

UAS Drone Management System Application Curriculum Guide



WEEK 1 – DMS SYSTEMS & CORE OPERATIONS

WEEK 1 – DAY 1

DMS Architecture & Compliance Frameworks

Essential Question

What is the role of documentation and DMS systems in ensuring compliant drone operations?

Lecture Duration

30 minutes direct instruction + 50 minutes guided application (80 min block)

Learning Goals

Students will:

- Understand the drone mission lifecycle
 - Explain the purpose of a Drone Management System (DMS)
 - Differentiate manual vs digital documentation
 - Describe why documentation is required for compliance
-

Standards Addressed

- Advanced Drone Piloting 303.01
 - NFPA 2400 Documentation & Compliance Principles
-

Lesson Objective (Teacher-Facing)

Students will understand:

- The **full drone mission lifecycle**
 - The purpose and structure of a **Drone Management System (DMS)**
 - How **manual and digital systems work together**
 - Why **documentation—not flying—is the foundation of compliance**
-

Instructional Content

OPENING (5–7 minutes)

Introduce the need for understanding and conducting Drone Data Management

- It is not enough to fly correctly—you must be able to **prove** that you flew correctly.
 - In professional drone operations, if it is not documented, it did not happen.
 - If something goes wrong, an incident, complaint, or inspection, the **FIRST** thing requested is documentation.
-

Explain:

- FAA and organizations don't rely on memory
- They rely on:
 - Logs
 - Records
 - Systems

SECTION 1: THE MISSION LIFECYCLE (15–20 minutes)

Teacher Emphasizes:

- Every drone mission follows a lifecycle.
- If you understand this lifecycle, you understand how to document correctly.

3 Phases of Flight

1. PRE-FLIGHT (Before You Fly)

This is where:

- You decide **what the mission is**
- You verify:
 - Location
 - Airspace
 - Authorization
 - Risks

Connect to prior course:

- Students have already learned how to check airspace.
- Now we need to document that you DID check it.

Example (Give to Students):

- Objective: Roof inspection
- Location: 123 Main St
- Authorization: LAANC approved
- Risk: Nearby power lines
- Mitigation: Maintain 20 ft buffer

2. IN-FLIGHT (During Flight)

Teacher Emphasizes:

- This is where most students fail—not because they fly wrong, but because they don't record what happens.

Students must capture:

- Time of takeoff/landing
- Events
- Deviations
- Observations

Example:

- If wind increases and you adjust your flight path, that is a **deviation** and must be documented.

3. POST-FLIGHT (After Flight)

This is where:

- Logs are finalized
- Reports are created
- Data is verified

Teacher Emphasis:

- This is where an auditor determines if your mission was compliant.

SECTION 2: WHAT IS A DMS? (15 minutes)

Teacher Emphasizes:

- A Drone Management System is not just software—it is your **system of record**.

What is a DMS (Drone Management System):

- Stores all mission data
- Enforces required fields
- Tracks:
 - Who did what
 - When they did it
 - What changed

Break Down the System Linkage

1. Write on board:

Mission → Pilot → Aircraft → Authorization → Logs → Report

2. Explain each:

- Mission = what you are doing
- Pilot = who is responsible
- Aircraft = what is used
- Authorization = legal approval
- Logs = what actually happened
- Report = final record

Key Concept:

- If one of these is missing, the mission is NOT audit-ready.

SECTION 3: WHY MANUAL SYSTEMS STILL MATTER (10 minutes)

Teacher Emphasizes:

- If we have a digital system, why are we still using paper?

Explain Clearly

Manual systems are used for:

1. **Redundancy**

- What if system fails?

2. **Field capture**
 - Faster to jot notes in real-time
3. **Verification**
 - Compare against DMS

Example:

- If your DMS says one thing and your manual log says another—which one is correct?
- Answer:** Neither until verified

SECTION 4: COMPLIANCE FRAMEWORK (CRITICAL) (10 minutes)

Teacher Emphasis:

- Compliance is not about what you intended to do—it's about what you can prove.

Define:

- **Compliance = Documented proof that rules were followed**

Give Scenario:

- You checked airspace—but didn't log it.
- Did you comply?"

Answer: No (because you cannot prove it)

HANDS-ON DATA ENTRY (CORE LEARNING)

Manual Entry (15–20 minutes)

Students complete:

- Objective
- Location
- Pilot
- Aircraft
- Date/time
- Authorization reference

Teacher Guidance:

Walk room and say:

- “Check for blanks”
- “Be specific, not vague”
- “Write as if someone else must read this later”

DMS Entry (15–20 minutes)

Students:

- Create mission
- Map location
- Assign pilot
- Assign aircraft
- Enter authorization

Teacher Emphasis:

- Notice how the system forces you to complete fields—that’s intentional.
-

CORE ACTIVITY (COMPARE SYSTEMS)

Task:

Students compare:

- Manual form
 - DMS entry
-

Ask:

- What did you forget on paper?
 - What did the system require?
 - Which is more complete?
-

Teaching Point:

- The system enforces compliance—but YOU are still responsible.
-

PERFORMANCE RUBRIC

Criteria	1	2	3	4
Manual Entry	Incomplete	Some errors	Accurate	Fully complete + clear
DMS Entry	Incorrect	Partial	Accurate	Fully linked
Alignment	Not aligned	Partial	Aligned	Fully synchronized

ASSESSMENT ITEMS (ALIGNED TO YOUR FORMAT)

1. What is the primary purpose of a Drone Management System (DMS)?
 - A. Increase flight speed
 - B. Replace pilot judgment
 - C. Document and verify operations for compliance
 - D. Control aircraft hardware
2. An audit trail is best described as:
 - A. Flight path visualization
 - B. A time-ordered record of actions and changes
 - C. Weather log
 - D. Battery report
3. Manual documentation is MOST important for:
 - A. Automation
 - B. Redundancy and field capture
 - C. Eliminating digital logs
 - D. Reducing planning time

4. Lifecycle integration means:
- A. Separate systems
 - B. Linking planning, flight, and reporting into one record set
 - C. Faster flights
 - D. Fewer logs
-

Answer Key

- 1. C
 - 2. B
 - 3. B
 - 4. B
-

WEEK 1 – DAY 2

Digital Recordkeeping & Audit Readiness

Essential Question

What makes drone documentation audit-ready, and how are records evaluated in professional operations?

