University of Kentucky

Pathway for
Kentucky State University
Transfers : 2023-24

Aerospace Engineering

College of Engineering

Freshman Year

First Semester

	Hours
§ ▽	
Δ	3
	4
	4
..	.

Second Semester

	Hours
§ ▽	
. ..	. 4
Δ	3
. .	4
	3

Sophomore Year

First Semester

	Hours
	4
.	. 4
	.
	3
	3
	3

Second Semester

	3
	3
..	.. 3
	3
	3

or

or

3

Junior Year

First Semester

Hours
3
3
3
3
3

Second Semester

3
3
3
3
3

Senior Year

First Semester

Hours
3
3
3
3
3

Second Semester

3
3
3
3
3

**Courses required for Engineering Standing. A cumulative UK GPA of at least 2.5 and successful completion of all pre-major courses. Successful completion of the following courses with at least a 2.5 GPA: CHE 105, CIS 111/WRD 111, EGR 101, EGR 102, EGR 103 (or EGR 215 in lieu of EGR 101 and EGR 103), EM 221, MA 113, MA 114, MA 213, PHY 231, PHY 241, PHY 232, and PHY 242 and a C or better in each course. If a course is repeated, the best grade will be used for calculation of GPA in the above listed courses.*

Δ Students taking ENG 101 (ENG 101) and ENG 102 (ENG 102) should also complete COM 181 (SPE 200), COM 252 (SPE 103), COM 281, or COM 287 (SPE 310).

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▽ Students must complete both EGR 101 and EGR 103 to fulfill the UK Core Arts and Creativity requirement. Transfer students may satisfy the UK Core Arts and Creativity requirement by taking EGR 215.

$ Online courses do not transfer. Chemistry labs must be in person.

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Aerospace Engineering • 2

*Technical electives can be chosen from the following list. At least three credit hours must come from either AER/ME 501 OR AER/ME 590.
AER 380 Topics in Aerospace Engineering (Variable Topics)
AER/ME 530 Gas Dynamics
AER/ME 531 Fluid Dynamics I
AER/ME 532 Advanced Strength of Materials
AER 545 Aircraft Control and Simulation
AER/ME 548 Aerodynamics of Turbomachinery
AER/ME 563 Basic Combustion Phenomena
AER/ME 565 Scale Modeling in Engineering
AER/ME 590 Applied CFD and Numerical Heat Transfer
AER/ME 516 Systems Engineering
AER 599 Topics in Aerospace Engineering (Subtitle required)
AER 395 Independent Work in Aerospace Engineering
AER/ME 501 Mechanical Design with Finite Element Methods
AER/ME 506 Mechanics of Composite Materials
AER/ME 510 Vibro-Acoustic Design in Mechanical Systems
AER/ME 513 Mechanical Vibrations
AER/ME 514 Computational Techniques in Mechanical System Analysis

University of Kentucky

Kentucky State University
3-2024

Biomedical Engineering

College of Engineering

Freshman Year

First Semester

	Hours
MAT 131 or 201	
... PHY 211	
... PHY 211	
§▽	
COS 108	

Second Semester

	Hours
.. MAT 132	
.. ... CHE 101	
§*▽	
.. BIO 111	

Sophomore Year

First Semester

	Hours
.... MAT 231	
... PHY 212	
... PHY 212	
.....	

Second Semester

... MAT 232	
.. .... CHE 102	

Junior Year

First Semester

	Hours
	3
PRD/	
.....	

Second Semester

	.....

Senior Year

First Semester

	Hours
206 Elementary Physiology.....	3
PGY 207 Case Studies in Physiology.....	1

Second Semester

Courses are required for Engineering Standing. A cumulative UK GPA of at least 2.5 and successful completion of the following courses with at least a 2.5 GPA: BIO 148, BIO 152, BME 201, CHE 105, CIS 110 / WRD 110, CIS 111 / WRD 111, EGR 101, EGR 102, EGR 103, MA 113, MA 114, MA 213, PHY 231, PHY 241, PHY 232 and PHY 242. If the course is repeated, the best grade will be used for calculation of GPA in the above listed courses.

