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# Matriculation Guide Into Biological Systems Engineering from Johnson County Community College

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Engineering is a profession in which knowledge of mathematics and natural science is applied to develop ways to utilize the materials and forces of nature for the benefit of mankind. The curricula for the KSU College of Engineering are designed to meet the Accreditation Board of Engineering and Technology (ABET) degree program criteria. The overall curriculum provides an integrated educational experience that is practiced orientated while firmly rooted in fundamentals, learning-based, and integrative and holistic. Coursework in the following areas are included:

- Communications
- Engineering Sciences
- Humanities and Social Sciences
- Physical Sciences and Mathematics
- Discipline specific courses and technical electives

### General Information Including Grade Requirements

Approximately 30% of the KSU/Engineering graduating seniors are transfer students, many earning credits from several two and four year schools. However, students should be aware that only one half of the total B.S. degree credits may be earned at a two year school, at least 30 credit hours must be KSU credit hours, and 20 of the last 30 must be KSU credit hours. Only courses with a grade of A, B, or C will be applicable towards engineering degree requirements.

### Admission

For admission into the College of Engineering, a transfer student with 12 or more transfer hours must have a 2.75 cumulative GPA or higher. Given extenuating circumstances, exceptions to this policy may be granted with the recommendation of the pre-engineering advisor at the transfer institution. If students with less than a 2.75 GPA are allowed an exception, they will be admitted on a conditional basis into General Engineering (ENUN). The advisor should send a letter of recommendation with the student application and fee to the Office of Admissions with a copy of the letter to the College of Engineering. Students are strongly encouraged to retake their mathematics and science courses until they have earned a 2.75 GPA before applying to K-State.

To apply for Admission to Kansas State University complete an application from the Admissions Office or online at [www.ksu.edu/admit/application.html](http://www.ksu.edu/admit/application.html) and have complete official transcripts from all previous college sent directly to the Office of Admissions, Kansas State University, 119 Anderson Hall, Manhattan, KS 66506-0102.

### Kansas State University General Education Requirements

The University General Education (UGE) requirements are <u>defined using only K-State courses</u> , and students must complete a minimum number of K-State UGE credit hours based on the total number of completed transfer and advanced placement credit hours (AP, IB, CLEP, etc.) accepted by K-State.	<u>Number of Completed Transfer or Advanced Credit Accepted by K-State</u>	<u>Minimum University General Education Credit Hours to be Taken at K-State</u>
	0-7	18*
	8-29	12*
	30-44	9*
	45 or more	6*

### Pre-engineering Program for Students Matriculating from Johnson County Community College

#### Biological Systems Engineering at KSU

(128 credit hours for B.S. degree)

##### First Semester

MATH 220	Analytical Geometry/Calculus I	4
CHM 210	Chemistry I/Lab	4
ENGL 100	Expository Writing I**	3
ECON 110	Principles of Macroeconomics	3

##### Second Semester

MATH 221	Analytical Geometry/Calculus II	4
CHM 230	Chemistry II	4
BIOL 198	Prin. of Biol.	4
SPCH 105	Public Speaking IA	2

##### Third Semester

MATH 222	Analytical Geometry/Calculus III	4
PHYS 213	Engineering Physics I	5
CHM 350	Gen. Org. Chem. I	

#### JCCC Courses

##### First Semester

		<u>Credits Applied</u>
MATH 241	Calculus I	4 of 5
CHEM 124&125	Gen. Chem I Lect. & Lab.	4 of 5
ENGL 121	Composition I	3
ECON 230	Economics I	3

##### Second Semester

MATH 242	Calculus II	4 of 5
CHEM 131&132	Gen Chem II Lect & Lab	4 of 5
BIOL 122 & 123	Prin. of Biol. & Lab. <u>or</u>	
BIOL 135	Prin. Cell/Molecular Biol.	4
SPD 121	Public Speaking	2 of 3

##### Third Semester

MATH 243	Calculus III	4 of 5
PHYS 220	Engg. Physics I	5
CHEM 140	Prin of Organic Chem	3

(Continued)

## Pre-engineering Program for Students Matriculating from Johnson County Community College (cont')

### **Biological Systems Engineering at KSU**

#### Fourth Semester

MATH 240	Elementary Differential Equations	4
PHYS 214	Engineering Physics II	5
	Biol. Elective	3
CE 333	Statics	3
ME512	Dynamics	3

### **JCCC Courses**

#### Fourth Semester

MATH 244	Differential Equations	3
PHYS 221	Engg. Physic II	5
	Biol. Elective	3
ENGR 251	Statics	3
ENGR 254	Dynamics	3

#### Credits Applied

\* Six credit hours of the 9 undesignated humanities & social sciences credits required for the BAE degree must be at or above the 300 level, from the College of Engineering humanities and social sciences UGE courses (must be completed at KSU).

\*\* A grade of A or B in ENGL 100 or a grade C or higher in both ENGL 100 and ENGL 200 is the prerequisite for the junior level course ENGL 415, Written Communication for Engineers, which is required for all degrees. However only one course will apply toward degree requirements.

### **Humanities and Social Sciences \***

- ANTH - 125, 130, 134, 140, 210 (any cultural anthropology including archaeology)
- ARCH - 240 and 241 ( any course in history or appreciation of architecture)
- ART - Any course
- ECON - 230, 231 (macroeconomics, microeconomics, and any economics course with these as prerequisites)
- ENGL - 130, 230, 231, 232, 235, 241, 243, 250, 256 (any course in literature)
- GEOS - 145
- HIST - Any course
- HUM - Any course
- JOUR - 120 (mass communication)
- (Modern) Foreign Language - any course with FL prefix except English and student's native language
- MUS - 121, 123, 125, 141, 142, 143, 144 (any course in theory, history, or appreciation of music)
- PHIL - Any course except 124, and 161 (cannot use logic or symbolic logic courses)
- POLS - Any course
- PSYC - 130, 205, 215, 218, 220, 225, 250
- SOC - 122, 125, 131, 146, 152, 160, 165