STRANDS AND STANDARDS

UAS: PHOTO AND VIDEO

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CTE®

Course Description

This course provides students with the opportunity to learn about using drones as tools in a project-based course focusing on foundational skills with the design and critique process. This course covers photography basics, videography basics, FAA operation limitations, and explores some basic editing or post-processing skills in preparation for using aerial photography as an entryway to a UAS career.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	40.11.00.00.056
Concurrent Enrollment Core Code	N/A
Prerequisite	Unmanned Aircraft Systems (UAS)
Skill Certification Test Number	N/A
Skill Certification Cut Score	**N/A**
Test Weight	N/A
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Aviation - Flight
Endorsement 2	Unmanned Aircraft Systems

Updated: October 2024

STRAND 1: RECREATIONAL FLIGHT

Students will recognize Federal Aviation Administration (FAA) recreational pilot privileges and limitations as outlined in the Exception for Recreational Flyers and in the Code of Federal Regulations for commercial UAS operators.

Standard 1

Recall FAA recreational flying requirements of The Recreational UAS Safety Test (TRUST) including but not limited to:

- General
- FAA-recognized Community Based Organization (CBO)
- Visual line of sight
- Use of a visual observer (VO) co-located and in direct communication with the pilot
- Give way and do not interfere with other aircraft
- Fly at or below FAA-authorized altitudes in controlled airspace only with prior authorization
- Fly at or below 400 feet in Class G airspace
- Low Altitude Authorization and Notification Capability (LAANC)
- DroneZone
- B4UFLY
- Drone registration
- Remote Identification
- Do not operate your drone in a manner that endangers the safety of the National Airspace System (NAS)
- Remain current on TRUST regulations per annual updates

Standard 2

Understand the pilot's responsibility to the UAS community.

Standard 3

Analyze compensation types and situations, intent, and responsibility for multiple purposes vs. for purely recreational flight.

- 49 U.S.C. §44809(c)

Performance Skills

- Earn a recent (12 months) FAA TRUST certificate for recreational flyers.
- Have an FAA TRUST certificate accessible while operating UAS.
- Demonstrate recreational flying requirements in accordance with FAA regulations.
- Present a plan for following Part 107 regulations related to publishing creative work.

STRAND 2: UAS PHOTO BASICS

Students will gain an understanding of photography skills as they relate to UAS project development.

Standard 1

Demonstrate basic photography composition elements using a drone.

- Rule of thirds
- Fill the frame
- Leading Lines
- Framing
- Rule of odds
- Balance
- Contrast
- Perspective
- Golden ratio
- Dynamic vs. static
- Space

Standard 2

Show UAS flight maneuvers and settings to achieve specific photographic composition goals.

- Drone flight and camera settings
- Fly lower and/or closer
- Flight planning
- Auto Exposure Bracketing (AEB)
- Burst shots
- Physical Filters (Neutral Density (ND), polarizer, orbital)

Standard 3

Investigate common editing processes for photos.

- Overlays
- Cropping/horizon leveling
- Adjustments (exposure, color/hue, saturation, contrast, sharpening, effects)
- Merging

Performance Skills

- Compose multiple UAS photographic images using flight skills, composition elements, and appropriate purpose.
- Demonstrate editing techniques appropriate for publishing in a portfolio.
- Analyze, evaluate, and critique own photographic work and identify areas for improvement.
- Create a professional portfolio of your photographic media.

STRAND 3: UAS VIDEO BASICS

Students will gain an understanding of videography skills as they relate to UAS project development.

Standard 1

Demonstrate basic photography composition elements during UAS videography flight movements for an intended purpose.

- Gimbal (pan, tilt, roll)
- Moving shots (crane, dolly, truck, pedestal, orbit)
- Zoom (changing focal length)

Standard 2

Show UAS flight maneuvers and settings to achieve specific videographic composition goals.

- Drone flight and camera settings
- Fly lower and/or closer
- Fly-through (structure)
- Reveal
- Flight planning
- Physical Filters (Neutral Density (ND), polarizer, orbital)

Standard 3

Apply common editing processes for videos.

- Audio/music synchronization
- Transitions
- Speed-up/Slow-down
- Frame rate matching
- Clipping/trimming
- Overlays
- Cropping/horizon leveling
- Adjustments (exposure, color/hue, saturation, contrast, sharpening, effects)

Performance Skills

- Compose multiple UAS videos using flight skills, composition elements, and appropriate purpose.
- Demonstrate appropriate video editing techniques for publishing in a portfolio.
- Analyze, evaluate, and critique own videographic work and identify areas for improvement.
- Add video media to your professional digital portfolio.

STRAND 4: UAS PROJECT DESIGN & DEVELOPMENT

Students will design an appropriate UAS project and practice effective critiquing techniques.

Standard 1

Apply the design process to UAS operation flight planning.

- Research (audience, purpose, timeline, production method, shot list, schedule)
- Brainstorming (sketches)
- Crew/cast responsibilities (flight log, FAA Certification, maintenance, roles, etc.)
- Use feedback to inform revisions and changes to work.

Standard 2

Construct a flight plan for photo/video purposes.

Standard 3

Determine digital assets for publishing.

Standard 4

Identify the steps in the critique process of UAS projects.

- Describe
- Analyze
- Interpret
- Evaluate

Standard 5

Summarize potential legal and fair use components related to publishing creative or other projects.

- Fair use
- Public domain
- Creative commons
- Copyright

Performance Skills

- Utilize the design process when developing UAS projects.
- Complete a portfolio of high quality photographic and videographic work.
- Determine an appropriate publishing outlet and publish your student portfolio.
- Present an analysis, evaluation, and critique of your own portfolio and identify areas for improvement.
- Practice ethics and rules governing creative works.

STRAND 5: INDUSTRY APPLICATIONS

Students will investigate UAS career opportunities.

Standard 1

Research career opportunities and how aerial photography and videography applies to various industries.

- Real estate
- Surveying and mapping
- Environmental monitoring
- Event photography, media, and entertainment
- Tourism
- Agriculture
- Inspection and maintenance
- Urban Planning
- Insurance
- Search and Rescue

Standard 2

Identify emerging industry use of aerial photography and videography in potential future applications.

- Public services
- Construction & engineering
- Forest Service
- Surveillance
- Military
- Transportation (Urban Air Mobility, Powered Lift)

Standard 3

Develop and log flights to prepare for UAS careers.

Performance Skills

- Present a personalized UAS post-secondary plan (college or career).

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
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