Δ *Students taking ENG 101 (ENG 101) and ENG 102 (ENG 102) should also complete COM 181 (SPE 200), COM 252 (SPE 103 or COM 103), COM 281, or COM 287 (SPE 310).*

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▽ *Students must complete both EGR 101 and EGR 103 to fulfill the UK Core Arts and Creativity requirement. Transfer students may satisfy the UK Core Arts and Creativity requirement by taking EGR 215.*

∞ *Graduation Composition and Communication Requirement (GCCR) course.*

[1] Guided Engineering Elective options: CME 200, CME 320, EE 211 (PHY 305 or 350), EE 305, EM 221 (PHY 311), EM 302, EM 313, ME 340

[2] Basic BME Elective options: BME 440, BME 455, BME 464, BME 465, BME 470, BME 472, BME 473, BME 476, BME 477, BME 488, BME 491

[3] Advanced BME Elective options: BME 532, BME 540, BME 571, BME 573, BME 395

[4] $ Online courses do not transfer. Chemistry labs must be in person.

University of Kentucky

Kentucky State University
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Biosystems Engineering

College of Engineering

Freshman Year

First Semester	Hours
EGR 101 Engineering Exploration I § †	1
EGR 102 Fundamentals of Engineering Computing	2
CHE 105 General College Chemistry I	4
CIS/WRD 110 Composition and Communication I	3
MA 113 Calculus I	4

Second Semester	
EGR 103 Engineering Exploration II § †	2
MA 114 Calculus II	4
CIS/WRD 111 Composition and Communication II	3
PHY 231 General University Physics	4
PHY 241 General University Physics Laboratory	1
UK Core	3

Sophomore Year

First Semester	Hours
BAE 200 Principles of Biosystems Engineering	3
BIO 148 Introductory Biology I	3
MA 213 Calculus III	4
PHY 232 General University Physics	4
PHY 242 General University Physics Laboratory	1
CE 106 Computer Graphics and Communication	3

Second Semester	
BAE 202 Statistical Inferences for Biosystems Engineering	3
MA 214 Calculus IV	3
ME 220 Engineering Thermodynamics I	3
EM 221 Statics	3
CHE 107 General College Chemistry II	3

Junior Year

First Semester	Hours
BAE 301 Economic Analysis for Biosystems	2
ME 330 Fluid Mechanics	3
EE 305 Electrical Circuits and Electronics	3
EM 313 Dynamics	3
BIO 152 Principles of Biology II	3
WRD 204 Technical Writing	3

Second Semester	
BAE 305 DC Circuits and Microelectronics	3
EM 302 Mechanics of Deformable Solids	3
BAE 310 Heat and Mass Transfer in Biosystems Engineering	3
Biosystems Core Elective *	3
UK Core	3
UK Core	3

Senior Year

First Semester	Hours
BAE 402 Biosystems Engineering Design I	2
BAE 400 Senior Seminar	1
Biosystems Core* or Technical Elective**	3
Biosystems Core* or Technical Elective**	3
Biosystems Core* or Technical Elective**	3
Biological Science Elective	3

Second Semester	
BAE 403 Biosystems Engineering Design II	2
BAE 502 Modeling of Biological Systems	3
Biosystems Core* or Technical Elective **	3
Biosystems Core * or Technical Elective **	3
UK Core	3

**Courses are required for Engineering Standing. A cumulative UK GPA of at least 2.5 and successful completion of all pre-major courses. Successful completion of the following courses with at least a 2.5 GPA: CHE 105, CIS 110/WRD 110, MA 113, MA 114, MA 213, and PHY 231. Completion of BAE 200 with a grade of C or better. If a course is repeated, the best grade will be used for calculation of GPA in the above listed courses.*

Students taking ENG 101 (ENG 101) and ENG 102 (ENG 102) should also complete COM 181 (SPE 200), COM 252 (SPE 103), COM 281, or COM 287 (SPE 310).

