

# Use of Drones by Public Safety Agencies: An Introduction

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*eLearn Course Syllabus*



## Course Overview

### Course Description

Over the past decades, public safety agencies have leveraged new technologies to more efficiently and effectively achieve their goals. Using tools such as geographic information systems, data analysis products, wireless communication devices, and many others, public safety personnel have expanded their ability to identify and respond to critical issues in their communities.

Recently, an increasing number of agencies have examined the use of drones as a promising new practice. As with any novel technology, organizations using drones will discover new avenues for solving problems, but they may also face unexpected challenges. This eLearning course, based on the Police Executive Research Forum's (PERF) publication, *A Report on the Use of Drones by Public Safety Agencies – and a Wake-Up Call about the Threat of Malicious Drone Attacks*, helps public safety agencies establish successful drone programs.

### Instructional Design

This program's core curriculum development follows the PADDIE model of instructional design, which includes the stages of planning, analysis, design, development, implementation, and continuous evaluation.

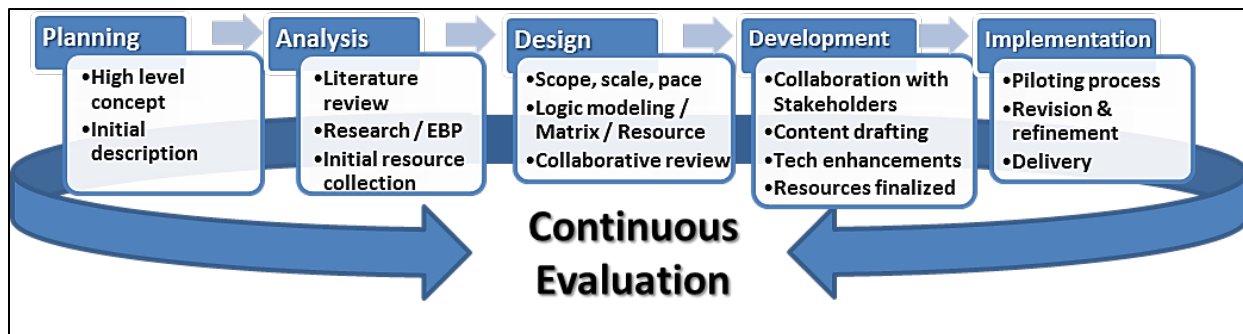


Figure 1: VCPI's Modified PADDIE Model of Instructional Design

The course incorporates best practices unique to eLearning creation, resulting in a self-paced, interactive, and learner-driven experience ideal for busy law enforcement officers. VCPI's instructional design process applies adult learning principles and utilizes a "scaffolding approach," building content and participant knowledge and skills as the course progresses.

### Scope

*Use of Drones by Public Safety Agencies: An Introduction* provides insight for public safety practitioners on how drones may be used in their line of work, benefits and challenges an agency should consider before implementing a drone program, and guidance on starting a drone program.

## ***Target Audience***

This course is designed as a professional development program for public safety agencies interested in implementing a drone program, including police agencies, sheriff's departments, fire and rescue services, and other public safety stakeholders.

## ***Prerequisites***

There are no prerequisites for this course.

## ***Course Length***

*Use of Drones by Public Safety Agencies: An Introduction* is a self-paced, online course in an interactive format. The course consists of a pre-test, four content modules, and a post-test. The modules contain multimedia instructional content, audio and video interviews with practitioners, and knowledge check questions. The course can be started, stopped, and resumed to accommodate the pacing and schedule of each learner. Although course completion times may vary greatly based on factors such as learner engagement and exploration of the content, most can expect to complete the full course in approximately **two hours**. The course content consists of the following components:

- 1) Module 1: Introduction
- 2) Module 2: Pre-Implementation Considerations
- 3) Module 3: Establishing a Drone Program
- 4) Module 4: Conclusion

## ***Required Materials***

Participants will need access to a computer with reliable internet access and speakers (or headphones). The course features technology-enhanced media that includes on-screen text, graphics, narration, audio, and video segments in an interactive and user-friendly eLearn environment.

## ***Learning Objectives***

### **Module 1: Introduction**

- 1.1 Participants will distinguish between Unmanned Aircraft Systems, Small Unmanned Aircraft Systems, Unmanned Aerial Vehicles, and Drones.
- 1.2 Participants will establish a general understanding of how drones are used by public safety agencies.

### **Module 2: Pre-Implementation Considerations**

- 2.1 Participants will identify the difference between a Part 107 License and a Part 91 Certificate of Authorization (COA).

- 2.2 Participants will recognize the role community trust plays on the implementation of an effective drone program.
- 2.3 Participants will be able to match their agency's needs to the type of equipment necessary.
- 2.4 Participants will identify funding sources available to assist with supporting the cost of a drone program.

### **Module 3: Establishing a Drone Program**

- 3.1 Participants will identify staffing requirements for the size and scope of their drone program.
- 3.2 Participants will identify initial and continued training requirements as needed for certification and technical use purposes.

### **Module 4: Conclusion**

- 4.1 Participants will recognize the evolving nature of drone technology and regulations associated with that technology.

### ***Assessment Strategy***

This course assesses learning with a pre-test and post-test based on the program's content. The pre- and post-tests contain the same set of questions to measure growth resulting from completion of the learning modules. Assessment questions correspond to the learning objectives for the course. Throughout the modules, participants complete checkpoint questions allowing them to check their understanding of concepts prior to the post-test, and they receive corrective feedback based on their answer choices. If a passing score of 80% is not earned on the post-test, participants can retry the assessment until it is passed. After each attempt, participants may review which responses were correct and incorrect.

