The Drone Competition Event challenges teams to demonstrate proficiency in precision drone operations and Search & Rescue (SAR) tactics. Participants will navigate a structured NIST Open Lane course and conduct a realistic search mission, making critical decisions under time constraints.

## Entry Requirements

- Teams must be composed of 2 members (One flyer, One visual observer).
- All team members must hold an FAA TRUST Certification before the event.
  - Certification Link: https://trust.pilotinstitute.com/
- Each team must switch roles between Part 1 and Part 2.

## Materials

Competitors must provide the following materials. Only the listed materials are permitted in the competition:

- **Photo Identification** (Must be presented at check-in)
- **Proof of FAA TRUST Certification**
- **Approved Drone Equipment**
  - Small Unmanned Aircraft System (sUAS) with a functional camera. Drone < 249 grams.
  - If > 249 grams must be registered through the FAA.
  - Controller with screen/tablet for live feed (if applicable)
  - Extra batteries & charging equipment
- **Safety Equipment**
  - High-visibility vest (for visual observer)
  - Communication device (if applicable)
- **Logbook or Notepad** (For recording search & rescue data)

🚨 Drones must comply with FAA regulations and event safety standards.

## Procedures and Timeline

- **Check-In (10 min Time Limit)** Teams must check in at their designated time. Late arrivals (beyond 10 minutes) will be marked as no-shows and disqualified.
- **Pre-Event Briefing (5 min Time Limit)** Competitors will be directed to the event area. The event moderator will provide a detailed briefing on rules, procedures, and expectations.
- **Scenario Briefing (5 min Time Limit)** Judges will provide specific details regarding the NIST proficiency course (Part 1) and Search & Rescue mission (Part 2). Teams may ask clarifying questions before the event starts.
- **Part 1: NIST Open Lane Basic Proficiency Course (10 min Time Limit)**
  - Objective: Complete a precision flight course based on NIST Level 1 standards.
  - The event will begin once the judge signals the start.
  - Teams will be evaluated on maneuverability, camera alignment, and controlled landings.
  - This will be a timed event. Time penalties will be assessed on errors made during the contest.
  - End Condition: The flight must be completed within 10 minutes.
- **Transition (5 min Time Limit)** Teams switch roles (flyer becomes visual observer and vice versa)

**.Part 2: Search & Rescue (SAR) Scenario (15 min Time Limit)**

- ○ Objective: Locate and accurately report the position of a simulated missing subject.
- ○ 2 minutes for planning, 13 minutes for execution.
- ○ The team must declare the search technique before starting.
- ○ The mission ends when the team relays the subject's location to the judge. Teams will still need to make a secure and safe landing of aircraft.
- ○ If the search is not completed within 15 minutes, scoring will be based on completed tasks only.
- **Evaluation and Scoring (5 min Time Limit)** Judges will score competitors based on a standardized rubric. Scoring is conducted without competitors present to ensure objectivity. Once all assessments are finalized, scores will be recorded for each Competitor. Tiebreakers will be based on time.

## Rules

- **General Event Rules**
  - ○ Drones must remain within the designated competition area.
  - ○ Collisions or unsafe flight will result in disqualification.
  - ○ Teams must follow event staff and judge instructions at all times.
- **Search & Rescue Specific Rules**
  - ○ Teams must verbally state their search technique to the judge before starting.
  - ○ Subject location must be clearly reported using landmarks, distance, or GPS coordinates.
- **Safety Compliance**
  - ○ All participants must wear safety vests (visual observer).
  - ○ Visual observers must maintain situational awareness and assist the flyer.
  - ○ If the judge determines a safety violation, the team may be disqualified.

## Professional Dress Guidelines

To secure professionalism points, competitors should dress in attire that accurately reflects what professionals in the respective public safety careers would wear while performing the tasks associated with the event. Competitors are also expected to consult and follow the professional dress guidelines in the rulebook to qualify for points. Additionally, participation is contingent upon meeting all prescribed safety protocols.

## Safety Protocols
- **Long Pants** Long pants must be worn secured at the waist and shall not extend past the sole of the shoe. No portion of the leg shall be visible.
- **Jewelry** Rings must feature a continuous, even, and unadorned exterior surface.
- **Necklaces** must not be visible from the outside of the uniform. Bracelets may not be worn. If competitors have piercings beyond a single stud in each ear, they must cover these additional piercings with band-aids or wear clear studs to maintain a professional appearance.
- **Hair** All hair must be secured out of the eyes for the duration of the event. Competitors with hair extending past the top of the shoulder shall wear their hair secured neatly in a bun or ponytail ensuring that no hair extends below the collar of the uniform. It is not an exception to the rule that a Competitor's chosen hair style is too thick to be secured above the collar.
- **Pants** Competitors must wear pants that cover the entire leg, with no portion of the leg visible. Pants shall be secured at the waist with a hem length not to extend past the sole of the shoe.
- **Shoes** Competitors must wear low-heeled, closed-toed footwear for this event.
- **Fingernail Length** Competitors' fingernails shall not extend past the tip of the finger and shall be free of any/all adornments. Color is not a factor.
- **Shirt Sleeves** IF Long sleeve shirts are worn, they shall fit closely at the wrist and not extend past the wrist.
- **Pant Length** Pants shall not extend past the sole of the shoe.