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† *Students must complete both EGR 101 and EGR 103 to fulfill the UK Core Arts and Creativity requirement. Transfer students may satisfy the UK Core Arts and Creativity requirement by taking EGR 215.*

***A minimum of 9 hours are required from the biosystems engineering core courses: BAE 417 Design of Machine Systems, BAE 427 Structures and Environment Engineering, BAE 437 Land and Water Resources Engineering, and BAE 447 Bioprocess Engineering*

****A minimum of 9 hours are to be taken in addition to the 9 core hours selected by the student. The technical electives allow the student an opportunity to concentrate or gain depth in one or more of the various specialty areas of biosystems engineering. The technical electives must be selected from the courses listed below and approved by the student's academic advisor. Other courses may be considered, each on its individual*

Approved technical electives: *ABT 360, 495; ASC 325, 364; BAE 435G, 438G, 450, 503, 505, 506, 514, 515, 516, 532, 535, 536, 537, 538, 541, 542, 543, 545, 547, 549, 580, 581, 583, 599; BCH 401G (CHE 315); BIO 302, 303, 304 (BIO 307), 315 (BIO 408), 350, 395; BME 301, 395, 472, 481G, 485, 488, 501, 530, 540, 579, 580, 599; CE 211, 303, 351, 451, 461G, 471G, 525, 551; CHE 230 (CHE 301), 236; CME 599; EE 402G; EES 530, 585; EGR 540, 542, 546, 599; FSC 434G, 530, 536, 538; GEO 309 (AQU 480), 451G; ME 321, 344, 440, 501, 503, 513, 532; NRE 556; PGY 412G.*

∞ *Graduation Composition and Communication Requirement (GCCR) course.*

$ *Online courses do not transfer. Chemistry labs must be in person.*

University of Kentucky

Kentucky State University
3-2024

Chemical Engineering

College of Engineering

Freshman Year

First Semester **Hours**

.....3
.....4
§ † .....
.....
.....4
$.....

Second Semester

.....3
.....4
§ † .....
.....4
.....3

Sophomore Year

First Semester **Hours**

.....3
.....4
.....3
$.....
.....3
.....3

Second Semester

.....3
.....3
.....3
.....4
.....3

Junior Year

First Semester **Hours**

.....3
.....3
.....3
$.....
.....3
.....3

Second Semester

.....
.....3
.....4
.....
.....3
.....3

Senior Year

First Semester **Hours**

.....
.....3
.....3
.....
.....3
.....3
.....3

Second Semester

.....
.....3
.....3
.....3
.....3
.....3

**Courses are required for Engineering Standing. A cumulative UK GPA of at least 2.5 and successful completion of all pre-major courses. Successful completion of the following courses with at least a 2.5 GPA: CHE 105, CHE 107, CHE 111, CHE 113, CIS 110/WRD 110, MA 113, MA 114, MA 213, and PHY 231. Completion of CME 200 with a grade of C or better. If a course is repeated, the best grade will be used for calculation of GPA in the above listed courses.*

Students taking ENG 101 (ENG 101) and ENG 102 (ENG 102) should also complete COM 181 (SPE 200), COM 252 (SPE 103), COM 281, or COM 287 (SPE 310).

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† Students must complete both EGR 101 and EGR 103 to fulfill the UK Core Arts and Creativity requirement. Transfer students may satisfy the UK Core Arts and Creativity requirement by taking EGR 215.

∞ Graduation Composition and Communication Requirement (GCCR) course.

