UAS: Remote Pilot Certification

Exam Information	Description
Exam number **673** **Items** **43** **National Career Cluster** **Supply Chain & Transportation** **Digital Technology** **Certification available** **No, in Pilot status**	UAS Remote Pilot Certificate provides Candidates with the opportunity to prepare for the Federal Aviation Administration (FAA) Part 107 certificate exam to operate commercially within the National Airspace System (NAS). The course covers rules and regulations, airspace classification and systems, aviation weather, loading and performance, and aeronautical decision making.

Exam Blueprint and Performance Skills

Standard	Percentage of exam score
1. Recreational Flight	6%
2. Rules and Regulations	23%
3. National Airspace System	23%
4. Aviation Weather	18%
5. Operations	18%
6. Aeronautical Decision Making	12%

Standard 1 - Recreational Flight (6% of exam score)

Candidates will recognize Federal Aviation Administration (FAA) recreational pilot privileges and limitations as outlined in the Exception for Recreational Flyers.

Objective 1 Recall FAA recreational flying requirements of The Recreational UAS Safety Test (TRUST) including but not limited to:

1. General
2. FAA-recognized Community Based Organization (CBO)
3. Visual line of sight
4. Use of a visual observer (VO) co-located and in direct communication with the pilot
5. Give way and do not interfere with other aircraft
6. Fly at or below FAA-authorized altitudes in controlled airspace only with prior authorization
7. Fly at or below 400 feet in Class G airspace
8. Low Altitude Authorization and Notification Capability (LAANC)
9. DroneZone
10. B4UFLY
11. Drone registration
12. Remote Identification
13. Do not operate your drone in a manner that endangers the safety of the National Airspace System (NAS)
14. Remain current on TRUST regulations per annual updates

Objective 2 Understand the pilot's responsibility to the UAS community.

Performance Skills

1. Earn an FAA TRUST certificate for recreational flyers.
2. Have an FAA TRUST certificate accessible while operating UAS.
3. Demonstrate recreational flying requirements in accordance with FAA regulations.

Standard 2 - Rules and Regulations (23%)

Candidates will gain an understanding of current Federal Aviation Administration (FAA) Small Unmanned Aircraft Systems (sUAS) rules and regulations applicable to flying drones legally in commercial operations in the NAS.

Objective 1 Identify FAA remote pilot certification privileges and limitations as outlined in 14 Code of Federal Regulations (CFR) Part 107 Subparts A & B - General, Operating Conditions.

1. Supporting crew roles
2. Falsification, reproduction, or alteration
3. Accident reporting - FAA inspections
4. sUAS Registration
5. Remote identification (Remote ID/RID)
6. Preflight procedures
7. Carriage of hazardous material
8. Operation at night
9. Visual Line of Sight (VLOS)
10. Operating limitations
11. Right-of-Way rules
12. Collision avoidance (see-and-avoid)
13. Operation from moving vehicles or aircraft
14. Privacy considerations

Objective 2 Recall FAA remote pilot certification privileges and limitations as outlined in 14 CFR Part 107 Subpart C - Remote Pilot Certification.

1. Certification and eligibility
2. Testing and recency/renewal
3. Change of address
4. Alcohol and drugs
5. Transponder / Automatic Dependent Surveillance-Broadcast (ADS-B) Out prohibition

Objective 3 Interpret FAA remote pilot certification privileges and limitations as outlined in 14 CFR Part 107 Subpart D - Operations over people.

1. Operation over human beings/Operation Over People (OOP)
2. Limitations
3. OOP category requirements
    a. Category 1
    b. Category 2
    c. Category 3
    d. Category 4
4. Operation over moving vehicles

Objective 4 Summarize FAA remote pilot certification privileges and limitations as outlined in 14 CFR Part 107 Subpart E-Waivers.

Objective 5 Reference other associated regulations within 14 CFR and Federal Guidelines as they relate to UAS Operations.

1. Part 91
2. Part 48
3. Part 89
4. Part 61
5. Advisory Circular Documentation

Performance Skills

1. Demonstrate the ability to find/lookup appropriate rules and regulations for a simulated scenario.
2. Present a personalized timeline for acquiring a remote pilot certificate.
3. Demonstrate the ability to use the pilot dashboard on faadronezone.com for registration, waivers, and accident reporting.

Standard 3 - National Airspace System (23%)

Candidates will interact with digital and physical maps and resources to safely operate a UAS within the NAS.

Objective 1 Recall applicable classification and resources utilized within the NAS.

1. Notice to Air Missions (NOTAMs) and Temporary Flight Restrictions (TFRs)
2. Airspace resources (testing supplement, legends, special use airspace sidebar, digital mapping
3. software/websites, chart supplements)
4. Airspace classification and application
5. Latitude and longitude

Objective 2 Identify standard aviation communication practices and procedures related to aircraft operations in the NAS.

1. Airport operations
    a. Traffic patterns
    b. Runway details
    c. Markings
    d. Signs
2. Expected aviation communication protocols

Objective 3 Identify elements and applications of Visual Flight Rule (VFR) sectional maps.

