

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING, 2024-25

For more information about policies and requirements, please see the UMKC 2024-25 Catalog.

FIRST YEAR

FALL SEMESTER	HOURS	SPRING SEMESTER	HOURS
MATH 266 Accelerated Calculus I	4	MATH 268 Accelerated Calculus II	3
CHEM 211 General Chemistry I	4	PHYSICS 240 Physics for Scientists & Engineers I	5
CHEM 211L General Chemistry I Lab	1	MEC-ENGR 130 Engineering Graphics	3
GEFSE 101 First Semester Experience	3	ENGLISH 225 English II: Interned Academic Prose	3
ENGLISH 110 English I: Intro to Academic Prose	3	GECRT-SS Critical Thinking in Social & Behavioral Sciences	3
TOTAL	15	TOTAL	17

SECOND YEAR

FALL SEMESTER	HOURS	SPRING SEMESTER	HOURS
MATH 250 Calculus III	4	MATH 345 Ordinary Differential Equations	3
PHYSICS 250 Physics for Scientists & Engineers II	5	CIV-ENGR 276 Strength of Materials	3
CIV-ENGR 275 Engineering Statics (Meets GECRT-SC req)	3	E&C-ENGR 276 Circuit Theory I	3
MEC-ENGR 219 Computer Prog for Engineers	3	E&C-ENGR 277 Circuit Theory I Lab	1
		MEC-ENGR 285 Engineering Dynamics	3
		MEC-ENGR 299 Engineering Thermodynamics	3
TOTAL	15	TOTAL	17

THIRD YEAR

FALL SEMESTER	HOURS	SPRING SEMESTER	HOURS
MEC-ENGR 324 Engineering Materials	3	MEC-ENGR 306 Numerical Analysis	3
MEC-ENGR 351 Fluid Mechanics	3	MEC-ENGR 352 Mechanical Instruments Lab	3
MEC-ENGR 360 Applied Thermodynamics	3	MEC-ENGR 380 Manufacturing Methods	3
MATH 300 Linear Algebra	3	MEC-ENGR 385 System Dynamics	3
Communication Requirement (COMM-ST 110, 140, 212 or 277)	3	MEC-ENGR 399 Heat Transfer	3
		MEC-ENGR 399L Heat Transfer and Fluids Lab	1
TOTAL	15	TOTAL	16

FOURTH YEAR

FALL SEMESTER	HOURS	SPRING SEMESTER	HOURS
MEC-ENGR 356 Mechanical Component Design	3	Constitution Requirement (HIST 101 OR 102; POL-SCI 210, CJC 364, or HON 230)	3
MEC-ENGR 415 Control Systems Theory	3	MEC-ENGR 496WI Mechanical Design Synthesis II	3
MEC-ENGR 492 Mechanical Design Synthesis I (Meets GECUE req)	3	MEC-ENGR Technical Elective (400 level)	3
MEC-ENGR Design Elective* (400 level)	3	MEC-ENGR Technical Elective (400 level)	3
MEC-ENGR Technical Elective (400 level)	3	GECDV Culture & Diversity	3
GECRT-AH Critical Thinking in Arts & Humanities	3		
TOTAL	18	TOTAL	15

Additional Graduation Requirements: Civics Exam, HEIghten Exit Exam.

Total Credits to Graduate: 127

**The following courses satisfy the Design Elective requirement: ME407 Advanced Dynamics & Modeling, ME416 Biomedical Device Design, ME440 Heating Ventilation & Air Conditioning, ME 444 Composite Materials, ME446 Principles of Aircraft Design*

School of Science and Engineering

Why Major in Mechanical Engineering



Beyond The Classroom

Students build experience by participating in our **student-led teams or organizations**:

- American Institute of Aeronautics & Astronautics (AIAA)
- Baja Racing Team
- Design Build Fly (Aeroos)
- National Society of Black Engineers (NSBE)
- Society of Hispanic Professional Engineers (SHPE)
- Society of Women Engineers (SWE)
- UMKC Robotics

Students design and build their own **off-road vehicle, unmanned aircraft, robot, or concrete canoe** to compete against other universities in our student-led teams.

Our **Mechanical Engineering degree is ABET accredited** ensuring our curriculum meets the standards to prepare graduates for industry and professional advancement.



Personalize Your Degree

Our **BS Mechanical Engineering degree includes specialized major electives** allowing students to expand upon their interests in areas like:

- aircraft design
- biomechanics & biomedical device design
- fuel cells & renewable energy systems
- power generation systems & power plant design
- unmanned aircraft combat survival

Students can **participate in research** to gain experience through hands-on projects, specialized research courses, presentations and publications.

Alongside faculty mentors, students can **explore topics like**:

- 3D printing soft-biomaterials, drone defense, nuclear materials detection, and other more confidential topics in partnership with the U.S. government



After Graduation

SSE connects students with industry partners in the area through **information sessions** and two **STEM Career Fairs** every year.

The **demand for engineering jobs** in the Kansas City-area has grown at more than twice the national average.

Easily earn a **master's degree** through our BS to MS program which allows students to complete a graduate degree at undergraduate tuition rates.

The Kansas City region has **one of the top five architecture and engineering concentrations** in the nation with access to companies like:

- Black & Veatch, Burns & McDonnell, Evergy, Garmin, Henderson Engineers, Honeywell FM&T, Kiewit, US Engineering

Many Mechanical Engineering students have **secured full-time jobs before graduation** through internships and networking with industry partners.