[1] Engineering/Science Elective Structure. Students must select four courses as follows:

1. *Chemical Engineering elective [CME 395***, 404G, 505, 515, 523, 542, 552, 554, 556, 570, 573, 580, 599)*
2. *Science/math elective (totaling three or more credit hours) that is not a more elementary version of a required course. [Students may combine multiple qualifying courses that total 3credits (e.g. pre-medical students may wish to combine PHY 241 (PHY 211), 242 (PHY212) and CHE 233 (CHE 302 & 320)]*
   a. *Math [MA 321 (MAT 315), 322 (MAT 307), 416G, 432G, 433G (MAT 333), 471G (MAT 403), 481G]*
   b. *Chemistry [CHE 226 (CHE 303), 250, 510 and above]*
   c. *Biology [BIO 148 (BIO 111) and above]*
   d. *Physics [PHY 241 (PHY 211) and above]*
   e. *Other courses by approval of Director of Undergraduate Studies*
3. *Engineering elective (level 300 and above) that does not significantly duplicate content in a core chemical engineering course (e.g. ME 330) OR a CME Elective (CME 395 & above).*
4. *Chemical engineering elective (CME 395 and above) OR one engineering elective (level 300 and above) OR one science/math elective as described above.*

****CME 395 (3 credits) may be used to satisfy only one elective requirement*

$ Online courses do not transfer. Chemistry labs must be in person.

University of Kentucky

Kentucky State University
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Civil Engineering

College of Engineering

Freshman Year

First Semester	Hours
§ †	
	3
	4
..	4

Second Semester	
§ †	
	3
	4
	4
	3

Sophomore Year

First Semester	Hours
	4
..	3
	3
	4
	3

Second Semester	
	3
	3
	4
	3

Junior Year

First Semester	Hours
	3
	4
	3
	4
	3

Second Semester	
	3
	3
	3
	3
	3

Senior Year

First Semester	Hours
	4
	4
	3
	3
	3

Second Semester	
	3
	3
	3
	3
	3

**Courses are required for Engineering Standing. A cumulative UK GPA of at least 2.5 and successful completion of all pre-major courses. Successful completion of the following courses with at least a 2.5 GPA: CE 106, CE 211, CHE 105, CHE 107, CIS 110/WRD 110, EGR 103, EM 221, MA 113, MA 114, MA 213, PHY 231, and PHY 241 and a C or better in each course. If a course is repeated, the best grade will be used for calculation of GPA in the above listed courses.*

Δ Students taking ENG 101 (ENG 101) and ENG 102 (ENG 102) should also complete COM 181 (SPE 200), COM 252 (SPE 103), COM 281, or COM 287 (SPE 310).

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† Students must complete both EGR 101 and EGR 103 to fulfill the UK Core Arts and Creativity requirement. Transfer students may satisfy the UK Core Arts and Creativity requirement by taking EGR 215.

∞ Graduation Composition and Communication Requirement (GCCR) course.

[1] STA 296 or STA 381.

[2] (PHY 320)

[3] Students are required to select two design electives from different areas. Choose from: CE 508, CE 531 or CE 533, CE 534, CE 549, CE 551 or CE 599, CE 579, CE 589. Design elective courses are typically taught once a year.

[4] Technical Electives are to be chosen from any of the courses at the 300-level or above that carry a CE prefix and in which a student is qualified to enroll, exclusive of required courses. Engineering elective courses are typically taught once a year.

[5] Math/Science/Technical Elective Options: MA 321 (MAT 315), MA 322 (MAT 307), CHE 230 (CHE 301), CHE 236, EE 305, EES 550, EES 585, MNG 551, or the other half of the Engineering Science Elective in (2), or Technical Elective as defined in (4).

$ Online courses do not transfer. Chemistry labs must be in person.

