

Undergraduate

Mechatronics and Robotics Engineering

SIUE

School of Engineering
Department of Mechanical and
Mechatronics Engineering

Degrees Available at SIUE

- Bachelor of Science, Mechatronics and Robotics Engineering

Accelerated Combined Degree Program

This program provides an accelerated option for qualifying SIUE students who wish to earn simultaneous undergraduate credit in mechatronics and robotics engineering and graduate credit in mechanical engineering for some courses taken their senior year. Learn more at siue.edu/academics/accelerated-combined-degrees.

Mechatronics and Robotics Engineering at SIUE

Students in the mechatronics and robotics engineering program, offered through the Department of Mechanical and Mechatronics Engineering, create intelligent devices by combining mechanical and electrical engineering principles. Graduates from the School of Engineering are shaping the future by designing smarter cars, autonomous farm equipment, robots for the manufacturing industry and much more. These devices have mechanical and electrical components, sensors and computer software - all working together, harmoniously.

As automation and robotics increase around us, so does the need for engineers with specialized knowledge of these topics. The field of mechatronics and robotics engineering emerged out of this need to develop the best possible design while seamlessly merging mechanical and electronics knowledge. Mechatronics and robotics engineers have the interdisciplinary knowledge necessary to oversee the design and development of such intelligent devices from beginning to end, rather than completing mechanical, electrical and control designs separately.

The Bachelor of Science in mechatronics and robotics engineering at SIUE is one of only a few such programs in the U.S.

What can I do with a degree in mechatronics and robotics engineering?

Mechatronics and robotics engineers find jobs in companies that design, develop and manufacture intelligent devices, systems and equipment for medical, automotive, communication, agriculture, construction and entertainment industries. Some examples of these are:

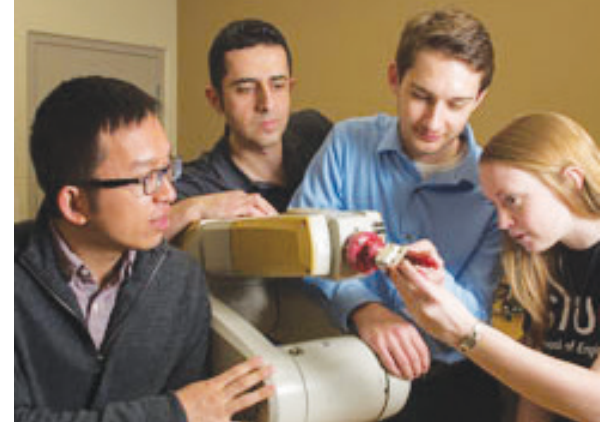
- Mobile or industrial robots
- Quadcopters and drones
- Autonomous vehicles
- High-tech prosthetic limbs
- Consumer electronics
- Space and defense
- Smart home, smart city and smart planet

Graduates from the mechatronics and robotics engineering program may also pursue a graduate degree in mechanical, electrical or computer engineering.

Hands-On Learning

Students have multiple opportunities to engage in experiential learning. The mechatronics and robotics engineering curriculum includes a number of classes with substantial laboratory components where our students apply their knowledge of engineering science in a variety of hands-on experiments. Students also participate in a two-semester senior design course, which allows them to practice teamwork and critical analysis, and to apply their creativity in a design and fabrication project with real-life applications in mind.

At SIUE, students also have the opportunity to participate in mechatronics and robotics engineering work experience and cooperative education, or they can choose to participate in a study abroad program. Our students also have the option to engage in mechatronics and robotics engineering research with faculty members through the Undergraduate Research and Creative Activities (URCA) program.