Lecture Duration

30 minutes direct instruction + 50 minutes guided application (80-minute block)

Learning Goals

Students will:

- Differentiate between data and metadata
 - Define what makes a record audit-ready
 - Convert manual logs into DMS entries
 - Identify and correct documentation errors
 - Understand how documentation is evaluated in real-world audits
-

Standards Addressed

- Advanced Drone Piloting 303.01
 - NFPA 2400 Documentation, Recordkeeping, and Compliance Verification
-

Lesson Objective

Students will:

- Understand the difference between **data vs metadata**
 - Learn what makes a record **audit-ready**
 - Practice converting **manual logs into DMS entries**
 - Identify and correct **common documentation errors**
-

Instructional Content

OPENING (5–7 minutes)

Teacher Emphasis:

- Once you learn how to document a mission, you then need to learn how documentation is evaluated.
 - In the real world, it's not enough to have a log—that log must stand up to an audit.
-

Teacher Explanation

- Logs are reviewed by:
 - FAA inspectors
 - Company safety officers
 - Legal teams
 - Your documentation must answer every question without you being present.
-

SECTION 1: DATA VS METADATA (15 minutes)

Teacher Emphasis:

- There are two types of information in every record—data and metadata.
 - Most students only think about one.
-

Define Clearly

Data = What happened

- Flight time
 - Location
 - Actions taken
-

Metadata = Information about the data

- Who entered it
 - When it was entered
 - When it was edited
-

Key Concept to be mastered:

- Metadata is what makes your data believable.
-

Example

1. Write on board: Flight Time: 10:00–10:15
 2. Ask: “Is this enough?”
 3. Then add:
 - Entered by: John Smith
 - Timestamp: 10:17 AM
 4. Now ask:
 - “Which record is stronger?”
-

SECTION 2: WHAT IS ‘AUDIT-READY’? (15 minutes)

Teacher Emphasis:

- Audit-ready is not a feeling, it’s a standard.

Define the 4 Requirements

1. **Complete**
 - No missing fields
 2. **Accurate**
 - Correct data
 3. **Time-stamped**
 - Shows when entries occurred
 4. **Traceable**
 - Shows who did what
-

Key Concept:

- If one of these is missing, the record fails.

Scenario Example

- If your log is complete but has no timestamps—is it audit-ready?
Answer: No
-

SECTION 3: COMMON STUDENT ERRORS (10–15 minutes)

Teacher Emphasis:

- Show Students exactly how they would fail this course.
-

Examples of unacceptable entries

- *“Flight was good”*
 - Missing end time
 - No pilot listed
-

Ask Students:

“What’s wrong with this?”

Correct It Together:

- Flight completed from 10:00–10:15 by Pilot Smith. No deviations observed.
-

SECTION 4: WHY DMS SYSTEMS MATTER (10 minutes)

Teacher Emphasis:

- This is where a system helps you—but it does not replace you.
-

DMS systems:

- Auto-fill timestamps
 - Track user IDs
 - Prevent missing required fields
-

Critical Clarification:

- The system makes it harder to make mistakes—but it does not guarantee correctness.
-

HANDS-ON DATA ENTRY

Manual Log Activity (15 minutes)

Students complete:

- Start time
 - End time
 - Pilot
 - Notes
 - Any anomalies
-

Teacher Formative Assessment during the activity:

- “Be specific—what actually happened?”
 - “Would someone else understand this?”
-

DMS Entry Activity (15 minutes)

Students:

- Enter flight into DMS
 - Observe:
 - Auto timestamps
 - Required fields
-

Teacher Emphasis:

- Notice what the system captured automatically—and what it didn’t.
-

CORE ACTIVITY: MANUAL → DMS COMPARISON

Task:

Students compare: Manual log vs DMS log

Ask:

- What did the system add?
 - What did you forget manually?
 - Which version is more complete?
-

Teaching Point:

- The strongest record combines both accuracy AND system structure.
-

PERFORMANCE RUBRIC

Criteria	1	2	3	4
Accuracy	Incorrect	Partial	Correct	Fully accurate
Completeness	Missing fields	Partial	Complete	Detailed + precise
Audit Readiness	Not ready	Limited	Ready	Fully compliant

ASSESSMENT ITEMS

1. What is metadata?
 - A. Aircraft weight
 - B. Data about the data
 - C. Wind speed
 - D. Camera settings
 2. Timestamps provide:
 - A. Speed
 - B. Proof of when entries occur
 - C. Storage
 - D. Battery life
 3. An audit-ready log must be:
 - A. Short
 - B. Verbal
 - C. Complete and traceable
 - D. Paper-only
 4. Which improves traceability most?
 - A. Color coding
 - B. User IDs and edit history
 - C. Larger font
 - D. Short notes
-

Answer Key

1. B
2. B
3. C
4. B

CLOSURE (5 minutes)**Teacher Emphasis:**

- Last lesson, students learned how to document.
 - In this lesson, students will learn how documentation is judged.
 - In this course, students are not just creating records; they are creating proof.
-

WEEK 1 – DAY 3

Data Integrity & Authorization Tracking

Essential Question

Why must drone data be both accurate and protected, and how does authorization linkage impact compliance?

Lecture Duration

30 minutes direct instruction + 50 minutes guided application (80-minute block)

Learning Goals

Students will:

- Define data integrity and explain its importance
 - Understand version control and change tracking
 - Properly document and link authorizations (LAANC, waivers)
 - Identify invalid or non-compliant records
 - Correct documentation errors to meet audit standards
-

Standards Addressed

- Advanced Drone Piloting 303.01
 - NFPA 2400 Data Integrity, Documentation, and Authorization Requirements
-

Lesson Objective

Students will:

- Understand **data integrity** and why it matters in audits
 - Learn how **version control protects records**
 - Properly document and link **authorizations (LAANC, waivers, approvals)**
 - Identify and correct **invalid or non-compliant records**
-

Instructional Content

OPENING (5–7 minutes)

Teacher Emphasis:

- In the last lesson, you learned how to create a complete record.
 - In This lesson's lesson, you're going to learn why a 'complete' record can still fail.
 - A record can look perfect—and still be invalid.
-

Teacher Explanation

- There are two major risks in documentation:
 1. **Incorrect data**
 2. **Unverifiable changes**
 - If someone changes a record and there's no history—you cannot trust it.
-

SECTION 1: WHAT IS DATA INTEGRITY? (15 minutes)

Teacher Emphasis:

- Data integrity means your information is both accurate AND protected from untracked change.
-

Write on board:

- **Data Integrity = Accuracy + Protection**
-

Explain Each:

1. Accuracy

- Correct times
 - Correct pilot
 - Correct data
-

2. Protection

- No hidden edits
 - Changes are tracked
 - History is visible
-

Key Concept:

- If your data can be changed without being tracked—it cannot be trusted.
-

Example

- Original: Flight ended at 10:15
- Changed: Flight ended at 10:25

Ask: “Which one is correct?”

Answer: You don't know unless there is a **version history**.

SECTION 2: VERSION CONTROL (15 minutes)

Teacher Emphasis:

- In professional systems, nothing is ever truly deleted, it is versioned.