University of Kentucky

Kentucky State University
3-2024

Computer Engineering

College of Engineering

Freshman Year

First Semester

	Hours
EGR 101 Engineering Exploration I § †	1
EGR 102 Fundamentals of Engineering Computing	2
MA 113 Calculus I	4
CHE 105 General College Chemistry I	4
	3

Second Semester

EGR 103 Engineering Exploration II § †	2
MA 114 Calculus II	4
	4
	1
	3
	4

Sophomore Year

First Semester

	Hours
MA 213 Calculus III	4
	4
	1
	3
CPE 200 Computer Engineering Sophomore Seminar	1
	4

Second Semester

MA 214 Calculus IV	3
EE 211 Circuits I	4
CPE 287 Introduction to Embedded Systems	4
CS 270 Systems Programming	3
	4

Junior Year

First Semester

	Hours
EE 223 AC Circuits	4
	3
CPE 380 Computer Organization	3
	3
	3

Second Semester

EE 421G Signals and Systems	3
EE 461G Introduction to Electronics	3
	3
CPE 480 Advanced Computer Architecture	3
	3

Senior Year

First Semester

	Hours
	3
CPE Elective†††	3
CPE Elective†††	3
	3
	3

Second Semester

	3
Hardware Elective €	3
Software Elective ~	3
CPE Elective†††	3
	3

**Courses are required for Engineering Standing. A cumulative UK GPA of at least 2.5 and successful completion of all pre-major courses. Successful completion of the following courses with at least a 2.5 GPA: CHE 105, CIS 110/WRD 110, CS 215, CS 216, EE 282/CPE 282, and PHY 231. If a course is repeated, the best grade will be used for calculation of GPA in the above listed courses.*

Students taking ENG 101 (ENG 101) and ENG 102 (ENG 102) should also complete COM 181 (SPE 200), COM 252 (SPE 103), COM 281, or COM 287 (SPE 310).

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† Students must complete both EGR 101 and EGR 103 to fulfill the UK Core Arts and Creativity requirement. Transfer students may satisfy the UK Core Arts and Creativity requirement by taking EGR 215.

∞ Graduation Composition and Communication Requirement (GCCR) course.

†† Technical elective may be selected from upper-division engineering, mathematics, statistics, computer science, physics, or other technically-related fields excluding more elementary version of required courses. To be selected in consultation with academic advisor. If a student wishes to use CS 499 instead of CPE 490 and CPE 491 to fulfill the GCCR and senior design requirements, the student must receive approval from the DUS to select an additional technical elective that supports the proposed CS 499 project.

††† 400-level CS courses and 500-level CPE and EE courses with emphasis in the computer engineering area. To be selected in consultation with academic advisor.

€ *Hardware electives are senior level courses in the CPE or EE disciplines and shall be selected from the following list and/or selected in consultation with academic advisor:*

CPE 586 Communication and Switching Networks

~ Software electives are senior level courses in the CPE or CS disciplines and shall be selected from the following list and/or selected in consultation with academic advisor:
CS 441G Compilers for Algorithmic Languages *(fall only)*

CS 570 Modern Operating Systems

$ Online courses do not transfer. Chemistry labs must be in person.

University of Kentucky

Kentucky State University
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Computer Science

College of Engineering

Freshman Year

First Semester	Hours
EGR 101 Engineering Exploration I § †	1
EGR 102 Fundamentals of Engineering Computing	2
CHE 105 General College Chemistry I	
or	
PHY 231 General University Physics º	4
CIS/WRD 110 Composition and Communication I	3
MA 113 Calculus I	4

Second Semester	
EGR 103 Engineering Exploration II †	2
CIS/WRD 111 Composition and Communication II	3
MA 114 Calculus II	4
PHY 231 General University Physics	
or	
CHE 105 General College Chemistry I º	4
PHY 241 General University Physics Laboratory ‡	1
CS 215 Introduction to Program Design, Abstraction, and Problem Solving Techniques	4

Sophomore Year

First Semester	Hours
CS 216 Introduction to Software Engineering Techniques	3
CS 275 Discrete Mathematics	4
EE 280 Design of Logic Circuits	3
MA 213 Calculus III	4
UK Core – Social Sciences	3

Second Semester	
CS 270 Systems Programming	3
CS 315 Algorithm Design and Analysis	3
Technical Elective [T]	3
UK Core – Humanities	3
Science Elective [S]	3

