

Biological Systems Engineering (Machine Systems Option)

126 credit hours total

YEAR 1		YEAR 2		YEAR 3		YEAR 4	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
*MATH 220 (4) Analytic Geometry and Calculus I KSC-3	MATH 221 (4) Analytic Geometry and Calculus II PR: MATH 220 ≥ C	MATH 222 (4) Analytic Geometry and Calculus III PR: MATH 221 ≥ C	MATH 340 (4) Elementary Differential Equations PR: MATH 221 ≥ C	ME 513 (3) Thermodynamics I PR: MATH 222, PHYS 213, CHM 210	•BAE 331 (1) Professional Practice for Biological Systems Engineering Design PR: JR standing	•BAE 536 (3) Biological Systems Engineering Senior Design I PR: BAE 331, PR/CO: ME 533 or BAE 545 or BAE 560	•BAE 636 (1) Biological Systems Engineering Senior Design II PR: BAE 536
CHM 210 (4) Chemistry I	CHM 230 (4) Chemistry II PR: CHM 210	*PHYS 213 (5) Engineering Physics I KSC-4 PR/CO: MATH 220	PHYS 214 (5) Engineering Physics II PR: PHYS 213 PR/CO: MATH 221	ME 512 (3) Dynamics PR: CE 333 PR/CO: MATH 340	•BAE 345 (2) Properties of Biological Materials PR: CHM 210 or CHM 220	•BAE 545 (3) Biological Process Engineering PR/CO: CHE 530 or ME 571	•BAE 640 (3) Instrumentation and Control for Biological Systems PR: ECE 410 or ECE 519, MATH 340
DEN 160 (1) College of Engineering Orientation	BIOL 198 (4) Principles of Biology	•BAE 350 (2) Off Road Machinery Systems PR: CHM 210	CE 333 (3) Statics PR: MATH 221, PHYS 213	CE 533 (3) Mechanics of Materials PR: CHE 354, CHE 355, CE 333 or 530 ≥ C	ECE 519 (3) Electric Circuits for Engineers PR: PHYS 214	•BAE 445 (3) Biological Engineering Fundamentals PR: BIOL 198 and BAE 345 or CE 533 or CHE 354, 355	▲ Elective (3) Track
DEN 161 (1) Engineering Problem Solving PR/CO: MATH 150	*ENGL 100 (3) Expository Writing I KSC-1	•BAE 351 (1) Machinery Systems Lab CO: BAE 350	•BAE 450 (3) Off Road Machine Power Components PR: PHYS 213	•BAE 460 (3) Computational & Statistical Tools for Engineers PR: MATH 221 and SO standing	*ENGL 200 (3) Expository Writing II KSC-1 PR: ENGL 100	AGRON 205 (3) Soils PR: CHM 110 or 210	* Elective (3) Social and Behavioral Sciences KSC-5
*COMM 106 (3) Public Speaking KSC-2	ME 212 (2) Engineering Graphics PR/CO: MATH 205 or 220	* Elective (3) Arts and Humanities KSC-6	IMSE 530 (2) Engineering Economic Analysis PR: MATH 220	•BAE 550 (3) Hydraulics and Mechatronics PR: PHYS 213	ME 533 (3) Machine Design I PR: ME 212, ME 512, CE 533	* Elective (3) Institutional KSC-7	* Elective (3) Arts and Humanities KSC-6
* Elective (3) Social and Behavioral Sciences KSC-5					ME 571 (3) Fluid Mechanics PR: ME 512 or CE 530, MATH 222 PR/CO: ME 513 or ME 310	* Elective (3) Institutional KSC-7	* Elective (3) Institutional KSC-7
BAE 020 (0) (16 credit hours)	BAE 020 (0) (17 credit hours)	BAE 020 (0) (15 credit hours)	BAE 020 (0) (17 credit hours)	BAE 020 (0) (15 credit hours)	BAE 020 (0) (15 credit hours)	BAE 020 (0) (15 credit hours)	BAE 020 (0) (16 credit hours)

KEY

- = Prerequisite for another course
- PR = Prerequisite requirement
- PR/CO = Prerequisite or concurrent requirement
- * = K-State Core (KSC) course
- ▲ = See department approved electives
- = Only offered in the semester shown

Biological Systems Engineering Curriculum Notes

Students who satisfy all or part of K-State Core Institutional Electives (KSC-7) with courses that satisfy other degree requirements may use additional unrestricted electives to meet the degree requirement of 126 credit hours.

Track Electives

Track electives are to be chosen from an approved departmental list of courses. Three of the 6 credit hours must be engineering courses.

A full elective list is available at
bae.k-state.edu/student-success/advising/bse-electives.

K-State Core

The K-State Core (KSC) is the university's version of the systemwide general education framework established by the Kansas Board of Regents.

KSC requirement 1 – English (6 hours)

KSC requirement 2 – Communications (3 hours)

KSC requirement 3 – Math and Statistics (3 hours)

KSC requirement 4 – Natural and Physical Sciences (4-5 hours)

KSC requirement 5* – Social and Behavioral Sciences (6 hours)

KSC requirement 6* – Arts and Humanities (6 hours)

KSC requirement 7 – Institutional Electives (6 hours)

To view course lists for each requirement, visit k-state.edu/general-education.

**Requires two courses from two different subject areas.*