



**JOHNSON COUNTY COMMUNITY COLLEGE**  
**Transfer Program to Kansas State University**  
**Agricultural Technology Management (BS)**  
**Biological Systems Engineering (BS)**  
**Environmental Engineering (BS)**  
**2024-25 Catalog**

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[engg.ksu.edu/academics/undergraduate/](https://engg.ksu.edu/academics/undergraduate/)

The goal of the **agricultural technology management** program is to educate technology managers who can combine the critical understanding of agriculture and biological sciences with the problem-solving viewpoint of an engineer. The curriculum is intended for students who want a broader education than is provided by the engineering curriculum and who do not desire the analytical focus necessary in an engineering degree. Graduates fill key positions in food and agricultural industries, serving as technical managers for these increasingly vital sectors of the economy. Five curriculum options are available: agribusiness management option, biomanufacturing option, precision agriculture option, production agriculture option and water management option.

**Biological systems engineers** provide an essential link between the biological sciences and engineering, which uses physical, chemical and advanced biological sciences to solve practical problems. Biological systems engineers develop the techniques and processes to work with living systems, including microbes, plants and animals. They provide input to produce and process food, fiber, energy, chemical feedstock and pharmaceuticals. Engineering fundamentals are applied to achieve the goal of a safe and stable food and renewable energy supply while considering human and environmental factors. Three curriculum options are available: biological option, environmental option and machinery systems option.

**Environmental engineers** design systems and solutions to sustain the quality of people's lives and the planet. As environmental challenges continue to develop, these professionals will increasingly be called upon to sustain food, water and energy supplies, curb climate change and adapt to its impact, reduce pollution and waste of natural resources, advance green manufacturing, develop resilient urban infrastructure systems and improve waste management practices. Environmental engineering integrates engineering fundamentals, mechanics and design principles with biology, earth sciences and chemistry to design solutions that improve the well-being of people and planet where the two intersect. Three curriculum options are available: sustainable ecosystems, water resources and water/wastewater treatment.

- **Admissions** - Applicants must first be admitted to Kansas State University either as an incoming freshman or a transfer student. To apply for admission to Kansas State University, complete an application online at <https://www.k-state.edu/admissions/> and have official transcripts from all previous colleges sent directly to the Office of Admissions, Kansas State University, 119 Anderson Hall, Manhattan, KS, 66505-0102, or faxed to 785-532-6393 or emailed via electronic transcript service to [k-state@k-state.edu](mailto:k-state@k-state.edu). For students transferring to K-State with fewer than 24 credit hours, please also send final high school transcript and ACT or SAT scores. Admission to the College of Engineering is selective. Declaration of the desired curriculum in the College of Engineering does not guarantee admission into the degree program selected. For current admission criteria please refer to the College of Engineering website at <https://engg.k-state.edu/academics/admissions/>
- Students not admitted to the College of Engineering can enter the university Open Option program or another available college/degree program. These students can still apply to enter the College of Engineering at a later date after they have completed one full-time semester at K-State as an internal transfer student.
- **Grade requirements** - In addition to the university standards and policies for grades, the College of Engineering has the following standards:
- **Curricula grades** - See the individual engineering department sections of the [K-State Undergraduate Catalog](#) for the grade requirements for their curriculum and degree. All courses applied to degree requirements require a letter grade except for 0-credit hour assembly courses.
- **DirectLink** - an initiative between Kansas community colleges and Kansas State University to provide future transfer students with support as they prepare to make the transition to K-State. Click [here](#) to sign up for DirectLink.
- **Transferability of Courses** - Many of the fundamental courses required for a degree in engineering may be obtained through pre-engineering programs at other four-year institutions or at community colleges. However, there are differences among the curricula; students electing this route should work closely with their pre-engineering advisors. **Students should be aware that only half of the total Bachelor of Science degree credits may be earned at a two-year school, at least 30 credit hours must be K-State credit hours, and 20 of the last 30 must be K-State credit hours.** Only courses with a grade of A, B or C will be applicable toward engineering degree requirements. *The Cr and D grades are not acceptable for transfer into College of Engineering programs.*
- Some K-State courses in the curriculum do not have an equivalent course at all other institutions. Please see the [K-State Undergraduate Catalog](#) for details and lists of courses. To learn more about academic credit for prior learning and advanced credit, please see K-State [Advanced Standing](#).
- To determine which courses at a particular college or university will substitute for courses at K-State, access [Transfer Equivalency](#) on the K-State website.
- Effective Fall 2024: Students transferring to K-State, with an AA, AFA or AS degree from JCCC will be considered to have satisfied K-State Core general education curriculum.
- Effective Fall 2024: Students who transfer to K-State, without completing AA, AFA or AS degree will have courses evaluated on a course-by-course basis toward meeting K-State requirements. To learn more about courses that satisfy K-State Core requirements visit: <https://www.k-state.edu/provost/kstate-core/index.html> and <https://www.k-state.edu/admissions/undergrad/manhattan/apply/transfer/course-search.html>
- K-State Core General Education guide can be found [here](#).