Junior Year

First Semester	Hours
CS/MA 321 Introduction to Numerical Methods	
or	
MA 322 Matrix Algebra and Its Applications	3
CS 371 Introduction to Computer Networking	3
Computer Science Elective [C]	3
Computer Science Elective [C]	3
STA 381 Engineering Statistics – A Conceptual Approach	3

Second Semester	
CS 375 Logic and Theory of Computing	3
Computer Science Elective [C]	3
Computer Science Elective [C]	3
Technical Elective [T]	3
UK Core – Citizenship - US	3
Natural Science Elective [N]	3

Senior Year

First Semester	Hours
CS 498 Software Engineering for Senior Project	3
Computer Science Elective [C]	3
Technical Elective [T]	3
UK Core – Global Dynamics	3
Free Elective [E]	4

Second Semester	
CS 499 Senior Design Project	3
Computer Science Elective [C]	3
Technical Elective [T]	3
Free Elective [E]	3
Free Elective [E]	3

Courses required for Engineering Standing. A cumulative UK GPA of at least 2.5 and successful completion of all pre-major courses. Successful completion of the following courses with at least a 2.5 GPA: CS 215, CS 216, CS 275, and MA 114. If a course is repeated, the best grade will be used for calculation of GPA in the above listed courses.

Students taking ENG 101 (ENG 101) and ENG 102 (ENG 102) should also complete COM 181 (SPE 200), COM 252 (SPE 103), COM 281, or COM 287 (SPE 310).

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† *Students must complete both EGR 101 and EGR 103 to fulfill the UK Core Arts and Creativity requirement. Transfer students may satisfy the UK Core Arts and Creativity requirement by taking EGR 215.*

º *Based on advisor consult.*

‡ *Only if enrolled in PHY 231 (PHY 211).*

[T] Any additional 300-level or higher classes selected from computer science, electrical engineering, mathematics [including MA 214 (MAT 232): Calculus IV and excluding MA 308: Problem Solving-Middle School and MA 310: Mathematics Problem Solving-Teachers], College of Business and Economics, or by the Department of Computer Science's approval.

[S] Science Elective (3 credit hours)- must be selected from UK core natural science list, UK core social science list, or approved by the Department of Computer Science. Natural science course cannot be an elementary version of a required course.

[C] Computer Science Elective (18 credit hours) – include 300-level and above computer science courses with three classes to be selected from: CS 316 (CIT 360), CS 335, CS 378, CS 405G, CS 441G, CS 450G (COS 350), CS 460G and CS 463G (COS 460).

[N] Natural Science (3 credit hours) – Any natural science course to be selected from the UK core natural science list or approved by the Department of Computer Science. Natural science course cannot be an elementary version of a required course.

[E] Free Elective (10 credit hours) – can be any course that earns college credit and is not a more elementary version of a required course. 6 credits are not to be selected from

∞ *Graduation Composition and Communication Requirement (GCCR) course.*

$ Online courses do not transfer. Chemistry labs must be in person.

Electrical Engineering

College of Engineering

Freshman Year

First Semester	Hours
EGR 101 Engineering Exploration I § †	1
	...2
	...4
	...1
	3
	...4

Second Semester	
EGR 103 Engineering Exploration II § †	2
	3
	...4
	...4
Abstraction, and Problem Solving	4

Sophomore Year

First Semester	Hours
	...4
	...4
	...1
	...4
	4

Second Semester	
	...3
	4
	4
	3
	3

Junior Year

First Semester	Hours
	3
EE 421G Signals and Systems	3
	2
EE 461G Introduction to Electronics	3
MA 320 Introductory Probability (MAT 321)	
or	
	3
	3

Second Semester	
	4
	2
	3
	3
	3

Senior Year

First Semester	Hours
	3
EE Technical Elective*	3
EE Technical Elective*	3
	3
	3

Second Semester	
	3
EE Technical Elective*	3
EE Technical Elective*	3
	3
	3

Courses are required for Engineering Standing. A cumulative UK GPA of at least 2.5 and successful completion of all pre-major courses. Successful completion of the following courses with at least a 2.5 GPA: CIS 110/WRD 110, CHE 105, CS 215, EE 211, EE 282/CPE 282, and PHY 231. If a course is repeated, the best grade will be used for calculation of GPA in the above listed courses.