Define:

- **Version Control = Tracking every change made to a record**
-

Explain:**DMS systems track:**

- Who made the change
 - When it was made
 - What was changed
-

Demonstration Idea:

Show:

- Original entry
- Edited entry

Ask:

- “What changed?”
 - “Who changed it?”
-

Teaching Point:

- If you cannot answer those questions, you fail an audit.
-

SECTION 3: AUTHORIZATION LINKAGE (CRITICAL) (20 minutes)

Teacher Emphasis:

- This is one of the most common failures—even among professionals.
-

Define:

- **Authorization Linkage = Connecting approval directly to the mission record**
-

Explain Clearly:

Authorization includes:

- LAANC approval
 - Waivers
 - Controlled airspace permissions
-

Critical Rule:

- Authorization that is NOT linked to the mission is treated as if it does not exist.
-

Scenario:

1. You have LAANC approval—but it is saved separately and not attached to the mission

Ask:

- “Are you compliant?”

Answer: NO

2. Why?

Because:

- Auditor cannot verify connection
 - No traceability
-

SECTION 4: COMMON FAILURE POINTS (10 minutes)

Teacher Emphasis:

- Show how most students—and even professionals—fail this section.
-

Show Examples:

- Authorization listed but not linked
 - Missing approval number
 - Time mismatch between authorization and flight
-

Fix Together:

- Correct number
 - Proper timestamp
 - Linked to mission
-

Teaching Point:

- Small errors = big compliance failures
-

HANDS-ON DATA ENTRY

Manual Entry (15 minutes)

Students record:

- Authorization number
 - Time issued
 - Airspace type
 - Approval method
-

Teacher Guidance:

- Students must write clearly, this must be verifiable
 - Ask “Would an auditor understand this without you?”
-

DMS Entry (15 minutes)

Students:

- Attach authorization
 - Link to mission
 - Verify timestamps
-

Teacher Emphasis:

- Make sure the authorization is not just entered—it must be LINKED.
-

CORE ACTIVITY: ERROR DETECTION

Task:

Students are given:

- Faulty logs
 - Missing links
 - Incorrect entries
-

Students Must:

- Identify errors
 - Correct them manually
 - Fix them in DMS
-

Ask:

- What was missing?
 - Why is this a problem?
-

Teaching Point:

- You are not just recording data—you are validating it.
-

PERFORMANCE RUBRIC

Criteria	1	2	3	4
Error Detection	Few	Some	Most	All
Correction Accuracy	Incorrect	Partial	Correct	Fully compliant
Authorization Linkage	Missing	Partial	Linked	Fully verified

ASSESSMENT ITEMS

1. Data integrity ensures:
 - A. Speed
 - B. Accuracy and reliability of records
 - C. Storage size
 - D. Image quality
 2. Version control tracks:
 - A. Battery cycles
 - B. Changes to records over time
 - C. GPS accuracy
 - D. Camera exposure
 3. Authorization must be:
 - A. Verbal
 - B. Linked to the mission record
 - C. Separate file
 - D. Optional
 4. A corrected log without history is:
 - A. Better
 - B. Acceptable
 - C. Risky for audit
 - D. Required
-

Answer Key

1. B
2. B
3. B
4. C

CLOSURE (5 minutes)

Teacher Emphasis:

- In this lesson, you learned something critical—records must not only be correct, but they must also be trustworthy.
 - If someone can't see how your data was created and changed, your data cannot be trusted.
-

WEEK 1 – DAY 4

Mission Planning in DMS

Essential Question

How does structured mission planning ensure compliance, safety, and audit readiness in drone operations?

Lecture Duration

30 minutes direct instruction + 50 minutes guided application (80-minute block)

Learning Goals

Students will:

- Understand that planning is the foundation of compliance
 - Identify all required elements of a compliant mission plan
 - Develop structured, documented mission plans
 - Align manual planning with DMS planning
 - Recognize planning failures and their impact on compliance
-

Standards Addressed

- Advanced Drone Piloting 303.01
 - NFPA 2400 Mission Planning, Risk Assessment, and Operational Readiness
-

Lesson Objective

Students will:

- Understand that **planning is the foundation of compliance**
 - Learn to build a **fully documented, audit-ready mission plan**
 - Connect planning elements to **DMS system requirements**
 - Demonstrate **alignment between manual planning and DMS planning**
-

Instructional Content

OPENING (5–7 minutes)

Teacher Emphasis:

- Up to this point, we've focused on documenting what happens.
 - This lesson, we focus on documenting what is going to happen.
 - In professional drone operations, compliance starts **before the drone ever leaves the ground**.
-

Explain:

- Most compliance failures don't happen during flight
 - They happen because:
 - The mission wasn't properly planned
 - Risks weren't identified
 - Authorization wasn't verified
-

Key Concept:

- If it's not planned correctly, it cannot be executed compliantly.
-

SECTION 1: STRUCTURED VS INFORMAL PLANNING (15 minutes)

Teacher Emphasis:

- There are two ways to plan a mission—informal and structured.
-

Explain Clearly**1. Informal Planning:**

- “We’ll just go fly over there”
 - No documentation
 - No risk analysis
-

2. Structured Planning:

- Defined objective
 - Identified risks
 - Mitigation strategies
 - Documented authorization
-

Teaching Point:

- Only structured planning is acceptable in professional operations.
-

SECTION 2: REQUIRED ELEMENTS OF A COMPLIANT PLAN (20 minutes)

Teacher Emphasis:

- Every mission plan must include specific elements. If one is missing, the plan fails.
-

Write on Board:**1. Objective**

- What is the mission?
 - Why are you flying?
-

2. Location

- Exact area of operation
 - Airspace classification
-

3. Risk Identification

- Obstacles
 - Weather
 - People
 - Structures
-

4. Mitigation Strategies

- How risks will be reduced
-

5. Authorization

- LAANC or other approvals
- Must be documented and linked

Key Concept:

- A mission without documented risk and mitigation is not compliant—it is reckless.

◆ SECTION 3: HOW DMS ENFORCES PLANNING (15 minutes)

Teacher Emphasis:

- This is where the system forces you to do things correctly.

Explain:

DMS systems:

- Require mission fields
- Require location mapping
- Require authorization input

Teaching Contrast:

1. Manual system:

- Flexible
- Can be incomplete

2. DMS system:

- Structured
- Enforces completeness

Critical Clarification:

- The system forces completeness—but it does NOT guarantee correctness.

SECTION 4: PLANNING FAILURE SCENARIOS (10–15 minutes)

Teacher Emphasis:

- Let's look at how planning fails in the real world.

