

# Unmanned Aircraft Systems (2023)

## Demonstrating Personal Qualities and Abilities

**1 Demonstrate creativity and innovation. 1**

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**2 Demonstrate critical thinking and problem solving. 2**

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**3 Demonstrate initiative and self-direction. 3**

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**4 Demonstrate integrity. 4**

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**5 Demonstrate work ethic. 5**

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## Demonstrating Interpersonal Skills

**6 Demonstrate conflict-resolution skills. 6**

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**7 Demonstrate listening and speaking skills. 7**

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**8 Demonstrate respect for diversity. 8**

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**9 Demonstrate customer service skills. 9**

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**10 Collaborate with team members. 10**

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## Demonstrating Professional Competencies

**11 Demonstrate big-picture thinking. 11**

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**12 Demonstrate career- and life-management skills. 12**

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**13 Demonstrate continuous learning and adaptability. 13**

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**14 Manage time and resources. 14**

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**15 Demonstrate information-literacy skills. 15**

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**16 Demonstrate an understanding of information security. 16**

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**17 Maintain working knowledge of current information-technology (IT) systems. 17**

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**18 Demonstrate proficiency with technologies, tools, and machines common to a specific occupation. 18**

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**19 Apply mathematical skills to job-specific tasks. 19**

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**20 Demonstrate professionalism.** 20

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**21 Demonstrate reading and writing skills.** 21

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**22 Demonstrate workplace safety.** 22

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### **Examining All Aspects of an Industry**

**23 Examine aspects of planning within an industry/organization.** 23

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**24 Examine aspects of management within an industry/organization.** 24

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**25 Examine aspects of financial responsibility within an industry/organization.** 25

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**26 Examine technical and production skills required of workers within an industry/organization.** 26

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**27 Examine principles of technology that underlie an industry/organization.** 27

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**28 Examine labor issues related to an industry/organization.** 28

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**29 Examine community issues related to an industry/organization.** 29

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**30 Examine health, safety, and environmental issues related to an industry/organization.** 30

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### **Addressing Elements of Student Life**

**31 Identify the purposes and goals of the student organization.** 31

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**32 Explain the benefits and responsibilities of membership in the student organization as a student and in professional/civic organizations as an adult.** 32

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**33 Demonstrate leadership skills through participation in student organization activities, such as meetings, programs, and projects.** 33

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**34 Identify Internet safety issues and procedures for complying with acceptable use standards.** 34

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### **Exploring Work-Based Learning**

**35 Identify the types of work-based learning (WBL) opportunities.** 35

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**36 Reflect on lessons learned during the WBL experience.** 36

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**37 Explore career opportunities related to the WBL experience.** 37

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**38 Participate in a WBL experience, when appropriate.** 38

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### **Introducing Unmanned Aircraft Systems**

**39 Describe applications of unmanned aircraft systems (UAS).** 39

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**40 Define a UAS, according to the Federal Aviation Administration (FAA).** 40

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**41 Explain the design of UAS.** 41

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- 42 Identify elements of UAS.** 42

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  - 43 Research careers related to UAS.** 43

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  - 44 Identify the training needed.** 44

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  - 45 Identify the constraints of UAS.** 45

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  - 46 Identify milestones in the history of UAS.** 46
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## Exploring Flight

- 47 Describe the four forces of flight.** 47

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  - 48 Describe the relationship among the forces.** 48

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  - 49 Identify the three axes of flight.** 49
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## Defining the National Airspace System

- 50 Describe the National Airspace System (NAS).** 50

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  - 51 Use Low Altitude Authorization and Notification Capability (LAANC) to identify controlled airspace.** 51

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  - 52 Describe waivers.** 52
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## Exploring Regulations

- 53 Explain the role of the FAA.** 53

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  - 54 Explain the requirements and process for registering sUAS vehicles with the FAA.** 54

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  - 55 Identify penalties for failure to adhere to Part 107 regulations.** 55