Students taking ENG 101 (ENG 101) and ENG 102 (ENG 102) should also complete COM 181 (SPE 200), COM 252 (SPE 103), COM 281, or COM 287 (SPE 310).

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† *Students must complete both EGR 101 and EGR 103 to fulfill the UK Core Arts and Creativity requirement. Transfer students may satisfy the UK Core Arts and Creativity requirement by taking EGR 215.*

Math/Statistics Elective: *Any upper-division (300-level or higher) math or statistics course excluding MA 308 and MA 310 (3 credit hours total).*

Engineering/Science Electives: *Any engineering, physics, computer science, or math course at the 200-level or higher, other than an electrical engineering course and excluding MA 308, MA 310, and more elementary versions of required courses (6 credit hours total). Cooperative education credit may not be used to satisfy this requirement.*

Technical elective *may be selected from upper-division (300-level or higher) engineering, mathematics, statistics, computer science, physics, or other technically-related fields excluding MA 308, MA 310, EE 305, and more elementary versions of required courses, to be selected in consultation with the academic advisor (6 credit hours total).*

Electrical Engineering Laboratory Elective: *EE 416G, EE 422G, EE 462G (4 credit hours total).*

Graduation Composition and Communication Requirement (GCCR) course.

$ Online courses do not transfer. Chemistry labs must be in person.

– CONTINUED –

University of Kentucky

Kentucky State University
3-2024

Materials Engineering

College of Engineering

Freshman Year

First Semester	Hours
EGR 101 Engineering Exploration I § †	1
EGR 102 Fundamentals of Engineering Computing	2
CHE 105 General College Chemistry I	4
CHE 111 General Chemistry I Laboratory $	1
CIS/WRD 110 Composition and Communication I	3
MA 113 Calculus I	4
Second Semester	
EGR 103 Engineering Exploration II § †	2
CIS/WRD 111 Composition and Communication II	3
MA 114 Calculus II	4
PHY 231 General University Physics	4
PHY 241 General University Physics Laboratory	1
UK Core – Social Sciences	3

Sophomore Year

First Semester	Hours
MSE 201 Materials Science	3
MSE 202 Materials Science Laboratory	1
MA 213 Calculus III	4
CHE 107 General College Chemistry II	3
CHE 113 General Chemistry II Laboratory $	2
EM 221 Statics	3
Second Semester	
MSE 301 Materials Science II	3
MSE 351 Materials Thermodynamics	3
MA 214 Calculus IV	3
PHY 232 General University Physics	4
CHE 236 Survey of Organic Chemistry	3

Junior Year

First Semester	Hours
MSE 401G Metal and Alloys	3
MSE 404G Polymeric Materials	3
CME 200 Process Principles	3
EM 302 Mechanics of Deformable Solids	3
STA 381 Engineering Statistics – A Conceptual Approach	3
UK Core – Humanities	3
Second Semester	
MSE 402G Electronic Materials and Processing	3
MSE 403G Ceramic Engineering and Processing	3
MSE 407 Materials Laboratory I	3
MSE 535 Mechanical Properties of Materials	3
PHY 361 Principles of Modern Physics	3

Senior Year

First Semester	Hours
MSE 408 Materials Laboratory II	3
MSE 436 Material Failure Analysis	3
MSE 470 Application of Materials Engineering to Design Problems	1
MSE 585 Materials Characterization Techniques	3
EE 305 Electrical Circuits and Electronics	3
	3
Second Semester	
MSE 480 Materials Design	3
MSE 538 Metals Processing	3
Technical Elective	3
UK Core – Citizenship - USA	3
UK Core – Global Dynamics	3