Scenario 1:

Mission planned without checking the airspace

Result: Unauthorized flight

Scenario 2:

Risk identified but no mitigation documented

Result: Not audit-ready

Scenario 3:

Authorization obtained but not linked

Result: Non-compliant

Teaching Point:

- If it is not written down, it does not exist.
-

HANDS-ON DATA ENTRY

Manual Planning Activity (20 minutes)

Students complete:

- Objective
 - Location
 - Risks
 - Mitigation
 - Authorization reference
-

Teacher Formative Assessment during the activity:

- “Be specific—no vague statements”
 - “What could go wrong?”
 - “How will you prevent it?”
-

DMS Planning Activity (20 minutes)

Students:

- Create mission
 - Map location
 - Identify airspace
 - Enter authorization
-

Teacher Emphasis:

- Make sure everything in your manual plan exists in the DMS.
-

CORE ACTIVITY: SYSTEM ALIGNMENT

Task:

Students compare:

- Manual plan
 - DMS plan
-

Ask:

- Does everything match?
 - What is missing?
 - What did the system require?
-

Teaching Point:

- Alignment between systems is required for audit readiness.
-

PERFORMANCE RUBRIC

Criteria	1	2	3	4
Plan Quality	Poor	Partial	Complete	Detailed + specific
Risk/Mitigation	Missing	Partial	Included	Thorough + justified
System Alignment	Poor	Partial	Consistent	Fully aligned

ASSESSMENT ITEMS

1. The primary purpose of mission planning is to:
 - A. Increase speed
 - B. Document compliance and reduce risk
 - C. Replace training
 - D. Delay flights
2. Which is REQUIRED in a compliant plan?
 - A. Color scheme
 - B. Objective and location
 - C. Brand of drone
 - D. Pilot age
3. Risk documentation supports:
 - A. Marketing
 - B. Compliance and safety verification
 - C. Cost savings
 - D. Image quality
4. DMS planning improves:
 - A. Battery life
 - B. Completeness and linkage of records
 - C. Wind resistance
 - D. Camera zoom

Answer Key

1. B
 2. B
 3. B
 4. B
-

CLOSURE (5 minutes)**Teacher Emphasis:**

- Students learned that compliance doesn't begin when the drone takes off—it begins when the mission is planned.
 - A well-documented plan is the foundation of a successful and compliant operation.
-

WEEK 1 – DAY 5

Monitoring, Deviations & Incident Logging (FULL EXPANDED VERSION)

Essential Question

How do real-time monitoring and accurate documentation of deviations and incidents ensure compliance and safety in drone operations?

Lecture Duration

30 minutes direct instruction + 50 minutes guided application (80-minute block)

Learning Goals

Students will:

- Define and apply real-time mission monitoring
 - Differentiate between deviations and incidents
 - Accurately log events during flight
 - Use both manual and DMS systems to record mission changes
 - Ensure documentation reflects actual mission conditions
-

Standards Addressed

- Advanced Drone Piloting 303.01
 - NFPA 2400 Operational Monitoring, Incident Documentation, and Compliance Reporting
-

Lesson Objective

Students will:

- Understand the importance of **real-time monitoring and documentation**
 - Distinguish between **normal operations, deviations, and incidents**
 - Learn to properly **log events during flight**
 - Demonstrate accurate **manual and DMS event recording**
-

Instructional Content

OPENING (5–7 minutes)

Teacher Emphasis:

- Up to this point, Student's focused on planning and preparation.
 - This lesson will focus on what happens when things don't go exactly as planned.
 - Understand that no real-world mission goes perfectly—and how you document those changes determines whether you are compliant.
-

Explain:

- Even a perfect plan will face:
 - Weather changes
 - Unexpected obstacles
 - Equipment behavior
 - The difference between an amateur and a professional is not avoiding problems, it's documenting them correctly.
-

SECTION 1: WHAT IS MONITORING? (15 minutes)

Teacher Emphasis:

- Monitoring is not just watching the drone—it is tracking the mission in real time.
-

Define Clearly

- **Monitoring = Real-time awareness of mission status using telemetry and observation**
-

Explain:

Students must track:

- Position
 - Altitude
 - Flight time
 - Environment changes
-

Key Concept:

- If you are not actively monitoring, you are not in control of the mission.
-

SECTION 2: DEVIATION VS INCIDENT (20 minutes)

Teacher Emphasis:

- This is one of the most important distinctions you will learn.
-

Define Clearly:

1. Deviation

- Any change from the original plan
- Does NOT necessarily involve danger

Examples:

- Adjusting flight path
 - Changing altitude
 - Extending flight time
-

2. Incident

- Event that affects **safety or compliance**
- Requires **formal reporting**

Examples:

- Near collision
 - Loss of control
 - Airspace violation
-

Key Concept:

- All incidents are deviations—but not all deviations are incidents.
-

Scenario Exercise

Ask:

1. If wind forces you to change direction—is that a deviation or an incident?

Answer: Deviation

2. If you lose GPS signal and control?

Answer: Incident

SECTION 3: REAL-TIME LOGGING (15 minutes)

Teacher Emphasis:

- The biggest mistake students make is logging AFTER the mission.

Explain:

Logging must occur:

- During flight
- Immediately after events

Critical Point:

- Logging later means you are guessing—and guessing is not acceptable in compliance.

Example:

1. “Flight went fine” – **Not Acceptable**
2. “At 10:07 wind increased; altitude reduced from 100 ft to 60 ft.” - **Acceptable**

SECTION 4: HOW DMS SYSTEMS CAPTURE EVENTS (10–15 minutes)

Teacher Emphasis:

- The DMS helps capture data—but you must still interpret and document events.

Explain:

DMS systems:

- Capture telemetry
- Provide timelines
- Allow event tagging

Clarification:

- The system records data—but YOU explain what happened.

HANDS-ON DATA ENTRY

Manual Logging Activity (20 minutes)

Students record:

- Time
- Event
- Description
- Action taken

Teacher Formative Assessment during the activity:

- “Be specific—what exactly changed?”
 - “Would someone understand this without being there?”
-

DMS Logging Activity (20 minutes)

Students:

- Log events in DMS
 - Tag deviations
 - Review timeline
-

Teacher Emphasis:

- Make sure your manual log and DMS timeline tell the same story.
-

CORE ACTIVITY: MISSION SIMULATION

Scenario:

Simulated mission includes:

- Wind change
 - Obstacle avoidance
 - Minor delay
-

Students Must:

- Log events manually
 - Enter events into DMS
 - Identify:
 - Deviations
 - Any incidents
-

Ask:

- What changed from the plan, and how did you respond?
 - Did your documentation reflect it?
-

Teaching Point:

- If your documentation doesn’t match reality, you are not compliant.
-

PERFORMANCE RUBRIC

Criteria	1	2	3	4
Logging Accuracy	Poor	Partial	Accurate	Detailed + precise
Deviation Capture	Missing	Partial	Complete	Complete + justified
System Use	Limited	Basic	Effective	Advanced (timeline/tags)

ASSESSMENT ITEMS

1. A deviation is:
 - A. Planned action
 - B. Change from the approved plan
 - C. Landing
 - D. Battery swap
2. Monitoring relies on:
 - A. Color
 - B. Telemetry data
 - C. Cost
 - D. Preference
3. Incidents differ from deviations because they:
 - A. Are smaller
 - B. Require formal reporting due to safety impact
 - C. Are optional
 - D. Only occur pre-flight
4. Best practice is to log events:
 - A. After the mission only
 - B. In real time when possible
 - C. Weekly
 - D. Never

Answer Key

1. B
2. B
3. B
4. B

CLOSURE (5 minutes)

Teacher Emphasis:

- Students learned that what happens during the mission is just as important as how you document it.
 - A professional operator does not just react—they record, explain, and verify every change.
-

WEEK 1 COMPLETE — WHAT STUDENTS NOW KNOW

By the end of Week 1, students can:

1. Build a complete mission lifecycle
 2. Create audit-ready records
 3. Maintain data integrity
 4. Plan compliant missions
 5. Monitor and document real-time events
-

WEEK 2 – DAY 1

Fleet & Personnel Management in DMS

Essential Question

How do proper fleet and personnel management practices ensure accountability, compliance, and operational readiness in drone operations?

