

UASTEP Advisory Committee Minutes

Date: 8/9/2019, 10-11:30AM

Location: Palomar College (NS-127)

Members Present:

1. Hannah Walchak, Escondido Creek Conservancy
2. Joseph Kerski, ESRI
3. Wing Cheung, Palomar College
4. Sean Figg, Palomar College
5. Mark Bealo, Palomar College
6. Ken Yanow, Southwestern College
7. Jesus Ulloa-Higuera (Leo), Sweetwater Union High School District
8. Jo Schubert, UC Irvine
9. David Webb, John Tyler Community College
10. Vincent Lostetter, Vista High School
11. Candiya Mann, Washington State University
12. Gus Calderon, Airspace Consulting
13. Jordi Olimon, UCSD
14. Vincent DiNoto, Jefferson Community and Technical College
15. Nathan Randolph, Vista High School
16. Max Fonden, Palomar College
17. Craig Stenberg, Southern CA Edison
18. Jeff Miller, Pix4D
19. Scott Painter, Birds Eye Aerial
20. Sheri Painter, Birds Eye Aerial
21. Harrison Pierce, City of San Diego
22. Doug Stowe, SDSU
23. Michelle Palmer, AerialFleet

1. Introductions

2. **Past meeting minutes were reviewed.** Mark moved for approval. Scott seconded. Minutes were approved by the committee.

3. Review of grant activities:

a. Goal 1:

Wing provided an overview of the drone curriculum for the Certificate of Achievement and Associate's Degree at Palomar College. Ken reviewed the rationale and curriculum for the Drone Certificate of Proficiency and Certificate of Achievement at Southwestern College.

Joseph asked about options for online UAS training based on feedback from interested students. Many members of the committee (Vincent, Gus, Craig, Scott, Mark) expressed concerns about the level of hands-on operational knowledge that can be taught online, and emphasized the need for extensive instructor supervision in flight operation. There were additional concerns about students' limited ability to afford their own drones and sensors in order to learn about drone operations on their own remotely.

b. Goal 2:

Wing spoke about the professional development workshop that was conducted in Oct 2018. The workshop had 14 participants representing 12 disciplines. Their finished products can be accessed at <http://uastep.org/workshops/>. The upcoming workshop will be in Oct 2019, and will occur over the course of 2 weekends. The workshop is targeted at Palomar College and Southwestern College educators, college educators on the UASTEP Advisory Committee, and high school educators (if space permits). Please contact Ken Yanow (kyanow@swccd.edu) if interested.

Craig asked about the specialized applications targeted by the workshop. Wing and Mark replied that the workshop is focused mainly on (1) mapping and survey, (2) videography, since they are the biggest user segment of the UAS industry according to a 2018 report by Skylogic Research. Future course development will focus on other industries such as public safety & law enforcement as well as construction & inspection.

c. Goal 3:

Existing articulation agreement with UCSD Extension has been revised due to changes in UCSD Extension's program offerings. New transfer pathways for Palomar College drone students have been established with Arizona State University's online Geography and GIS Bachelor's Degree programs. The team is also exploring transfer pathways for Palomar and Southwestern students into SDSU's proposed UAV minor. Doug will work with his counterpart in the Geological Sciences department to assess the status of the UAV minor at SDSU.

Vincent reported that the articulation between Palomar's Part 107 (GEOL 158) course at Vista High School is going very well. The course has now been also approved for area G in the University of California's A-G course list. Three graduates of the high school course have received their Part 107 certificate, and one of them have also received the Part 61 certificate. There is the need to work on articulating a drone data processing course at Vista High School in order to create a new career technology pathway.

Mark suggested developing a non-credit course in order for high school and college students to get additional flight time and practice outside of their credit course hours. Ken pointed out that DJI's new simulator will be a good option for those wishing to get additional practice on a flight simulator. Jeff mentioned that Pix4D will be releasing a training manual for drone data processing with Pix4D, and could be used in the development of future drone data processing courses.

d. Goal 4:

Wing and Hannah spoke about the high school drone summer camp conducted with the Escondido Creek Conservancy, and the final output of the summer camp can be found at <http://uastep.org/summer-camps/>. Committee members were encouraged to share this information with any high school students who may be interested in the summer camp which will be held again in June 2020.

Max, who won Best of Show in the Student Showcase Video category in SD County Fair, shared his experience and lessons learned from drone filming in Ocotillo Wells, and noted that it was an excellent team building exercise.

Leo and Ken spoke about the quadcopter challenge that has been successfully implemented at Sweetwater Union High School District, as well as plans to modify the competition into a three stage format: (1) kickoff-obstacle course, (2) mission and race, (3) both 1 and 2 combined. Students wishing to take part in the challenge need to first complete the MOOC (<https://canvas.instructure.com/enroll/YEMRJB>) developed by the UASTEP program. About 80-90 high school students participated in the challenge in 2018-2019.

4. Curriculum Review

Committee members were asked to look over the course outline and objectives for each of the three courses that were modified to incorporate drone contents in the past academic year, and then were asked to vote on whether they believe the courses satisfy their respective objectives.

Do you believe the [internship course \(CE 100\)](#) will reinforce student understanding of the drone industry (regulation, technology, operation...)? (n=10)

- 50% strongly agree
- 30% agree
- 0% neither agree nor disagree
- 0% disagree
- 0% strongly disagree
- 20% no answer

Do you believe the material developed for [ENGR 126](#) has the potential to inform introductory engineering students about basic drone maintenance? (n=10)

- 50% strongly agree
- 30% agree
- 20% neither agree nor disagree
- 0% disagree
- 0% strongly disagree

- 0% no answer

Do you believe this material developed for [BUS 152](#) has the potential to inform business students about marketing in the drone industry? (n=10)

- 10% strongly agree
- 60% agree
- 10% neither agree nor disagree
- 0% disagree
- 0% strongly disagree
- 20% no answer

Sheri expressed an interest in developing an additional social media marketing case study with an intern and Mark for the BUS 152 class.

5. Upcoming curriculum development

- a. Wing spoke about courses that will be developed in the 2019-2020 grant year, which includes:
 - UAS for law enforcement and public safety
 - UAS for veterans
 - LiDAR applications with UAS
- b. Harrison asked about the contents of the LiDAR course. Wing responded that the course will mainly cover LiDAR data processing, with an emphasis on applications in analyzing land cover changes, urban 3D modeling and potentially inspection, and vegetation analysis and mapping.

Craig commented that LiDAR technology has evolved greatly over the past 8-9 years. Yet, there are still limited options when it comes to LiDAR for UAS. Major players in the industry include Velodyne and Riegl. The main question to ask when choosing the right LiDAR unit is the application for the unit.

6. Labor market information discussion was postponed until the next meeting due to the lack of time.

7. Upcoming public outreach activities that the UASTEP team will be involved with include:

- a. National Model Aviation Day (8/17)
- b. Wavelength Brewing Science Talk (?)
- c. NSF/ATE Conference (10/23-25)
- d. Commercial UAV Expo (10/28-30)

Scott suggested that the Miramar Airshow may be an additional outreach venue the team can consider.

Meeting adjourned at 11:35AM.