

Salinas Aerial Support Unit

Lesson Plan



Subject: Drone Familiarization

Course Date and Time: January 28, 2022 @ 0700hrs

Course Location: New Police Department located at 312 E. Alisal St., Old Police Department located at 222 Lincoln Ave. and the PAL Building located at 100 Howard St. in Salinas, Ca.

Instructors: Chris Avila and Daniel Garcia

Instructional Goal:

Officers assigned to the Salinas Police Aerial Support Unit will meet at the Salinas Police Department to conduct training. The training will consist of group discussion regarding a debrief of patrol deployments, search warrant deployments, surveillance deployments and outside agency assists. The unit will discuss what equipment has been beneficial on deployments and what could be acquired to further benefit the unit and the citizens of Salinas. Since our last training was almost one year ago, officers assigned to the unit will re-familiarize themselves with all the drones assigned to the unit. These will include: DJI Matrice, DJI Mavic 2 Enterprise, DJI Mavic Air 2, DJI Mini 2, Skydio 2 and the EMAX Tinyhawk FPV drone. Each officer will ensure they have all necessary applications downloaded on their phones to properly deploy each drone assigned to the unit. We will also discuss the importance of logging each flight as they are completed. Throughout the day, officers will complete several flight scenarios

that will emphasize line of sight orientation, FPV orientation during both indoor and outdoor missions and maintaining UAV control while being able to photograph or video record accurately. Officers will be provided instruction on how to properly set up the live feed monitor display used for search warrants/critical incidents.

Materials Needed:

1. Work phone or personal phone with drone application installed
2. DJI Matrice
3. DJI Mavic Enterprise
4. DJI Mini's
5. EMAX Tinyhawk
6. DJI Mavic Air
7. Skydio 2
8. All call out equipment.
9. All PVC obstacle gates

Training Objectives:

Re-familiarize SPAS pilots with the DJI Matrice and its accessories/payloads (cameras and spotlight). Pilots will inspect, assemble and fly the Matrice.

Pilots will inspect, and firmware update their assigned drones and all other drones assigned to the unit.

Pilots will perform a series of maneuvers utilizing N.I.S.T. recommended training aids and other training tools to include fake firearms. Pilots will complete an exercise where they will be required to track an officer as he is attempting to flee the designated training area. This exercise is meant to improve UAV maneuvers through FPV flight as well as developing FPV video/photography skills.

Pilots will complete several scenarios of indoor searching via FPV. Scenarios will include finding preplaced items and or searching to pilots acting as barricaded suspects.

Pilots will also complete one scenario utilizing the EMAX Tinyhawk under goggles to help fine tune the skills needed to safely deploy the Brink Lemur Drone.

Safety Plan:

All pilots onsite are responsible for safety. If anyone feels there may be a potential safety hazard during a training exercise, that person is to stop the exercise by yelling “Stop mission flight” and point out the safety problem. There will be radios and a cell phone on site in case of an emergency. In the event of injury where medical attention is required Officers will be transported to Salinas Valley Memorial Hospital in Salinas Ca.

Matrice Operations

Matrice assembly and disassembly

Pilots will be given a demonstration of procedures to assemble the Matrice out of the storage box to include,

- Landing gear assembly attachment prior to UAV removal
- UAV removal from the storage case and placement on work platform.
- Arm assembly sequence
- Payload attachment
- Required inspections
- Battery pairings
- Controller and UAV activation
- Familiarization takeoff, flight and landing procedures
- UAV breakdown and storage

Live Feed Display setup

- Table setup
- Monitor with cables
- Generator
- Axon Air

Drone Inspections and Connectivity

- Ensure all “drone” applications are downloaded
- Firmware updates if applicable
- Each pilot connects to each drone and perform a test flight
- Perform a thorough inspection of each drone

Indoor flight and searching

Exercise 1

Utilizing DJI Mini's and DJI Mavic Air 2 pilots will fly practice familiarization missions at the indoor training site (former SPD building). Pilots will practice Entering from outside the building, straight line flight, room clearing, hazard avoidance and flying up and down stairs.

Exercise 2

Pilots will be given specific areas in the building to be searched. Each pilot will launch from the same spot outside the building. Once the UAV has left the ground the timer is activated. Pilots are to locate five specific targets within the designated areas. Once the targets are located the pilot must return to the launch point and land where the timer will be stopped. If a pilot crashes during the search they will retrieve the UAV and launch from the starting point, the timer will remain active during recovery and re-launch.

Exercise 3

Similar to exercise 2, the pilot will be given a description of one of the pilots and will be required to find them in a predesignated area of the building.

Exercise 4

Utilizing the rear lot of the old police department and the open lot across the street (where the portables used to be), we will simulate a scenario where patrol officers had lost a suspect in the area and a perimeter was set. The pilot was called to assist in the search of the suspect. The pilot will be given a description and be required to locate the subject using the drone of their choice.