Lecture Duration

30 minutes direct instruction + 50 minutes guided application (80-minute block)

Learning Goals

Students will:

- Understand the importance of managing pilots and aircraft within a DMS
 - Identify required pilot documentation and certifications
 - Track aircraft status, maintenance, and airworthiness
 - Link personnel and aircraft to mission records
 - Recognize compliance risks related to poor fleet management
-

Standards Addressed

- Advanced Drone Piloting 303.01
 - NFPA 2400 Personnel Qualification, Equipment Tracking, and Operational Readiness
-

Lesson Objective

Students will:

- Understand how **fleet and personnel are managed in professional operations**
 - Learn to assign and track **pilot responsibility**
 - Document **aircraft status, maintenance, and readiness**
 - Demonstrate **accurate linkage of pilot + aircraft + mission in DMS**
-

Instructional Content

OPENING (5–7 minutes)

Teacher Emphasis:

- Up to this point, we've focused on missions.
 - This lesson will shift to something just as important, **who is responsible and what equipment is being used**.
 - In professional drone operations, every mission must answer two questions:
 1. Who flew?
 2. What aircraft was used?
-

Explain:

- In audits, investigators first check:
 - Pilot identity
 - Aircraft used
 - If either is missing: Mission is invalid
-

Key Concept:

- If you cannot identify the pilot and aircraft, you cannot verify the mission.
-

SECTION 1: PERSONNEL MANAGEMENT (15 minutes)

Teacher Emphasis:

- Let's start with the most important element—the pilot.
-

Explain Clearly

Personnel records include:

- Pilot name
 - Certification (Part 107)
 - Currency (current or expired)
 - Role in mission
-

Critical Point:

- Being a certified pilot is not enough—you must be **current and documented**.
-

Example:

Pilot certified—but expired currency

Ask: “Can they legally operate?”

Answer: No

Teaching Point:

- Certification proves knowledge. Currency proves readiness.
-

SECTION 2: AIRCRAFT (FLEET) MANAGEMENT (15–20 minutes)

Teacher Emphasis:

- Now let's talk about the aircraft—because not all drones are equal.
-

Explain Clearly

Each aircraft must have:

- Unique ID
 - Model/type
 - Maintenance status
 - Airworthiness
-

Define:

- **Airworthiness = Safe and approved for flight**
-

Key Concept:

- If an aircraft is not documented as airworthy, it cannot be flown.
-

Example:

The drone has a damaged propeller

Ask: “Can it be used?”

Answer: No

SECTION 3: LINKING PILOT + AIRCRAFT + MISSION (CRITICAL) (20 minutes)

Teacher Emphasis:

- This is where everything comes together.
-

Draw on Board:

- Mission → Pilot → Aircraft
-

Explain:

Every mission must clearly show:

- Who flew
 - What aircraft was used
 - When it occurred
-

Critical Rule:

- If any one of these is missing, the mission is NOT valid.
-

Scenario:

Mission recorded

Aircraft listed

Pilot missing

Ask: “Is this compliant?”

Answer: No

SECTION 4: HOW DMS ENFORCES STRUCTURE (10–15 minutes)

Teacher Emphasis:

- This is where the system prevents major mistakes.
-

Explain:

DMS systems:

- Require pilot assignment
 - Require aircraft selection
 - Prevent incomplete missions
-

Teaching Point:

- The system enforces structure—but you ensure accuracy.
-

HANDS-ON DATA ENTRY

Manual Activity (20 minutes)

Students document:

- Pilot name
 - Certification status
 - Aircraft ID
 - Aircraft condition
-

Teacher Formative Assessment during the activity:

- “Check for completeness.”
 - “Is the aircraft safe?”
 - “Is the pilot current?”
-

DMS Activity (20 minutes)

Students:

- Assign pilot to mission
 - Assign aircraft
 - Verify both are active
-

Teacher Emphasis:

- Make sure the system reflects reality—not assumptions.
-

CORE ACTIVITY: VALIDATION CHECK

Task:

Students review:

- Completed mission records
-

Must identify:

- Missing pilot
 - Invalid aircraft
 - Incomplete linkage
-

Teaching Point:

- Validation is part of documentation—not separate from it.
-

PERFORMANCE RUBRIC

Criteria	1	2	3	4
Personnel Accuracy	Poor	Partial	Correct	Fully verified
Aircraft Documentation	Missing	Partial	Complete	Fully detailed
System Linkage	Poor	Partial	Linked	Fully validated

ASSESSMENT ITEMS

1. Personnel records must include:
 - A. Favorite drone
 - B. Certification and currency status
 - C. Color preference
 - D. Flight speed
2. Airworthiness means:
 - A. Drone is expensive
 - B. Drone is safe and approved for operation
 - C. Drone is new
 - D. Drone is fast
3. A mission without a pilot listed is:
 - A. Valid
 - B. Optional
 - C. Invalid
 - D. Preferred
4. Fleet management ensures:
 - A. Faster flying
 - B. Proper aircraft tracking and readiness
 - C. Better photos
 - D. Longer battery life

Answer Key

1. B
2. B
3. C
4. B

CLOSURE (5 minutes)

Teacher Emphasis:

- Students learned that every mission must be tied to a real person and a real aircraft.
 - In professional operations, responsibility is never anonymous—it is documented.
-

WEEK 2 – DAY 2

Data Storage, Security & Access Control

Essential Question

How does secure data storage and controlled access ensure the integrity, protection, and compliance of drone operation records?

