

# Salinas Aerial Support Unit

## February 12<sup>th</sup>, 2021 Training Lesson Plan

S. Sparks



**Location:** Current and former Salinas Police Department buildings.

**Description:** On a February 12, 2021, officers assigned to the Salinas Police Aerial Support Unit will meet at the Salinas Police Department. The training will consist of group discussion regarding what has been successful and what has been challenging for the newly formed unit and its officers. The purpose of this training will be familiarization with the newly acquired DJI Matrice UAV and hands on training with their assigned UAV's. Training 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 while being timed.

### **Materials**

**Needed:** *Student*

Officers assigned department UAV's

### **Materials**

**Needed:** *Instructor*

N.I.S.T. recommended training aids.  
DJI Matrice UAV  
Mavic Air 2

## DJI Mini's

### Course Description and Objectives

The goal of this course is to familiarize SPAS pilots with the newly acquired DJI Matrice and its accessories/payloads (cameras and spotlight). Copies of ALL manuals provided by DJI will be given to pilots to include in their issued binders. Pilots will be shown how to inspect, assemble and fly the Matrice.

Pilots will preform a series of maneuvers utilizing N.I.S.T. recommended training aids. This exercise is meant to improve UAV maneuvers through FPV flight as well as developing FPV video/photography skills.

Pilots will be introduced to indoor searching via FPV. Once the pilot is comfortable with FPV flying while indoors, they will be given a series of five targets to locate while being timed.

**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.

### Matrice Operations

Pilots will be provided all manuals for the DJI Matrice 300 RTK to include,

- Basic manual
- Maintenance manual
- Battery charger operations manual

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

## **N.I.S.T. Based Training**

### **Exercise 1**

Utilizing the N.I.S.T. recommended training aids, students will fly the following course,

- Takeoff and hover at 6'
- Fly forward to Station 1
- Upon reaching Station One 1, center the target in bucket 1A via FPV and photograph it.
- Center the target in bucket 5A via FPV and photograph it.
- Gain altitude of 12' so Station 2 is in view
- Center the target in bucket 2A, while hovering over Station 1, via FPV and photograph it.
- Flying forward to Station 2 and center target in 5B and photograph it.
- Rotate UAV while still over Station 2 so bucket 3A target is in view and photograph it.
- Decrease altitude to 6' and maneuver so bucket 3B is in view and photograph it.
- While maneuvering in a figure eight pattern, pilots will locate targets in buckets 2B, 3A, 2A and 3B.
- Pilots will return to launch location and land.

### **Exercise 2**

Exercise 1 listed above with Station 2 now being elevated by being placed atop a patrol SUV.

## **Indoor flight and searching**

### **Exercise1**

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.