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  - 56 Explain the legend of a sectional chart.** 56

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  - 57 Follow regulations for sUAS.** 57

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  - 58 Identify requirements for earning an FAA Part 107 sUAS pilot license.** 58

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  - 59 Distinguish between controlled and uncontrolled airspace.** 59

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  - 60 Identify the three classifications of UAS operations.** 60

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  - 61 Research flight regulations.** 61

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  - 62 Research regulations that apply to flying recreational and commercial UAS.** 62
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## Understanding the Importance of Monitoring Weather

- 63 Check weather advisory information.** 63

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  - 64 Read weather reports, forecasts, and charts.** 64

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  - 65 Explain the weather's effect on performance.** 65
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## Examining Loading and Performance Concerns

**66 Select a sUAS to meet objectives.** 66

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**67 Define aircraft configuration.** 67

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**68 Determine airworthiness.** 68

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## Performing Operations

**69 Assign sUAS personnel.** 69

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**70 Rehearse flight operation.** 70

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**71 Assemble the aircraft's supporting equipment.** 71

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**72 Create a preflight checklist.** 72

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**73 Troubleshoot electrical systems.** 73

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**74 Troubleshoot mechanical systems.** 74

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**75 Troubleshoot airframe.** 75

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**76 Perform scheduled maintenance on a fuel system.** 76

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**77 Troubleshoot propulsion/powerplant.** 77

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**78 Troubleshoot software.** 78

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**79 Update software.** 79

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**80 Inspect the sUAS for maintenance issues.** 80

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**81 Inspect the aircraft for airworthiness.** 81

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**82 Integrate payloads.** 82

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**83 Implement configuration changes to hardware and software.** 83

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**84 Document configuration changes.** 84

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**85 Keep maintenance logs.** 85

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**86 Establish operation communications plan.** 86

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**87 Conduct maintenance test flight.** 87

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**88 Assess operational risk.** 88

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**89 Determine fuel or battery requirements.** 89

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**90 Address personnel needs in the field.** 90

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- 91 Secure mission supplies.** 91

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  - 92 Appraise UAS batteries.** 92

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  - 93 Plan to secure operations area.** 93

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  - 94 Perform mission planning to take in consideration for emergency procedures.** 94
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## **Flying the sUAS**

- 95 Define operation objective.** 95

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  - 96 Assess area of operations.** 96

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  - 97 Set up flight control area.** 97

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  - 98 Upload flight plan to aircraft.** 98

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  - 99 Conduct safety briefing.** 99

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  - 100 Conduct mission briefing.** 100

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  - 101 Check for foreign objects and debris (FOD).** 101

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  - 102 Verify use of personal protective equipment (PPE).** 102

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  - 103 Communicate with crew and Air Traffic Control (ATC).** 103

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  - 104 Secure launch and recovery area.** 104

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  - 105 Launch aircraft.** 105

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  - 106 Fly the UAS.** 106

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  - 107 Maintain visual contact with aircraft.** 107

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  - 108 Monitor site communications.** 108

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  - 109 Recover aircraft.** 109

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  - 110 Conduct a post-flight inspection.** 110

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  - 111 Conduct a post-flight debrief.** 111

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  - 112 Pack sUAS for transport.** 112
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## **Coordinating Flight Operations Logistics**

- 113 Develop a schedule for the day of the flight.** 113

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- 114 Communicate flight schedule.** 114

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- 115 Coordinate mission-dependent resources.** 115

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**116 Schedule mission personnel. 116**

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**Maintaining  
Professional Knowledge**

**117 Practice flying the sUAS. 117**

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**118 Train on a flight simulator. 118**

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**Performing  
Administrative Tasks**

**119 Create proposals and presentations. 119**

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**120 File flight reports. 120**

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**121 Explain the role and purpose of a flight log and an equipment log. 121**

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**122 Demonstrate the upkeep of a flight log and an equipment log. 122**

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