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.

Required coursework
Unmanned Aircraft Systems, bachelor’s degree option
(121 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
3 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 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 CMST 315 Introduction to System Administration
3 CMST 344 Internetworking
4 ECET 350 Microprocessor Fundamentals
3 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 161 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
3 Humanities/Social science elective
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* Marked electives must be upper-level courses, 300 and above.

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.
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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Post-Graduation Statistics
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