# Part 2: Search & Rescue (SAR) Scenario (100 pts Total)

| Criteria | Unattempted - 0 pts | Unsatisfactory - 2 pt | Satisfactory - 5 pts | Proficient - 8 pts | Exemplary - 10 pts | Points |
|---|---|---|---|---|---|---|
| **Site Evaluation / Preflight** | | | | | | |
| **Site Hazard Assessment** Competitors evaluate obstacles, weather, and environmental factors before flight. | No assessment performed. | Partial assessment but missed major hazards. | General assessment completed but lacked detail. | Thorough assessment completed efficiently. | Detailed and well-communicated assessment with mitigation strategies. | |
| **Declared Search Strategy** Competitors must state their search method before takeoff. | No search strategy declared. | Declared a strategy but did not follow it. | Declared and followed a basic search plan. | Declared and executed an efficient plan. | The search plan was well-planned, communicated, and flawlessly executed. | |
| **Flight Operations** | | | | | | |
| **Takeoff & Controlled Flight** Competitors launch safely and maintain a controlled flight path. | No takeoff or immediate loss of control. | Takeoff was unstable, with minor control issues. | Takeoff was successful, but some corrections were needed. | Controlled takeoff with smooth execution. | Takeoff was flawless and demonstrated expert control. | |
| **Terrain Navigation** Competitors maneuver around obstacles and adjust flight path as needed. | No maneuvering attempted. | Attempted maneuvering but collided with obstacles. | Avoided most obstacles but required corrections. | Smooth and effective navigation around obstacles. | Expert navigation with real-time adjustments. | |
| **Search Execution** | | | | | | |
| **Search Pattern Utilization** Competitors follow the declared search strategy. | No search pattern used. | Deviated from the planned search method. | Followed the search pattern but with inefficiencies. | Executed the search strategy effectively. | Used the search strategy flawlessly, optimizing efficiency. | |

| **Target Identification & Reporting** Competitors locate and report the subject's location accurately. The Drone Operator will communicate with "ghost officers" on the ground to direct them to the location of the "target" Need to use landmarks and N,E,S,W directional communication. | No target located. | Identified the target but reported incorrect location. | Target was located but was able to direct the officers on the ground to target but made many errors in the process. | The target was able to direct the officers on the ground to target with a few errors. | Target was located, precisely reported, and well-documented. | |
|---|---|---|---|---|---|---|
| **Post Flight** | | | | | | |
| **Landing & Shutdown** Safe and controlled landing within the designated area. | No landing or crash landing. | Landed off-target or unsafely. | Landed safely but not within the target zone. | Landed within the correct zone. | Perfectly executed landing in the correct location. | |
| **Communication** | | | | | | |
| **Team Communication** Competitors actively relay information to each other throughout the mission.. | No communication. | Only one competitor communicated. | Basic communication but not sustained. | Strong communication for most of the mission. | Clear, constant, and effective communication between team members. | |
| **Dispatch Communication** Team lead advises dispatch they are on scene, requests a secure channel, asks about airspace restrictions, checks site safety. | Does not notify dispatch. | | Notifies dispatch of partial information. | | Notifies dispatch of all required information. | |
| **Professionalism** | | | | | | |

| Professionalism This criterion evaluates the appropriateness of attire and the level of professional behavior displayed, considering industry standards relevant to the event. | | Attire is inappropriate for the event and does not meet industry standards. Professional behavior is inconsistent. | Attire is mostly appropriate but may not fully meet industry standards. Professional behavior is generally acceptable | Attire meets industry standards and is appropriate for the event. Professional behavior is consistent | Attire meets industry standards and is appropriate for the event. Professional behavior is outstanding and goes above and beyond expectations. Attire quality is not a factor between Proficient and Exemplary | |
|---|---|---|---|---|---|---|
| **Total:** | | | | | | **/100** |

| Penalty | | | Seconds Added |
|---|---|---|---|
| **Fail to Conduct Pre-Flight Safety Check** Competitors fails ensure the drone is in working condition, complete all safety checks, and verify a safe takeoff area. | ( No Penalty ) | ( + 10 secs ) | |
| **Fails Check Airspace Restrictions/ Weather Verification** Competitor(s) fails to check weather/ airspace restrictions prior to takeoff | ( No Penalty ) | ( + 10 secs ) | |
| **Fails to take photograph:** Fails to take a photograph on any section required to take a picture. 5 Second penalty for *EACH* missed photo. | ( No Penalty ) | ( + 5 secs ) | |
| **Broken Picture(s)** Any broken pictures as describe in the NIST scorecard. *EACH* broken picture is a 2 second penalty. | ( No Penalty ) | ( + 2 secs ) | |
| **Fails to issue warning that Drone will be turned on.** Competitor does not verbalize "props hot" or another term singling the drone is about to be turn on | ( No Penalty ) | ( + 5 secs ) | |
| **Visual Observer does not wear a safety vest.** V.O does not wear a safety vest during event. | ( No Penalty ) | ( + 20 secs ) | |
| | ( ) | ( ) | |

**Penalty Seconds:**  secs

**Recorded Time:** [  ] mins [  ] secs [  ] ms

**Final Time (with Penalty):**