Kansas State Polytechnic: College of Technology and Aviation

Engineering Technology, UAS bachelor's degree option

Overview

With a renowned unmanned aircraft systems program first established in field and flight operations and an engineering technology department that dates back to the campus's inception, Kansas State Polytechnic has created an area of study that utilizes both these strengths as well as meets the industry's growing demands. The engineering technology degree with an option in UAS gives students the opportunity to immerse themselves in the fascinating technologies of unmanned systems or commonly known as drones, while focusing specifically on their design and implementation – no flight ratings are required.

Through coursework tailored to combine computer sciences, electronic engineering and mechanical engineering with unmanned systems, students in this program will explore the intricacies of UAS subsystems and components, such as software design, computer networking, firmware and hardware, sensors and actuators, and camera systems and other payloads. Students will be expected to execute critical thinking, problem solving research skills while engaging in classes about electronic circuits, communication systems, control systems, machine design, manufacturing technology, materials technology and fundamentals of UAS operations.

Within the first three years of integration into the National Airspace Systems, according to the Association for Unmanned Vehicle Systems International, more than 70,000 jobs in the UAS industry will be created in the United State, with an economic impact of more than $136 billion. No longer are employers in this exponentially growing field only looking for pilots or operators; graduates with the engineering technology with a UAS option degree will provide the industry with the source it needs in developing and implementing technologies for interoperability, autonomy, propulsion and power, and communication. Careers, found in both the commercial and defense applications of UAS, are already available in a variety of areas such as wildfire mapping, agriculture monitoring, disaster management, law enforcement, weather monitoring, oil and gas exploration and film making.

Points of pride

Kansas State University is one of the first two universities in America to offer a Bachelor of Science option in unmanned aircraft systems. The program uses a hands-on learning approach.

Required coursework

Unmanned Aircraft Systems, bachelor's degree option

(121 credit hours)

Major Requirements (80 credit hours)

Core Courses (68 credit hours)

3	AVT 317	Composites I
3	AVT 450	Aviation Safety Management
3	CMST 103	Computing Principles
3	CMST 250	Hardware and Network Fundamentals
3	CMST 302	Applications in C Programming for Engineering Technology
4	ECET 100	Basic Electronics
3	ECET 101	Direct Current Circuits
4	ECET 110	Semiconductor Electronics
4	ECET 201	Alternating Current Circuits
4	ECET 250	Digital Logic
4	ECET 320	Electronic Communication Systems
0	ETA 020	Engineering Technology Seminar
1	ETB 480	UAS Senior Design I
2	ETB 481	UAS Senior Design II
3	MET 111	Technical Graphics
3	MET 211	Statics
3	MET 245	Material Strength and Testing
3	MET 246	Dynamics of Machines
3	UAS 270	Introduction to Unmanned Aircraft Systems
3	UAS 300	Unmanned Aircraft Systems Powerplant Fundamentals
3	UAS 373	Small Unmanned Aircraft Design and Construction for Non-Aviators
3	UAS 463	Introduction for Autopilots and Mission Planning for Non-Aviators
3	UAS elective*	

Technical Electives

(12 credit hours, 6 credits upper level)

Choose from the following electives:

4	AVT 400	Composites II
3	AVT 417	Composites III
3	CMST 315	Introduction to System Administration
3	CMST 344	Internetworking
4	ECET 350	Microprocessor Fundamentals
4	ECET 352	Digital Circuits and Systems
3	ECET 430	Network Analysis
4	ECET 450	Digital Systems and Computer Architecture
3	MET 117	Mechanical Modeling and Detailing
3	MET 121	Manufacturing Methods
3	MET 231	Physical Materials and Metallurgy
3	MET 252	Fluid Power Technology
3	MET 353	Fluid Mechanics
3	MET 471	Thermodynamics and Heat Transfer

Other electives may be used if approved by the department or advisor.

Math requirements (10 credit hours)

3	MATH 100	College Algebra
3	MATH 150	Plane Trigonometry
4	MATH 220	Analytic Geometry and Calculus I

Science requirements (8 credit hours)

3	CHM 110	General Chemistry
1	CHM 111	General Chemistry Laboratory
4	PHYS 113	General Physics I

Other requirements (11 credit hours)

2	COMM 105	Public Speaking IA
3	ENGL 100	Expository Writing I
3	ENGL 200	Expository Writing II
3	ENGL 302	Technical Writing

Other electives

(12 credit hours, 9 credits upper level)

3	Business elective
3	Humanities/Social science elective
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*** Marked electives must be upper-level courses, 300 and above.**

4	ECET 350	Microprocessor Fundamentals
3	MET 382	Industrial Instrumentation and Controls
4	PHYS 113	General Physics I
3	Humanities/Social Science elective	

For more information about the engineering technology UAS program, contact:

Kansas State Polytechnic
Office of Admissions
2310 Centennial Road
Salina, KS 67401-8196
785-826-2640
polytechnic@k-state.edu

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KANSAS STATE UNIVERSITY

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Post-Graduation Statistics
k-state.edu/postgrad-stats
ksdegreestats.org

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