

**PROGRAM APPROVAL APPLICATION**  
**NEW or SUBSTANTIAL CHANGE or LOCALLY APPROVED**  
**(This application may not exceed 3 pages)**

**Fill In Form**

Applied Robotics and Embedded Programming:  
 Unmanned Aircraft Systems (UAS) Specialization

Fall 2016

Proposed Program Title

Projected Program Start Date

Santiago Canyon College

Rancho Santiago CCD

College

District

**Contact Information**

Von Lawson

Dean, Business & CTE

Voting Member

Title

714.628.4885

714.628.4885

Phone Number

Email

**Goal(s) of Program (Check all that apply):**

Career Technical Education (CTE)

Transfer

Other

**Type of Program (Check all that apply):**

Certificate of Achievement 12-17 (or 17-27 quarter) units

Certificate of Achievement 18+ semester (or 27+ quarter) units

Associate of Science Degree

Associate of Arts Degree

**Reason for Approval Request (Check One):**

New Program

Substantial Change

Locally Approved

**Program Information**

0950.00 Recommended [Taxonomy of Program \(TOP\) Code](#)

N/A Units for Major-Degree

N/A Total Units for Degree

15 Required Units-Certificate

**Written Form**

**1. Insert the description of the program as it will appear in the catalog. (See PCAH pp. 142 and 170)**

The SCC Unmanned Aircraft Systems Program curriculum is offered to those students who desire career opportunities in the civil unmanned aircraft systems industry. The program provides the breadth and depth of instruction needed to ensure graduates are prepared to work as pilots/operators of UAS, while fully understanding the operational and safety environments of the National Airspace System. Courses require students to be comfortable utilizing complex science, technology, engineering and mathematics principles. In addition, students must possess strong critical thinking and problem-solving skills. As some of the technologies involved with UAS fall under International Traffic in Arms Regulations, students wishing to pursue this certificate

program must be able to meet all FAA or United States citizenship requirements prior to enrolling in the courses.

## 2. Provide a brief rationale for the program.

The capabilities of unmanned aerial vehicles (UAVs), or drones provides a wealth of opportunity for employment for well-trained operator pilots. From breathtaking video footage in real estate to cameras zoomed in on an enemy convoys, drone technology has transformed modern life.

Private industry has only just begun to explore the potential of drones in commercial applications. The potential is substantial, especially in industries that can benefit from having an eye in the sky. The Federal Aviation Administration (FAA) has granted nearly 1,000 individual exemptions for companies, which has provided a glimpse into the influence drones are likely to have in certain sectors of the economy.

SCC sees possible commercial applications for drones in numerous areas including:

1. Real Estate – Real estate companies received the most exemptions from the FAA for applications specific to aerial photography of properties which showcase high-end properties.
2. Construction and Engineering – Businesses that perform land surveys use drones to survey roads and bridges increasing the accuracy and reducing the man-hours and equipment typically needed for big jobs.
3. Utilities and Energy – Drones have proven instrumental for their ability to perform long-range aerial inspections of energy infrastructure, including pipelines and electric wires running for thousands of miles.
4. Technology – From chips to sensors to robotics, there is a growing ecosystem of drone software and hardware developers that cater to the drone industry.
5. Media and Entertainment – Several companies use drones to capture dramatic aerial footage or in film production on a closed set. Camera-equipped drones will replace the big, expensive helicopters news agencies have used to cover traffic, media events and high-speed freeway chases.
6. Agriculture – The agricultural industry stands to save more than \$1 billion a year with the use of drones. With operations spanning hundreds of thousands of acres, farmers can use drones to spot diseases before they spread and customize the applications of pesticides, water and fertilizer for different fields.
7. Delivery – Amazon has already turned the retail industry on its head with its proposed 30-minute drone delivery service. Other retailers, such as Wal-Mart, are experimenting with drone delivery.
8. Internet – Facebook’s Mark Zuckerberg raised eyebrows with his purchase of a company that produces solar-powered drones.

SCC recognizes the unlimited potential for UAS (Drone) Technology and it’s applications throughout this region and state.

References:

1. 8 Sectors That Drones Are Influencing in 2016
2. Investopedia <http://www.investopedia.com/articles/markets/021416/8-sectors-drones-are-influencing-2016.asp#ixzz4AEIxn7ra>
3. <http://www.pinpoint.jobs/the-future-of-the-tech-industry-drone-jobs/>

## 3. Summarize the Labor Market Information (LMI) and employment outlook (including citation for the source of the data) for students exiting the program. (See PCAH pp. 85-88, 136, 147, 148, 165, 168, and 176)

As UAS (Drone) Technology is an emerging sector, LMI from California is not readily available through normal channels. However, The Association for Unmanned Vehicle Systems International forecasts that the drone industry will create more than 100,000 new drone jobs and \$82 billion in economic impact within the first 10 years they become legal to fly. (<http://www.pinpoint.jobs/the-future-of-the-tech-industry-drone-jobs/>)

According to a 2013 report from the Association for Unmanned Vehicle Systems International, FAA approval of commercial drones could lead to the creation of 70,000 new U.S. jobs within the next three years, and 100,000

new U.S. jobs by the year 2025. (<https://www.washingtonpost.com/news/innovations/wp/2014/05/13/graduates-with-drone-skills-are-going-to-be-in-demand-soon-heres-why/>)

**4. List similar programs at other colleges in the Los Angeles and Orange County Region which may be adversely impacted. (There is space for 10 listings, if you need more, please contact [laocrc@rscdd.edu](mailto:laocrc@rscdd.edu))**

| College   | Program   | Who You Contacted | Outcome of Contact |
|---|---|-------------------|--------------------|
| Cypress College- Approved at April 2016 LAOCRC meeting. | UAV/UAS (Unmanned Aerial Vehicle/Unmanned Aerial Systems) |                   |                    |
| Cypress College   | UAV/UAS Drone Photography and Video Certificate           |                   |                    |

**5. List all courses required for program completion, including core requirements, restricted electives and prerequisites. (There is space for 20 listings, if you need more, please contact [laocrc@rscdd.edu](mailto:laocrc@rscdd.edu)). (See PCAH pp. 143 and 171)**

| Courses                         | Course Number | Course Title                                   | Units     |
|---------------------------------|---------------|--|-----------|
| Computer Sciences               | CMPR157       | Intro to Robotics Programming / UAS            | 3         |
| Computer Sciences               | CMPR257       | Advanced Robotics Programming / UAS            | 3         |
| Computer Sciences               | AVIT100       | Introduction to UAS History and Operations     | 3         |
| Television/Video Communications | TELV124       | Intro to Digital Media Prod / UAS Applications | 3         |
| Television/Video Communications | TELV126       | Industrial Video Prod / Advanced UAS Appl.     | 3         |
| <b>TOTAL UNITS</b>              |               |  | <b>15</b> |

**6. Include any other information you would like to share.**

With UAS as an emerging workforce development area, and the growing interest in career programs related to this field, we are interested in participating in the regional conversation for aligning the UAS programs.