 Explore standards of practice for UAS professionals
- 7.4 Identify the top ethical issues facing sUAS remote pilots
- 7.5 Examine case studies and make judgments about the ethical and professional use of UAS technology
- 7.6 Demonstrate an understanding of standards of profession and how to apply professionalism in everyday operations

FAA KNOWLEDGE AREAS

- 06 - Crew resource management;
- 09 - Physiological effects of drugs and alcohol;

FAA KNOWLEDGE AREAS

- 10 - Aeronautical decision making and judgment;
 - Preflight inspection procedures

FAA KNOWLEDGE AREAS

- 05 - Emergency procedures;
 - Maintenance