

Virginia Community College System (VCCS)
Unmanned Systems (UMS) Approved Courses

**UMS 177 Small Unmanned Aircraft System (sUAS)
Components and Maintenance**

Course Description:

Provides an introduction to the basic equipment and techniques used in maintaining, repairing, and upgrading sUAS to assure airworthiness and proper operation of the other components. Emphasizes safe practices in repair and handling of components. Will develop fundamental skills in troubleshooting/repair of the circuits, subsystems, and components typically found in the complete sUAS. Payload sensor mounting, power management, and security threat management will also be covered.

Lecture 2 hours per week. Lab 2-3 hours per week. Total 4-5 hours. 3 credits.

Course Prerequisites/Corequisites

General Course Purpose

This course is intended to prepare those interested in becoming sUAS maintenance technicians or to support those interested in becoming sUAS mission operations technicians. This course provides coverage of the maintenance, repair, performance measurement, and upgrade of sUAS platforms needed to support advanced missions across diverse sUAS platforms.

Course Objectives

Upon completion of this course, the student will be able to perform the advanced maintenance and upgrade operations required to support advanced missions, meet FAA requirements and assure sUAS airworthiness.

Major Topics to be Included

- Comprehensive components and subcomponents of a sUAS system.
- Small unmanned aircraft loading as related to sensor packages and other payloads.
- Importance of and means for identifying cyber security attacks on the sUAS.
- Installation of upgrades to sUAS propulsion, navigation, stability, and all other components and sub-components.
- Troubleshoot and repair all sUAS sub-components.
- Determine performance of small unmanned aircraft with modified platforms.
- Advanced maintenance and preflight inspection procedures to assure airworthiness.
- Recording and reporting required FAA documents pertinent to maintenance, flight paths, accidents and other situations as required.