

Unmanned Aircraft Systems

Bachelor of Science (BS)

Unmanned Aircraft Systems

If you have the will to be a part of a new and growing field that can prove invaluable to law enforcement, agriculture, videography, surveying and many other areas, Southeast Missouri State University's Bachelor of Science in Unmanned Aircraft Systems (UAS) can help get you there. Many professionals use UAS, or "drones," to protect life by using this technology in applications that would normally put human lives at risk. There are already many applications for UAS and the list continues to grow! Southeast is currently the only university in Missouri offering a bachelor's degree in unmanned aircraft systems.

Students learn the fascinating fundamentals of these machines, including maintenance, customization, acquisition and commercial use. Rather than building drones from the ground up, students take advantage of existing products and resources to adapt drones to meet specific needs. Courses include programming, electrical and electronic systems, mechanical operations, flight, drone design, sensing systems, mission planning, regulations and safety.

Unmanned Aircraft Systems students will understand the fundamental concepts required to be a professional in the field, including concepts in electronics, mechanical design and programming while obtaining a more specialized knowledge in unmanned aircraft systems, including flight, design, policy and mission planning. Students will have the ability to tailor the program to a more specific application area with 9 hours from areas such as agriculture, criminal justice, geographic information systems and automation.

Becoming Career Ready...

/ Faculty with relevant industry experience work closely with students by providing them with career-ready practical experience and a technology-based curriculum in the state-of-the-art Otto & Della Seabaugh Polytechnic building.

/ Unmanned Aircraft Systems graduates work in a wide variety of fields ranging from agriculture and delivery services to telecommunications and first response, far exceeding their current primary use in military applications. Examples of job titles include commercial drone pilot, instructor, drone system operator, UAS engineer and UAS technician.

/ 100% of Southeast programs offer real-world experience. Industrial & Systems Engineering students earn this experience through a senior design capstone course for students to work in teams to solve open-ended industrial projects. Students also gain valuable hands-on experience through required labs that accompany the courses work.

/ The path to a successful career starts with you! You can maximize your career development by working closely with Career Services and Southeast faculty – they are here to help you connect your passions, interests and skills to jobs and opportunities in the field. Career Services provides professional career counseling and coaching, resume critiques, practice interviews, job search strategies, career events, networking opportunities and more.

Career Opportunities

Unmanned Aircraft Systems is a new program at southeast, however the field is expected to experience rapid growth because of the increased use of commercial unmanned aircraft systems. In addition, the Association for Unmanned Vehicle Systems International estimates the addition of 103,000 jobs for those involved in the manufacturing and operations of drones pending FAA rule changes.

Graduates would be able to have a career as a:

- UAS Mission Planner
- UAS Operator/Pilot
- UAS Technician
- UAS Designer

UAS systems are used in fields such as:

- Law Enforcement and Disaster Response
- Agriculture and Forestry
- Videography and Photography
- Surveying and Inspection

Transfer and Dual Credit Students

If you have dual credit or transfer credit, please visit our transfer course equivalencies guide at semo.edu/transfercredit.

To learn more
 Office of Admissions
 (573) 651-2590
admissions@semo.edu
semo.edu

To explore
 the College of Science,
 Technology, Engineering and
 Mathematics online, visit
semo.edu/stem

For advising
 Center for Academic Advising
semo.edu/advising

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This is a guide based on the 2019-2020 Undergraduate Bulletin and is subject to change. The time it takes to earn a degree will vary based on several factors such as dual enrollment, remediation, and summer enrollment. Students will meet with an academic advisor each semester and use Degree Works to monitor their individual progress.

CURRICULUM CHECKLIST

Unmanned Aircraft Systems – 92 Hour Major; No Minor Required

Required Courses:

- ___ CH 180 Chemistry in Our World (3)
 - ___ CS 155 Computer Science I (4)
 - ___ CS 265 Computer Science II (4)
 - ___ ET 160 Basic Circuits (3)
 - ___ ET 164 AC Circuit Analysis (3)
 - ___ ET 245 Digital Systems (3)
 - ___ ET 260 Electronics (3)
 - ___ ET 366 Microcontrollers (3)
 - ___ ET 380 Vision & Sensor Systems (3)
 - ___ ET 381 Fundamentals of Aviation in UAS (3)
 - ___ ET 382 UAS Fundamentals (3)
 - ___ ET 383 UAS Design (3)
 - ___ ET384 UAS Law, Policy, & Safety (3)
 - ___ ET 385 UAS Mission Planning & Applications (3)
 - ___ IM 300 Technical Communication (3)
 - ___ IU 314 GeoInfo Science Today (3)
 - ___ MA 137 Pre-calculus (5)
 - ___ MA 140 Analytical Geometry & Calculus I (5)
 - ___ MN 120 Introduction to Mechanical Design (3)
 - ___ MN 220 Engineering Economic Systems (3)
 - ___ MN 319 Statics & Strengths of Materials (3)
 - ___ MN 324 Mechanical Design Process (3)
 - ___ PH 120 Introductory Physics I (5)
 - ___ TN 255 Microcomputer Maintenance & Troubleshooting (3)
 - ___ UI 450 Capstone Experience (3)
- Technical Electives – choose 9 hours:
- ___ AG 440 Precision Agriculture (3)
 - ___ AG 444 Spatial Analysis (3)
 - ___ CJ 430 Policing in an Information Age (3)
 - ___ CS 480 Data Communications (3)
 - ___ GO 340 Remote Sensing (3)
 - ___ GO 445 Geographic Information Systems (3)
 - ___ GO 520 GIS Application (3)
 - ___ IS 420 Human Computer Interaction (3)
 - ___ MN 356 Robotic Fundamentals (3)
 - ___ TN 425 Wireless Communications & Mobile Networks (3)

General Education Requirements – some requirements may be fulfilled by coursework in major program

- Social and Behavioral Sciences – 6 hours
- Constitution Requirement – 3 hours
- Written Communication – 6 hours
- Oral Communication – 3 hours
- Natural Sciences – 7 hours (from two disciplines, one to include a lab)
- Mathematics – 3 hours
- Humanities & Fine Arts – 9 hours (from at least two disciplines)
- Additional requirements – 5 hours (to include UI100 for native students)
- Civics examination

SAMPLE FOUR-YEAR PLAN

	Fall Semester		Spring Semester	
	Course #	Hrs	Course #	Hrs
FIRST YEAR	UI100	3	CS155	4
	EN100	3	ET160	3
	CH180	3	MA140	5
	MA137	5	PH120	5
	MN120	3		
	Total	17	Total	17
SECOND YEAR	CS265	4	ET260	3
	ET164	3	ET366	3
	ET245	3	ET382	3
	ET381	3	IM300	3
	MN319	3	MN324	3
		General Education	3	
	Total	16	Total	18
THIRD YEAR	ET383	3	ET384	3
	TN255	3	MN220	3
	Program elective 1	3	Program elective 2	3
	General Education	3	General Education	3
	General Education	3	General Education	3
	Total	15	Total	15
FOURTH YEAR	ET380	3	ET385	3
	IU314	3	UI450	3
	General Education	3	Program elective 3	3
	General Education	3	General Education	3
			General Education	3
	Total	12	Total	15

Degree requirements for all students: a minimum of 120 credit hours, completion of the General Education program, completion of 39 senior division hours (300-599), Writing Proficiency Exam (WP003).

Refer to the Undergraduate Bulletin or Degree Works for additional graduation requirements for your program.