Arizona CTE

CAVIT Drone Technology Program

Describe the major types, groups, and categories of UAS DT1.0	**1.1** Explain the term Unmanned Aircraft System DT1.1
	1.2 Explain the changing view on UAS DT1.2
	1.3 Explain the evolution of commercial UAS operations in the United States DT.1.3
	1.4 Identify the major challenges facing the UAS industry DT1.4
	1.5 Explain UAS component reliability and operational considerations DT1.5
Recall key aspects of the UAS flight approval and authorization process DT2.0	**2.1** Explain how the FAA enforces regulations and minimum standards DT2.1
	2.2 Explain how the FAA regulates aircraft, airmen, and airspace DT2.2
	2.3 Explain what is the National Airspace System (NAS) DT2.3
	2.4 Explain what are the regulatory limits on UAS DT2.4
Recognize legal and ethical considerations for specific types of UAS operations DT3.0	**3.1** Explain the regulations and policies currently in place for UAS operations DT3.1
	3.2 Explain Federal Aviation Regulations (FAR) DT3.2
	3.3 Explain the limitations and requirements of Visual Flight Rules (VFR) DT3.3
	3.4 Explain state and local rules and regulations governing UAS DT3.4
	3.5 Define professionalism and ethics DT3.5
	3.6 Describe the foundations of an ethical code of conduct for UAS operators DT3.
	3.7 Explain standards of practice for UAS professionals DT3.7
	3.8 Identify the top ethical issues facing sUAS remote pilots PT3.8
	3.9 Examine case studies and make judgments about the ethical and professional use of UAS technology PT3.9
	3.10 Explain standards of profession and how to apply professionalism in everyday operations PT3.10

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List the primary types of sensors used for data collection DT4.0	**4.1** Explain the field of robotics and the subset of aerial robots DT4.1
	4.2 Identify common components of unmanned aircraft DT4.2
Compare and contrast types of detect, sense, and avoid systems DT5.0	**5.1** Explain energy sources available for UAS DT5.1
	5.2 Explain how robotic aircraft maneuver and navigate DT5.2
Differentiate the various levels of UAS Automation and Autonomy DT6.0	**6.1** Explain aircraft capabilities and limitations associated with different platform categories DT6.1
	6.2 Explain UA aerodynamic principles and performance factors DT6.2
Demonstrate proper UAS safety procedures DT7.0	**7.1** Explain various airspace that drones operate inside of DT7.1
	7.2 Explain the classes of airspace DT7.2
	7.3 Explain Notices to Airmen information reporting system DT7.3
	7.4 Describe the types and causes of human errors DT7.4
	7.5 Explain human limitations in perception, processing, and performance DT7.5
	7.6 Describe the physiological effects of drugs and alcohol DT7.6
	7.7 Explain the aspects of UAS design and operations that hinder or limit human function and cognition DT7.7
	7.8 Describe methods for dealing with automation and the lack of sensory cues DT7.8
	7.9 Examine the evolution of CRM as a control for error DT7.9
	7.10 Explain the purpose of CRM DT7.10
	7.11 Explain decision behaviors as a CRM skillset DT7.11
	7.12 Explain Situational Awareness (SA) DT7.12
	7.13 Identify and explain the need for standard communication DT7.13
	7.14 Explain non-technical skills that can improve the function and efficiency of a UAS crew DT7.14
Explain the basics of airplane systems and un ae principles DT8.0	**8.1** Explain the four forces that act upon a UAS DT8.1
	Describe the six degrees of freedom. DT8.2

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Identify necessary information about the environment in which the vehicle will be flown such as airport facilities, air traffic control services, communication procedures, and sources of flight information DT9.0	**9.1** Examine other elements that affect a UAS's operation DT9.1
	9.2 Describe aspects of the physical environment that pose a hazard to UAS DT9.2
	9.3 Explain the concepts of weather as they pertain to aviation DT9.3
	9.4 Explore official and unofficial sources of weather that can inform a remote pilot's preflight decisions DT9.4
	9.5 Interpret "official" sources of weather to make sound decisions DT9.5
Describe variable atmosphere and its effect on aircraft operations, how to maximize safety minimizing exposure to weather-related aviation hazards. DT10.0	**10.1** Interpret center NOTAMs DT10.1
	10.2 Explain aviation communications DT10.2
	10.3 Explain the essential information required in aviation communications DT10.3
Justify aircraft capabilities and limitations in terms of performance parameters DT11.0	**11.1** Describe how stabilization, control, and power can be manipulated to fly a UAS DT11.1
	11.2 Describe the aerodynamic principles that affect UAS performance. DT11.2
	11.3 Explain the effects of weather, temperature, and system weight on unmanned aircraft performance DT11.3
	11.4 Explain the differences in rotor and fixed-wing aerodynamics DT11.4
Execute the basics of navigation using charts and radio aids DT12.0	**12.1** Interpret aeronautical charts to determine airspace for a given location DT12.1
	12.2 Explain the Aeronautical Information Manual to make a radio call DT12.2
	12.3 Explain airport operations and Traffic-pattern protocols DT12.3
	12.4 Explain UAS limitations and regulations DT12.4
	12.5 Explain the reporting requirements for UAS operations DT12.5
Demonstrate the application of aeronautical decision-making principles and flig ph fac	**13.1** Define aeronautical decision-making DT13.1
	13.2 Examine the steps for sound aeronautical decision-making DT13.2
	3 Identify hazards associated with UAS operations DT13.3
	4 Explain various models for decision-making DT13.4

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	13.5 Apply good aeronautical decision-making DT13.5
	13.6 Describe strategies for dealing with task saturation or overloads DT13.6
	13.7 Demonstrate the ability to think independently while exercising adaptability to stressful situations DT13.7
	13.8 Explain airworthiness inspections DT13.8
Perform Drafting Task DT14.0	**14.1** Make freehand sketches (e.g., line weights, hidden lines, center lines, and dimensioning) DT14.1
	14.2 Make CAD representations from freehand sketches DT14.2
	14.3 Determine shapes and sizes of surfaces from alternative views (e.g., orthographic, projection view, first angle projection, and third angle projection) DT14.3
	14.4 Make CAD drawings using geometric construction techniques DT14.4
	14.5 Make dimensional CAD drawings (e.g., 2D and 3D) DT14.5
	14.6 Explain basic knowledge of geometric dimensioning and tolerancing DT14.6
	14.7 Interpret unmanned aircraft system (e.g Drone Body and controller) plans DT14.7