**Agricultural Technology Management (ATM) (B.S.) 120 hours required for the K-State B.S. degree**

(No more than half can be completed at JCCC - See Transferability of Courses on page 1)

**Recommended JCCC courses:**

KSU Courses	Hrs	JCCC Courses	Hrs
<b>K-State Core</b>			
English (two courses)	6	See <a href="#">KSU Core General Education guide</a>	6
Communications COMM 106 Public Speaking	3	COMS 121 Public Speaking	3
Math and Statistics MATH 205 General Calculus & Linear Algebra	3	MATH 231 Business and Applied Calculus I*	3
Natural and Physical Sciences PHYS 113 General Physics I	4	PHYS 130 College Physics I*	5
Social and Behavioral Sciences ( <i>Select two courses in two subject areas – 6 hours total</i> )		See <a href="#">KSU Core General Education guide</a>	3
ECON 110 Principles of Macroeconomics	3	ECON 230 Principles of Macroeconomics	3
Arts and Humanities ( <i>Select two courses in two subject areas</i> )	6	See <a href="#">KSU Core General Education guide</a>	6
Free Electives ( <i>Any 100 or 200 level courses may apply</i> )	6	See <a href="#">KSU Core General Education guide</a>	6
<b>Program Requirements</b>			
ACCTG 231 Accounting for Business Operations	3	ACCT 222 Managerial Accounting*	3
BIOL 198 Principles of Biology	4	BIOL 135 Principles of Cell & Molecular Biology	4
MANGT 220 Principles of Management	3	BUS 241 Principles of Management	3
CHM 210 Chemistry I	4	CHEM 124/125 General Chemistry I*/Lab*	4/1
CIS 209 Computer Programming for Engineers ( <i>Technical Elective***</i> )	3	CS 200 Concepts of Programming Algorithms Using C++* <b>OR</b> CS 235 Object-Oriented Programming Using C++*	4 4
ME 212 Engineering Graphics ( <i>Graphics Elective</i> )	2	ENGR 131 Engineering Graphics I: AutoCAD*	4
STAT 225 Introduction to Statistics <b>OR</b> STAT 350 Business and Economic Statistics I	3	MATH 181 Statistics* <b>OR</b> MATH 285 Statistics for Business*	3 4
<b>Select one of the following options: Agribusiness Management Option, Biomanufacturing Technology Option, Precision Agriculture Option, Production Agriculture Option or Water Management Option</b>			
<b>Agribusiness Management Option</b>			
ACCTG 241 Accounting for Investing & Financing ( <i>Business Electives**</i> )	3	ACCT 121 Accounting I <b>AND</b> ACCT 122 Accounting II*	3 3
MANGT 230 Business Law I ( <i>Business Electives**</i> )	3	BLAW 261 Business Law I*	3
FDSCI 305 Fundamentals of Food Processing ( <i>Technical Electives***</i> )	3	HMGT/SAG 170 Value-Added Production	3
MKTG 250 Introduction to Marketing ( <i>Technical Electives***</i> )	3	MKT 230 Marketing	3

\* JCCC course has a prerequisite or corequisite.

\*\* 6 hours total for Business Electives

\*\*\* Total hours for Technical Electives is dependent on selected Option; Check with K-State ATM department

## **Biological Systems Engineering (B.S.) 126 hours required for the K-State B.S. degree**

(No more than half can be completed at JCCC - See Transferability of Courses on page 1)

Recommended JCCC Courses:

KSU Courses	Hrs	JCCC Courses	Hrs
<b>K-State Core</b>			
English (two courses)	6	See <a href="#">KSU Core General Education guide</a>	6
Communications: COMM 106 Public Speaking	3	COMS 121 Public Speaking	3
Math and Statistics MATH 220 Analytic Geometry and Calculus I	4	MATH 241 Calculus I*	5
Natural and Physical Sciences PHYS 213 Engineering Physics I	5	PHYS 220 Engineering Physics I*	5
Social and Behavioral Sciences (Select two courses in two subject areas)	6	See <a href="#">KSU Core General Education guide</a>	6
Arts and Humanities (Select two courses in two subject areas)	6	See <a href="#">KSU Core General Education guide</a>	6
Free Electives (Any 100 or 200 level courses may apply)	6	See <a href="#">KSU Core General Education guide</a>	6
<b>Program Requirements</b>			
BIOL 198 Principles of Biology	4	BIOL 135 Principles of Cell & Molecular Biology	4
CHM 210 Chemistry I	4	CHEM 124/125 General Chemistry I*/Lab*	4/1
CHM 230 Chemistry II	4	CHEM 131/132 General Chemistry II*/Lab*	4/1
DEN 160 Engineering Orientation <b>AND</b> DEN 161 Engineering Problem Solving	1 1	ENGR 121 Engineering Orientation	2
MATH 221 Analytic Geometry and Calculus II	4	MATH 242 Calculus II*	5
MATH 222 Analytic Geometry & Calculus III	4	MATH 243 Calculus III*	5
MATH 340 Elementary Differential Equations	4	MATH 254 Differential Equations*	4
PHYS 214 Engineering Physics II	5	PHYS 221 Engineering Physics II*	5
<b>Biological Option, Environmental Option and Machine Systems Option Requirements</b>			
BIOL 255 General Microbiology <i>Requirement for Biological Option, Check with KSU advisor to see if BIOL 230/231 could count as Engineering Elective for Environmental and Machine Systems Options.</i>		BIOL 230/231 Microbiology*/Lab*	3/2
CHM 350/351 General Organic Chemistry/Lab (Requirement for Biological Option and Environmental Option)		CHEM 140 Principles of Organic & Biological Chemistry* <b>OR</b> CHEM 220 Organic Chemistry I* <b>OR</b> CHEM 221 Organic Chemistry II*	5 5 5
CE 333 Statics (Requirement for Machine Systems Option, could count as Engineering Elective for Biological or Environmental Options)		ENGR 251 Statics*	3
ME 212 Engineering Graphics (Requirement for Machine Systems Option, could count as Engineering Elective for Biological or Environmental Options)		ENGR 131 Engineering Graphics I: AutoCAD*	4
ME 512 Dynamics <i>Requirement for Machine Systems Option, could count as Engineering Elective for Biological or Environmental Options</i>		ENGR 254 Dynamics*	3

\* JCCC course has a prerequisite or corequisite.

**Environmental Engineering (ENVE) (B.S.) 126 hours required for the K-State B.S. degree**

(No more than half can be completed at JCCC - See Transferability of Courses on page 1)

**Recommended JCCC Courses:**

KSU Courses	Hrs	JCCC Courses	Hrs
<b>K-State Core</b>			
English (two courses)	6	See <a href="#">KSU Core General Education guide</a>	6
Communications COMM 106 Public Speaking	3	COMS 121 Public Speaking	3
Math and Statistics MATH 220 Analytic Geometry and Calculus I	4	MATH 241 Calculus I*	5
Natural and Physical Sciences PHYS 213 Engineering Physics I	5	PHYS 220 Engineering Physics I*	5
Social and Behavioral Sciences (Select two courses in two subject areas)	6	See <a href="#">KSU Core General Education guide</a>	6
Arts and Humanities (Select two courses in two subject areas)	6	See <a href="#">KSU Core General Education guide</a>	6
Free Electives (Any 100 or 200 level courses may apply)	6	See <a href="#">KSU Core General Education guide</a>	6
<b>Program Requirements</b>			
BIOL 198 Principles of Biology	4	BIOL 135 Principles of Cell & Molecular Biology	4
CHM 210 Chemistry I	4	CHEM 124/125 General Chemistry I*/Lab*	4/1
CHM 230 Chemistry II	4	CHEM 131/132 General Chemistry II*/Lab*	4/1
CHM 350/351 General Organic Chemistry/Lab (Requirement for Biological Option and Environmental Option)		CHEM 140 Principles of Organic & Biological Chemistry* <b>OR</b> CHEM 220 Organic Chemistry I* <b>OR</b> CHEM 221 Organic Chemistry II*	5 5 5
DEN 160 Engineering Orientation <b>AND</b> DEN 161 Engineering Problem Solving	1 1	ENGR 121 Engineering Orientation	2
MATH 221 Analytic Geometry and Calculus II	4	MATH 242 Calculus II*	5
MATH 222 Analytic Geometry & Calculus III	4	MATH 243 Calculus III*	5
MATH 340 Elementary Differential Equations	4	MATH 254 Differential Equations*	4
PHYS 214 Engineering Physics II	5	PHYS 221 Engineering Physics II*	5

\* JCCC course has a prerequisite or corequisite.

**It is the STUDENT'S RESPONSIBILITY to check for updates to all transfer information. This transfer guide is provided as a service and is updated as needed. Degree requirements at the four-year colleges are subject to change by those institutions. To ensure you have the most accurate up to date information about the program, it is imperative you meet with an advisor at the transfer institution.**