Faculty

Sohyung Cho, PhD

2000, Pennsylvania State University

Arman Dabiri, PhD

2018, University of Arizona

Keqin Gu, PhD

1988, Georgia Institute of Technology

Nima Lotfi, PhD

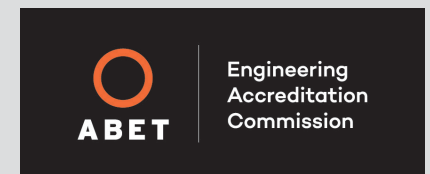
2016, Missouri University of Science and Technology

Tim York, PhD

2014, Washington University in St. Louis

Mingshao Zhang, PhD

2016, Stevens Institute of Technology
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SOUTHERN ILLINOIS UNIVERSITY
EDWARDSVILLE
SCHOOL OF ENGINEERING

Sample Curriculum for the Bachelor of Science in Mechatronics and Robotics Engineering

Fall Semester

Spring Semester

Year 1	IE 106 Engineering Problem Solving	3	ENG 102 English Composition II	3
	CHEM 131 Engineering Chemistry (BPS)	4	CS 145 Intro to Computing for Engineers	3
	CHEM 135 Engineering Chemistry Lab (EL)	1	MATH 152 Calculus II (BPS)	5
	ENG 101 English Composition I	3	PHYS 141 Physics I for Engineering (BPS)	3
	MATH 150 Calculus I (BPS, FQR)	5	PHYS 151L University Physics I Lab (EL)	1
	FST 101 Succeeding & Engaging at SIUE	1	Total Credits	15
	Total Credits	17		
Year 2	ACS 103 Interpersonal Communications (EUSC)	3	ME 262 Dynamics	3
	CE 240 Statics	3	CE 242 Mechanics of Solids	3
	ECE 210 Circuit Analysis I	3	ECE 211 Circuit Analysis II	4
	MATH 250 Calculus III (BPS)	4	ECON 111 Principles of Macroeconomics (BSS)	3
	PHYS 142 Physics II for Engineering (BPS)	3	MATH 305 Differential Equations I (BPS)	3
	PHYS 152L University Physics II Lab (EL)	1	Application for Upper Division	0
	Total Credits	17	Total Credits	16
Year 3	ECE 282 Digital System Design	4	MRE 358 Introduction to Mechatronics	3
	ME 356 Dynamic Systems Modeling	3	ME 450* Automatic Control	3
	ME 354 Numerical Simulation	1	MRE 380 Design of Machine Elements	3
	MRE 320 Sensors and Actuators	3	ECE 381 Microcontroller	3
	Math 321 Linear Algebra	3	PHIL 323 Engineering, Ethics & Professionalism (BHUM)	3
	Breadth Fine & Performing Arts (BFPA)	3	Total Credits	15
	Total Credits	17		
Year 4	MRE 454 Robotics, Dynamics & Controls	3	MRE Technical Elective II	3
	MRE 480 Design in Mechatronics & Robotics I	2	MRE 477 Computer-Integ Manufacturing Systems	3
	MRE Technical Elective I	3	MRE 481 Design in Mechatronics & Robotics II	2
	IE 345 Engineering Economic Analysis	3	Breadth Life Science (BLS)	3
	Interdisciplinary Studies (IS) / Experience Global Cultures (EGC)	3	STAT 380 Statistics for Application (BICS)	3
	Health Experience (EH)	0-2	Total Credits	14
	Total Credits	14-16		
			Total Hours	125-127

NOTES – *ME 450 may be substituted by the two-course series ECE 365 (control systems) and ECE 465 (control systems design).

Transfer Students: To maximize your transfer experience, complete the **bold** course requirements pre-transfer and satisfy either the Illinois Articulation Initiative (IAI) General Ed Core or receive an AA, AS or AAT (early childhood, special ed or math) degree from an IAI community college. If minor requirements are shown, discuss careful course selection with the academic advising contact listed. Visit siue.edu/transfer to find course equivalency guides.

Admission Requirements

To be admitted to the Bachelor of Science program, students must:

- Complete all academic development courses required by the University
- Complete any courses to address high school deficiencies
- Be eligible to enroll in MATH 125, pre-calculus, or higher
- Maintain a cumulative GPA of at least 2.0 on a 4.0 scale

Graduation Requirements

Degree requirements include the following:

- A cumulative GPA of 2.0 or higher in engineering courses
- A cumulative GPA of 2.0 or higher is required for mechatronics and robotics engineering courses numbered above 299
- Completion of all departmental and University requirements
- Completion of a senior assignment as part of MRE 480 (design in mechatronics and robotics I) and MRE 481 (design in mechatronics and robotics II)

Contact Information

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