Unmanned Aerial Systems (UAS)

Courses

**UAS 0100 Introduction to Unmanned Aerial Systems: 1 semester hour.**
Introduction to Unmanned Aerial Systems. Introduces the essential elements of UAS history and operations. PREREQ: UAS program major and permission of instructor. F

**UAS 0110 Applied Mathematics and Electronics for Unmanned Systems: 3 semester hours.**
Mathematical principles and practices as they relate to the construction and operation of unmanned systems. Includes an introduction to basic electronics fundamentals. PREREQ: UAS program major. F

**UAS 0115 Flight Theory: 3 semester hours.**
Introduction to the principles and practices of heavier than air flight. Overview of aircraft components, control systems, and theory of operation. PREREQ: UAS program major. F

**UAS 0120 Flight Laboratory I: 4 semester hours.**
Experiments involving the construction, repair, and operations of light duty, remote unmanned aircraft. PREREQ: UAS program major. F

**UAS 0150 Unmanned Systems Design: 2 semester hours.**
Investigation of vehicle types, construction materials, tool implementation, and other design considerations for development of unmanned systems. PREREQ: UAS program major. S

**UAS 0155 Flight Control and Subsystems: 4 semester hours.**
Theory of operation of propulsion, power plant, control methods, radio frequency fundamentals, GPS L1 and L2, and Ground and Air Data Terminal equipment used in unmanned systems. PREREQ: UAS program major. S

**UAS 0170 Flight Laboratory II: 4 semester hours.**
Continuation of UAS 0151. Advanced experiments involving the construction, repair, and operations heavy lift and multirotor aircraft. PREREQ: UAS program major. S

**UAS 0200 Advanced Electronics and Payload for Unmanned Systems: 4 semester hours.**
Understanding and implementation of electronic and optical measurement devices, manipulators, and the operator control systems for unmanned systems platforms. PREREQ: UAS program major; UAS 0110 or RCET 0156B. F

**UAS 0212 Beginning Surveying, GPS and Geo-Referencing: 3 semester hours.**
Introduction to surveying theory and field work using equipment in the areas of measuring, leveling, total stations and GPS. Field projects include alignment stakeout, profile leveling, closed traverse, survey coordinate geometry applications and spatial geo-referencing. Equivalent to CET 0112 and GEMT 1112. PREREQ: UAS program major. F

**UAS 0225 Flight Laboratory III: 5 semester hours.**
Experiments involving the construction, repair, and operations of light duty, remote unmanned aircraft. PREREQ: UAS 0170. S

**UAS 0228 Principles of GIS: 3 semester hours.**
Study of GIS fundamentals, introduction to GPS, databases, and metadata. Practical application of ESRI and ArcView software. Build, edit, and query a GIS; basic spatial analysis. Requires competence in computer operating systems. Equivalent to CET 0228. PREREQ: UAS program major; UAS 0110 or CET 0120. F

**UAS 0240 Basic Wiring and Avionics Installation: 5 semester hours.**
Introduction to aircraft and unmanned systems wiring harnesses, soldering, and cable construction. The course will also cover basic functions and integration of the different components that comprise an avionics suite. PREREQ: UAS 0200. S

**UAS 0250 Imagery Analysis: 3 semester hours.**
This course will teach students imagery interpretation principles, give them an understanding of the different roles of imagery analysts in an operational environment. Students will receive hands-on operational experience through mission planning, simulation and collecting images. PREREQ: UAS program major. F

**UAS 0255 Autopilot Theory: 3 semester hours.**
Fundamentals of unmanned platform autopilot avionic circuitry, navigational sensors, communications, and telemetry systems. Introduction to automated flight software and mission planning. PREREQ: UAS program major; UAS 0200 or RCET 0154B. COREQ: UAS 0270. S

**UAS 0270 Autopilot Laboratory: 5 semester hours.**
Experiments involving integration, calibration, trouble shooting and repair of avionics circuitry and related devices. Flight plan development and implementation using automated flight software and mission planning. PREREQ: UAS program major; UAS 0200 or RCET 0156B. COREQ: UAS 0255. S

**UAS 0282 Introduction to Rapid Prototyping: 2 semester hours.**
Introduction to the software, tools, and techniques used in modern rapid prototyping processes. PREREQ: UAS program major. S