Lecture Duration

30 minutes direct instruction + 50 minutes guided application (80-minute block)

Learning Goals

Students will:

- Understand how drone data is stored and managed
 - Define the principles of data security (Confidentiality, Integrity, Availability)
 - Apply access control concepts (roles and permissions)
 - Identify risks associated with poor data security
 - Properly manage and protect DMS data
-

Standards Addressed

- Advanced Drone Piloting 303.01
 - NFPA 2400 Data Management, Security, and Access Control
-

Lesson Objective

Students will:

- Understand how **drone data is stored, protected, and managed**
 - Learn the difference between **local, cloud, and hybrid storage**
 - Apply **access control principles (who can see/change data)**
 - Demonstrate secure **manual and DMS data handling practices**
-

Instructional Content

OPENING (5–7 minutes)

Teacher Emphasis:

- Up to this point, we've focused on creating accurate records.
 - This lesson will talk about protecting those records.
 - In professional operations, it's not enough to have good data—you must ensure that data is **secure, controlled, and trusted**.
-

Explain:

- Drone data includes:
 - Locations
 - Images
 - Operational details
- This data can be:
 - Sensitive
 - Regulated
 - Legally important

Key Concept:

- If your data is not secure, your operation is not professional.
-

SECTION 1: TYPES OF DATA STORAGE (15 minutes)

Teacher Emphasis:

- There are three main ways drone data is stored.
-

1. Local Storage

- Stored on device (controller, SD card, computer)

Pros:

- Fast access
- No internet required

Cons:

- Easy to lose
 - Not centralized
-

2. Cloud Storage

- Stored online (e.g., Aloft, cloud systems)

Pros:

- Accessible anywhere
- Centralized
- Backed up

Cons:

- Requires internet
 - Security considerations
-

3. Hybrid Storage

- Combination of both
-

Teaching Point:

- Professional systems almost always use hybrid storage.
-

SECTION 2: DATA SECURITY (15–20 minutes)

Teacher Emphasis:

- Security is about protecting data from being lost, altered, or accessed by the wrong person.
-

Define Core Concepts

1. Confidentiality

- Only authorized users can see data
-

2. Integrity

- Data cannot be changed without tracking
-

3. Availability

- Data is accessible when needed
-

Key Concept:

- If data is secure but unavailable, it's useless.
 - If it's available but not secure, it's dangerous.
-

SECTION 3: ACCESS CONTROL (CRITICAL) (20 minutes)

Teacher Emphasis:

- Not everyone should have the same level of access to data.
-

Define:

- **Access Control = Managing who can view, edit, or delete data**
-

Explain Roles:

- Viewer → Can see data
 - Editor → Can modify data
 - Admin → Full control
-

Scenario:

Student accidentally deletes mission data

Ask: "What failed?"

Answer: Access control

Key Concept:

- Access is permission—and permission must be controlled.
-

SECTION 4: DMS SECURITY FEATURES (10–15 minutes)

Teacher Emphasis:

- This is where professional systems protect your operation.
-

Explain:

DMS systems provide:

- User authentication
 - Role-based permissions
 - Activity logs
-

Teaching Point:

- The system tracks who accessed and changed data—this supports accountability.
-

HANDS-ON DATA ENTRY

Manual Activity (15–20 minutes)

Students document:

- Where data is stored
 - Who has access
 - Backup method
-

Teacher Formative Assessment during the activity:

- “What happens if this is lost?”
 - “Who should have access?”
-

DMS Activity (20 minutes)

Students:

- Assign user roles
 - Review permissions
 - Check access levels
-

Teacher Emphasis:

- Make sure the right people have the right access—not everyone.
-

CORE ACTIVITY: SECURITY SCENARIO

Scenario:

- Unauthorized user edits data
 - Missing backup
 - Shared login credentials
-

Students Must:

- Identify issue
 - Propose a solution
-

Teaching Point:

- Security failures are operational failures.
-

PERFORMANCE RUBRIC

Criteria	1	2	3	4
Storage Understanding	Poor	Basic	Correct	Detailed
Security Concepts	Limited	Partial	Clear	Advanced
Access Control	Incorrect	Partial	Correct	Fully applied

ASSESSMENT ITEMS

1. Cloud storage allows:
 - A. No access
 - B. Remote access and centralized storage
 - C. Faster drones
 - D. Better cameras
2. Data integrity ensures:
 - A. Speed
 - B. Data accuracy and protection from untracked changes
 - C. Storage size
 - D. Flight time
3. Access control determines:
 - A. Flight speed
 - B. Who can access or modify data
 - C. Battery use
 - D. Weather conditions
4. A strong data system must ensure:
 - A. Color matching
 - B. Confidentiality, integrity, and availability
 - C. Larger screens
 - D. Faster charging

Answer Key

1. B
2. B
3. B
4. B

CLOSURE (5 minutes)

Teacher Emphasis:

- Students learned that creating data is only part of your responsibility; you must also protect it.
 - A professional operator does not just manage drones; they manage information securely.
-

WEEK 2 – DAY 3

Data Analysis & Reporting

Essential Question

How is drone operation data transformed into meaningful reports that support decision-making, compliance, and accountability?

Lecture Duration

30 minutes direct instruction + 50 minutes guided application (80-minute block)

Learning Goals

Students will:

- Differentiate between raw data and usable information
 - Analyze mission data for accuracy and completeness
 - Generate professional reports from DMS systems
 - Identify trends, errors, and compliance issues in data
 - Understand the role of reporting in audits and operational review
-

Standards Addressed

- Advanced Drone Piloting 303.01
 - NFPA 2400 Data Analysis, Reporting, and Documentation Review
-

Lesson Objective

Students will:

- Understand how drone data is **interpreted and used for decision-making**
 - Learn to generate **professional mission reports**
 - Distinguish between **raw data and actionable insights**
 - Create aligned **manual and DMS-generated reports**
-

Instructional Content

OPENING (5–7 minutes)

Teacher Emphasis:

- Up to this point, students have been collecting and protecting data.
 - In this lesson, we answer the most important question, **what do we do with it?**
 - Data has no value until it is turned into information, and information has no value until it supports a decision.
-

Explain:

- Organizations don't collect data for storage
 - They collect it to:
 - Make decisions
 - Prove compliance
 - Generate reports
-

Key Concept:

- If your data does not lead to a decision, it has no operational value.

SECTION 1: RAW DATA VS INFORMATION (15 minutes)

Teacher Emphasis:

- Most students confuse data with information—they are not the same.
-

Define Clearly:

1. Raw Data

- Unprocessed facts
 - Example:
 - Time: 10:00–10:15
 - Altitude: 100 ft
-

2. Information

- Interpreted meaning
 - Example:
 - “Flight completed safely within approved parameters.”
-

Key Concept:

- Data tells you what happened, information tells you what it means.
-

SECTION 2: TYPES OF DRONE DATA (15–20 minutes)

Teacher Emphasis:

- Drone operations generate multiple types of data; each serves a different purpose.
-

Explain:

1. Operational Data

- Flight logs
 - Telemetry
 - Events
-

2. Sensor Data

- Images
 - Video
 - Mapping outputs
-

3. Compliance Data

- Authorization
 - Logs
 - Reports
-

Teaching Point:

- A complete report combines all three types.
-

SECTION 3: BUILDING A PROFESSIONAL REPORT (20 minutes)