1. Topography
2. Obstacles and ground features
    a. Elevation notation
3. Traffic routes

Objective 4 Interpret and identify communication procedures related to sUAS operations in both controlled and uncontrolled airspace.

1. Radio communication procedures (monitoring, emergency, use)
2. Phonetic alphabet
3. Airport identification information and amenities (Automatic Terminal Information Service (ATIS), Air Traffic Control towers (ATC))

Performance Skills

1. Identify airspace classification, airport operations specifics, and general topography on a VFR sectional chart (digital or paper).
2. Demonstrate appropriate radio communication skills combined with traffic pattern integration.
3. Present application of map identification skills related to sectional charts between two points.

Standard 4 - Aviation Weather (18%)

Candidates will apply aviation weather principles, weather report interpretation, weather effects on drone performance, and weather minimum regulations to the responsibilities of a UAS pilot.

Objective 1 Recall weather and visibility minimums required for unmanned aircraft operations.

1. 3 SM (Statute Miles) of visibility
2. 500 vertical feet from a cloud
3. 2000 horizontal feet from a cloud
4. UAV-specific limitations (Ingress Protection (IP) ratings, wind speed capacity, temperature tolerance)

Objective 2 Classify weather formation and development related to pilot operations.

1. Uneven surface heating (causes of weather phenomena)
2. Wind (direction, speed, sheer, turbulence)
3. Air masses (stable and unstable characteristics)
4. Fronts
5. Atmospheric stability (barometric pressure and lapse rate)

Objective 3 Interpret types of weather phenomena and their effects on drone performance.

1. Cloud types and height classifications
2. Thunderstorms (development, stages, and hazards)
3. Icing
4. Fog (5 types and formation conditions)
5. Density altitude
6. Extreme weather (Squall Line, SIGMET, Convective SIGMET)

Objective 4 Relate the importance of appropriate communication skills to aviation standards.

1. Accepted weather information sources
    a. National Oceanic and Atmospheric Administration (NOAA)
    b. AviationWeather.gov
    c. 1800wxbrief.com
2. Weather Briefings
    a. Go/No-Go decision-making
    b. Outlook briefing
3. Weather Reports, Forecasts, and Charts
    a. Meteorological Aerodrome Report (METAR)
    b. Terminal Area Forecast (TAF)
    c. Significant Meteorological Information (SIGMET)
    d. Airmen's Meteorological Information (AIRMET)
    e. Prognostic charts

Performance Skills

1. Describe how different cloud characteristics will influence flight planning.
2. Calculate density altitudes and determine the effect on UAV performance.
3. Decipher weather reports, forecasts, and charts.
4. Make and justify a Go/No-Go decision based on aviation weather information and reports.

Standard 5 - Operations (18%)

Candidates will identify and interpret loading and performance considerations for sUAS operations as outlined by the FAA.

Objective 1 Demonstrate basic aircraft controls and flight maneuvers.

1. Controls (aileron, elevator, rudder)
2. Maneuvers (roll, pitch, yaw)
3. Stability (longitudinal, lateral, and vertical axes)

Objective 2 Apply loading considerations to a variety of sUAS.

1. Speed and altitude (telemetry, pilotage, dead reckoning)
2. Loading (capacity and center of gravity)
3. Weight and balance
4. Load Factor (g-force calculation)

Objective 3 Compare performance factors as applied to a variety of sUAS and flight conditions.

1. Stalls (angle of attack, chord line, stall speed)
2. Flight time and characteristics
3. Maintenance
4. Inspection procedures

Objective 4 Identify human physiology conditions as applied to 14 CFR Part 107 remote pilot medical considerations.

1. Hyperventilation
2. Dehydration
3. Heatstroke
4. Hypothermia
5. Stress (including chronic)
6. Fatigue (chronic, acute)

Performance Skills

1. Demonstrate appropriate preflight/postflight checklist implementation in a flight scenario.
2. Identify the remedy(ies) to multiple physiological conditions that would adversely impact the performance of a flight crew member.

Standard 6 - Aeronautical Decision Making (12%)

Candidates will identify operations tasks and procedures as well as Aeronautical Decision Making (ADM) skills as applied in aviation and as a remote pilot.

Objective 1 Apply preflight tasks appropriate to remote PIC responsibilities.

1. Preflight visual inspection and functional check
2. Low altitude test flight and control check
3. Equipment damage or malfunction evaluation

Objective 2 Summarize emergency procedures related to appropriate responses of abnormal sUAS flight situations.

1. Lost link
2. Flight termination
3. Flyaways (reporting procedures)
4. Loss of GPS
5. Battery fires (in flight, while charging, in storage)

Objective 3 Utilize the aeronautical decision making process as a remote PIC or crewmember.

1. Crew Resource Management (CRM)
    a. Resource identification
    b. IMSAFE checklist
    c. PAVE checklist
2. Safety Management Systems (SMS)
3. Hazardous attitudes, indicators, and antidotes
4. Risk management
    a. Process
    b. CARE checklist

Performance Skills

1. Present ADM/CRM skills utilizing appropriate checklists in a Go/No-Go scenario.
2. Lead a preflight safety briefing.
3. Describe an appropriate plan-of-action response to an in-flight emergency for various flight crew roles.