Pre- and post-test assessment items are as follows:

1. Which of the following terms is the most accurate classification for a drone?
  - a. Unmanned Aerial Vehicles (UAV)
  - b. Unmanned Aircraft Systems (UAS)
  - c. Small Unmanned Aircraft Systems (sUAS)
  - d. "Drone" is an informal term for UAV, UAS, or sUAS
2. Federal drone regulations are primarily established and enforced by which of the following agencies?
  - a. Department of Defense (DOD)
  - b. Defense Intelligence Agency (DIA)
  - c. Federal Aviation Administration (FAA)
  - d. Federal Bureau of Investigation (FBI)

3. An FAA Remote Pilot Certificate holder operating under Part 107 regulations faces restrictions such as visual line-of-sight requirements or maximum flying altitude.
  - a. True
  - b. False
4. Which of the following does NOT apply to an FAA Regulations Part 91 Certificate of Authorization (COA)?
  - a. A Part 91 COA offers more flexibility in operations, with fewer flight restrictions.
  - b. Agencies can self-certify their pilots based on customized training needs.
  - c. Under a Part 91 COA, drones can be flown only for governmental purposes.
  - d. An FAA Part 91 COA must be obtained by each operator within an agency.
5. Which of the following is a performance measure an agency should consider when purchasing drone equipment?
  - a. Battery Life
  - b. Payload
  - c. Durability
  - d. All of the Above
6. Agencies should exclusively invest in high-end drone models during the testing period to ensure agency personnel can evaluate the technology's potential impact.
  - a. True
  - b. False
7. A tandem drone flight crew consists of which of the following members?
  - a. Security Officer and Camera Operator
  - b. Remote Pilot in Command (RPIC) and Visual Observer
  - c. Remote Pilot in Command and Camera Operator
  - d. Visual Observer and Security Officer
8. Which of the following is typically NOT a core topic that should be addressed in a drone training program?
  - a. Operational Skills
  - b. Flight Simulation
  - c. Aeronautical Knowledge
  - d. State and Local Regulations
9. Agencies considering a sUAS (aka drone) program should address community privacy concerns only after they have completed several successful operations.
  - a. True
  - b. False

10. While initial costs are significant when implementing a drone program, the long-term costs of maintaining a drone program are minimal.
- True
  - False

### ***Course Evaluation Strategy***

The evaluation strategy for this course is predicated on Kirkpatrick's Four-Level Evaluation model. The course includes an evaluation of Level 1 (reactions) and 2 (student learning) as detailed below:

**Kirkpatrick's Level 1 (Reactions):** This level of evaluation is accomplished through Likert-scale prompts to collect participant feedback about the course content, delivery of the content, the relevance and applicability of the course.

**Kirkpatrick's Level 2 (Student Learning):** This level of evaluation is accomplished through the administration of pre- and post-tests.

### ***Resources***

Featured link in *Resources* tab: [PERF Report on the Use of Drones by Public Safety Agencies](#)

### ***Course Schematic***

#### **Module 1: Introduction**

##### *Module Overview*

This module addresses the administrative portion of the course and provides participants with an overview of the modular structure. This module also gives a brief overview of what it means to utilize a drone program and general terminology used when talking about drones.

##### *Learning Objectives*

1.1–1.2

##### *Module Schematic*

- Course Overview
- Terminology
- How Public Safety Agencies are Using Drones
  - Agency Examples
  - Video: Introduction to Drone Programs in Chula Vista, CA and Scottsdale, AZ
  - Video: Drone as First Responder
  - Benefits of Drone Use
- Knowledge Check
- Module 1 Conclusion

## Module 2: Pre-Implementation Considerations

### *Module Overview*

There are many factors that need to be taken into consideration when beginning to start a drone program. This module focuses on regulations at the federal, state, and local levels; community trust and outreach; selecting drone equipment; and funding considerations.

### *Learning Objectives*

2.1–2.4

### *Module Schematic*

- I. Module 2 Introduction
- II. Regulations: Federal, State, and Local
  - a. Federal Aviation Administration (FAA)
  - b. Examples of State Regulations
- III. Community Trust and Outreach
  - a. Explaining the Benefits of a Drone Program
  - b. Methods of Outreach
  - c. Addressing Privacy Concerns
  - d. Video: Search and Rescue Mission
- IV. Selecting Drone Equipment
  - a. Mission Goals
  - b. Begin with a Small Test Program
  - c. Cost of Implementation
  - d. Cost-Benefit Analysis
  - e. Partnering with Other Government Organizations
  - f. Funding Sources
  - g. Video: Cost of a Drone Program
- V. Knowledge Check
- VI. Module 2 Conclusion

## Module 3: Establishing a Drone Program

### *Module Overview*

This module focuses on the staff and training required to implement and sustain a successful drone program.

### *Learning Objectives*

3.1–3.2

### *Module Schematic*

- I. Module 3 Introduction
- II. Staffing Your Drone Team

- a. Drone Flight Crew Team Members
  - b. Additional Team Members
  - c. Full-Time Vs. Part-Time Operators
- III. Drone Team Training
  - a. Training Protocols
  - b. In-House Vs. External Training
  - c. Training Topics
  - d. Ongoing Training
- IV. Standard Operating Procedures (SOP)
  - a. Reference Materials for SOP
- V. Knowledge Check
- VI. Module 3 Conclusion

## Module 4: Conclusion

### *Module Overview*

This module addresses the changing landscape of drone use by public safety agencies and concludes the eLearning course.

### *Learning Objective*

4.1

### *Module Schematic*

- I. Module 4 Introduction
- II. Future Considerations
  - a. Privacy Issues
  - b. Costs of a Drone Program
  - c. Benefits of a Drone Program
  - d. Technology Over Time
  - e. Changing Regulations
- III. Knowledge Check
- IV. Module 4 Conclusion

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