Teacher Emphasis:

- This is what organizations actually care about, the final report.
-

Write Structure on Board:

1. Mission Summary

- What was done
 - Where
 - When
-

2. Operational Details

- Flight time
 - Aircraft
 - Pilot
-

3. Events / Deviations

- What changed
 - How it was handled
-

4. Findings / Results

- What was observed
 - Outcome
-

5. Compliance Verification

- Authorization
 - Safety adherence
-

Key Concept:

- A report must tell the full story from planning to outcome.
-

SECTION 4: DMS REPORT GENERATION (10–15 minutes)

Teacher Emphasis:

- This is where the system helps but does not replace thinking.
-

Explain:

DMS systems can:

- Auto-generate reports
 - Pull mission data
 - Format output
-

Critical Clarification:

- The system organizes data—but YOU interpret it.
-

HANDS-ON DATA ENTRY & REPORTING

Manual Report Creation (20 minutes)

Students create:

- Mission summary
 - Events
 - Outcome
-

Teacher Formative Assessment during the activity:

- “Is this clear?”
 - “Would someone else understand this?”
-

DMS Report Generation (20 minutes)

Students:

- Generate a report from DMS
 - Compare to the manual report
-

Teacher Emphasis:

- Does your manual report match what the system produced?
-

CORE ACTIVITY: REPORT COMPARISON

Task:

Students compare:

- Raw data
 - Manual report
 - DMS report
-

Ask:

- What was missing?
 - What was unclear?
 - Which report is stronger?
-

Teaching Point:

- The best report combines system data with human interpretation.
-

PERFORMANCE RUBRIC

Criteria	1	2	3	4
Data Interpretation	Poor	Basic	Correct	Insightful
Report Clarity	Unclear	Partial	Clear	Professional
System Alignment	Poor	Partial	Accurate	Fully integrated

ASSESSMENT ITEMS

1. Raw data is best described as:
 - A. Interpreted results
 - B. Unprocessed facts
 - C. Final report
 - D. Summary
2. A mission report must include:
 - A. Only images
 - B. Mission summary and findings
 - C. Only flight time
 - D. Only pilot name
3. DMS reporting tools:
 - A. Replace analysis
 - B. Organize and generate structured reports
 - C. Eliminate logs
 - D. Remove responsibility
4. The purpose of analysis is to:
 - A. Store data
 - B. Interpret data into meaningful information
 - C. Delete data
 - D. Speed up flights

Answer Key

1. B
2. B
3. B
4. B

CLOSURE (5 minutes)

Teacher Emphasis:

- Students learned that collecting data is not the goal; understanding it is.
 - A professional operator turns data into information and information into decisions.
-

WEEK 2 – DAY 4

Compliance Review & Audit Simulation

Essential Question

How are drone operations evaluated during an audit, and what determines whether a mission passes or fails compliance review?

Lecture Duration

30 minutes direct instruction + 50 minutes guided application (80-minute block)

Learning Goals

Students will:

- Understand the purpose and structure of a compliance audit
 - Apply audit criteria to evaluate mission records
 - Identify compliance failures in documentation
 - Correct records to meet audit standards
 - Demonstrate readiness for real-world operational review
-

Standards Addressed

- Advanced Drone Piloting 303.01
 - NFPA 2400 Compliance Verification, Documentation Review, and Audit Procedures
-

Lesson Objective

Students will:

- Understand how **drone operations are audited in real-world environments**
 - Apply all prior knowledge to **evaluate mission compliance**
 - Identify **errors, omissions, and risks in documentation**
 - Conduct a full **audit simulation using manual + DMS records**
-

Instructional Content

OPENING (5–7 minutes)

Teacher Emphasis:

- Up to this point, students have been learning how to plan, document, and manage drone operations.
 - In this lesson, students will no longer be the pilot; they will be the auditor.
 - Their job is not to trust the data; it is to verify it.
-

Explain:

- In real-world operations:
 - FAA inspectors
 - Safety officers
 - Legal teams
 - Review documentation to determine:
 1. Was the mission compliant?
 2. Can it be proven?
-

Key Concept:

- Compliance is not assumed; it is proven through documentation.
-

SECTION 1: WHAT IS AN AUDIT? (15 minutes)

Teacher Emphasis:

- An audit is a structured review of records to verify compliance.
-

Define Clearly:

- **Audit = Systematic verification of documentation against requirements**
-

Explain:

Auditors look for:

- Completeness
 - Accuracy
 - Traceability
 - Consistency
-

Key Concept:

- An auditor is not looking for what you meant; they are looking for what you can prove.
-

SECTION 2: AUDIT CHECKLIST (20 minutes)

Teacher Emphasis:

- To audit properly, you must follow a checklist.
-

Write on Board:

1. Mission Plan

- Objective
 - Location
 - Risk + mitigation
-

2. Authorization

- Present
 - Correct
 - Linked
-

3. Personnel

- Pilot identified
 - Certified + current
-

4. Aircraft

- Identified
 - Airworthy
-

5. Logs

- Complete
 - Time-stamped
 - Accurate
-

6. Events

- Deviations documented
 - Incidents reported
-

7. Report

- Matches data
 - Clear and complete
-

Teaching Point:

- If any one of these fails, the mission fails.
-

SECTION 3: COMMON AUDIT FAILURES (15 minutes)

Teacher Emphasis:

- Show students exactly how missions fail audits.
-

Show Examples:

1. Missing authorization linkage
 2. No pilot listed
 3. Time mismatch
 4. Vague reporting
-

Ask Students:

- What would an auditor say about this?
-

Teaching Point:

- Small documentation errors lead to major compliance failures.
-

SECTION 4: DMS AUDIT SUPPORT (10–15 minutes)

Teacher Emphasis:

- This is where professional systems support auditing.
-

Explain:

DMS systems provide:

- Audit trails
 - Change history
 - Data linkage
 - Report generation
-

Critical Clarification:

- The system helps, but it does not guarantee compliance.
-

HANDS-ON AUDIT SIMULATION

Activity Setup (25–30 minutes)

Students are given:

- Mission plan
 - Logs
 - Authorization
 - Report
 - DMS record
-

Student Task

Students must:

1. Identify all errors
 2. Mark missing elements
 3. Determine if the mission is compliant
-

Teacher Formative Assessment during the activity:

- “What is missing?”
 - “Can this be verified?”
 - “Would this pass an audit?”
-

DMS Verification (15–20 minutes)

Students:

- Cross-check records in DMS
 - Verify:
 - Linkage
 - timestamps
 - completeness
-

Teaching Point:

- Auditing is verification—not assumption.
-

CORE ACTIVITY: PASS OR FAIL DECISION

Students must answer:

- Does this mission pass the audit?
 - Why or why not?
-

Require:

- Evidence-based justification
-

Teaching Point:

- In real-world operations, you must defend your decision.
-

PERFORMANCE RUBRIC

Criteria	1	2	3	4
Error Identification	Few	Some	Most	All
Compliance Judgment	Incorrect	Partial	Correct	Fully justified
System Verification	Limited	Partial	Accurate	Comprehensive

ASSESSMENT ITEMS

1. The purpose of an audit is to:
 - A. Improve speed
 - B. Verify compliance through documentation
 - C. Train pilots
 - D. Replace systems
2. Which is required for audit success?
 - A. Memory
 - B. Complete and traceable records
 - C. Fast flying
 - D. Expensive drones
3. A missing authorization results in:
 - A. No issue
 - B. Minor delay
 - C. Audit failure
 - D. Faster approval
4. Audit decisions must be based on:
 - A. Opinion
 - B. Evidence and documentation
 - C. Preference
 - D. Guessing

Answer Key

1. B
 2. B
 3. C
 4. B
-

CLOSURE (5 minutes)**Teacher Emphasis:**

- Students learned how professionals evaluate operations, not by trust, but by verification.
- If your documentation cannot stand up to an audit, your operation cannot stand.

WEEK 2 – DAY 5

Capstone Mission & Final Evaluation

Essential Question

Can you plan, execute, document, analyze, and defend a complete drone mission that meets full compliance standards?

Lecture Duration

20 minutes briefing + 60 minutes capstone execution (80-minute block)

Learning Goals

Students will:

- Execute a complete mission lifecycle using DMS
 - Demonstrate full documentation from planning through reporting
 - Apply compliance standards across all operational phases
 - Defend mission documentation under audit conditions
 - Demonstrate mastery of DMS workflows and integration
-

Standards Addressed

- Advanced Drone Piloting 303.01
 - NFPA 2400 Full Operational Compliance, Documentation, and Audit Defense
-

Lesson Objective

Students will:

- Apply all course knowledge to complete a **fully compliant drone mission lifecycle**
 - Demonstrate proficiency in:
 - Planning
 - Documentation
 - Data management
 - Reporting
 - Produce a **complete, audit-ready mission package**
 - Defend their work using **evidence-based reasoning**
-

Instructional Content

OPENING (5–7 minutes)

Teacher Emphasis:

- In these lessons, students have been building the skills of a professional drone operator.
 - In this lesson, students will prove that they can do the job—from start to finish.
 - This is not just an assignment; this is a simulation of real-world operations.
-

Explain:

Students will complete:

- A full mission lifecycle
 - Using:
 - Manual documentation
 - DMS system
-

Key Concept:

- In this lesson, they are not students; they are Drone operators.
-

SECTION 1: CAPSTONE MISSION OVERVIEW (10 minutes)

Teacher Emphasis:

- Students will complete a full mission that includes every component studied.
-

Define Requirements:

Students must complete:

1. Mission Plan

- Objective
 - Location
 - Risks + mitigation
-

2. Authorization

- Identified
 - Documented
 - Linked
-

3. Personnel & Aircraft

- Pilot assigned
 - Aircraft verified
-

4. Flight Log

- Time
 - Events
 - Deviations
-

5. Data Management

- Stored correctly
 - Secured
-

6. Final Report

- Complete
 - Clear
 - Audit-ready
-

Key Concept:

- If one part fails, the mission fails.
-

SECTION 2: EXPECTATIONS & STANDARDS (10–15 minutes)

Teacher Emphasis:

- This is not about completing tasks; it's about meeting professional standards.
-

Define Expectations:

- Accuracy
 - Completeness
 - Traceability
 - Clarity
-

Critical Instruction:

- Do not rush; precision matters more than speed.
-

CAPSTONE HANDS-ON MISSION (CORE OF LESSON)

PHASE 1: MISSION PLANNING (20–25 minutes)

Students must:

- Define mission
 - Identify risks
 - Create mitigation plan
 - Document authorization
-

Teacher Formative Assessment during the activity:

- “What could go wrong?”
 - “How will you prevent it?”
-

PHASE 2: DOCUMENTATION & ENTRY (25–30 minutes)

Students:

- Complete manual logs
 - Enter mission into DMS
 - Assign pilot + aircraft
-

Teacher Emphasis:

- Everything must match, manual and DMS.
-

PHASE 3: EVENT LOGGING (15–20 minutes)

Provide simulated events:

- Wind change
 - Minor deviation
 - Delay
-

Students must:

- Log events manually
- Record in DMS
- Classify deviation vs incident

PHASE 4: REPORT GENERATION (20–25 minutes)

Students create:

- Final report
- Include:
 - Summary
 - Events
 - Results
 - Compliance verification

PHASE 5: AUDIT DEFENSE (15–20 minutes)

Students present:

- Their mission
- Their documentation

Teacher Asks:

- “How do you know this is compliant?”
- “Where is your proof?”
- “What would an auditor question?”

Teaching Point:

- The student must be able to defend their work, not just complete it.

CORE ACTIVITY: PASS / FAIL EVALUATION

Students must determine:

- Does their mission pass the audit?
- Why?

Require:

- Evidence-based explanation

FINAL PERFORMANCE RUBRIC

Criteria	1	2	3	4
Planning	Poor	Partial	Complete	Detailed + professional
Documentation	Incomplete	Partial	Accurate	Fully audit-ready
System Use	Limited	Basic	Effective	Fully integrated
Reporting	Unclear	Basic	Clear	Professional quality
Audit Defense	Weak	Partial	Strong	Fully justified

FINAL ASSESSMENT ITEMS

1. The most critical element of a compliant mission is:
 - A. Speed
 - B. Complete and verifiable documentation
 - C. Drone model
 - D. Camera quality
2. A mission fails audit if:
 - A. It is slow
 - B. Any required documentation is missing
 - C. It is short
 - D. It is manual
3. Data must be:
 - A. Stored only
 - B. Accurate, secure, and traceable
 - C. Printed
 - D. Ignored
4. A professional report must:
 - A. Be short
 - B. Tell the full mission story clearly
 - C. Only include images
 - D. Avoid detail
5. Audit defense requires:
 - A. Opinion
 - B. Evidence-based justification
 - C. Guessing
 - D. Speed

Answer Key

1. B
 2. B
 3. B
 4. B
 5. B
-

CLOSURE (FINAL COURSE CLOSE)

Teacher Emphasis:

- Students began this course learning how to document a mission.
 - In this lesson, they demonstrated how to manage a complete operation.
 - They are no longer just drone pilots; they are data managers, compliance professionals, and system operators.
 - In the real world, this is what separates hobbyists from professionals.
-

FULL COURSE COMPLETE — WHAT STUDENTS CAN NOW DO

By the end of this 10-day course, students can:

1. Plan compliant drone missions
2. Document full mission lifecycle
3. Maintain data integrity
4. Use a Drone Management System (DMS)
5. Secure and manage data
6. Analyze and report findings
7. Pass and conduct audits
8. Defend operations professionally