Courses are required for Engineering Standing. A cumulative UK GPA of at least 2.5 and successful completion of all pre-major courses. Successful completion of the following courses with at least a 2.5 GPA: CHE 105, CHE 107, CHE 111, CHE 113, CIS 110/WRD 110, MA 113, MA 114, MA 213, PHY 231, and PHY 241. Completion of MSE 201 with a grade of C or better. If a course is repeated, the best grade will be used for calculation of GPA in the above listed courses.

Students taking ENG 101 (ENG 101) and ENG 102 (ENG 102) should also complete COM 181 (SPE 200), COM 252 (SPE 103), COM 281, or COM 287 (SPE 310).

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† *Students must complete both EGR 101 and EGR 103 to fulfill the UK Core Arts and Creativity requirement. Transfer students may satisfy the UK Core Arts and Creativity requirement by taking EGR 215.*

[1] Technical Electives - total of 6 credit hours and must be chosen. Technical electives are to be selected from a technical discipline, with approval from the Director of Undergraduate Studies. At least 3 credit hours must come from a course with a MSE prefix. MSE 395 (research) may count for one elective, but not both. Recommended technical electives include but are not limited to: MSE 395, 506, 531, 552, 554, 556, 569, 599; BME 488; CHE 580; CME 542, 599; MA 322, 422, 432G; ME/MFS 503

∞ *Graduation Composition and Communication Requirement (GCCR) course.*

$ *Online courses do not transfer. Chemistry labs must be in person.*

University of Kentucky

Kentucky State University
3-2024

Mechanical Engineering

College of Engineering

Freshman Year

First Semester	Hours
EGR 101 Engineering Exploration I § †	1
	...2
CIS/WRD 110 Composition and Communication I	3
MA 113 Calculus I	...4
	...4
	...1

Second Semester	
EGR 103 Engineering Exploration II § †	2
MA 114 Calculus II	...4
CIS/WRD 111 Composition and Communication II	3
	...4
	3

Sophomore Year

First Semester	Hours
MA 213 Calculus III	...4
	...4
	...1
EM 221 Statics	...3
ME 205 Computer Aided Engineering Graphics	3
Guided Elective **or**	3

Second Semester	
	...3
	3
MA 214 Calculus IV	...3
	3
Guided Elective **or**	
Guided Elective **or**	
Recommended:	
An Introduction to Statistical Reasoning **or**	3

Junior Year

First Semester	Hours
	3
EE 305 Electrical Circuits and Electronics	3
ME 330 Fluid Mechanics	3
	3
	3

Second Semester	
ME 310 Engineering Experimentation I	3
	3
	3
ME 344 Mechanical Design	3
	3

Senior Year

First Semester	Hours
ME 411 ME Capstone Design I	3
ME 311 Engineering Experimentation II	3
	3
ME 501 Mechanical Design with Finite Element Methods **or**	3
Technical Elective††	3

Second Semester	
ME 412 ME Capstone Design II	3
Technical Elective††	3
Technical Elective††	3
	3
	3

Courses required for Engineering Standing. A cumulative UK GPA of at least 2.5 and successful completion of all pre-major courses. Successful completion of the following courses with at least a 2.5 GPA: CHE 105, CIS 111/WRD 111, EGR 101, EGR 102, EGR 103 (or EGR 215 in lieu of EGR 101 and EGR 103), EM 221, MA 113, MA 114, MA 213, PHY 231, PHY 241, PHY 232, and PHY 242 and a C or better in each course. If a course is repeated, the best grade will be used for calculation of GPA in the above listed courses.

Students taking ENG 101 (ENG 101) and ENG 102 (ENG 102) should also complete COM 181 (SPE 200), COM 252 (SPE 103), COM 281, or COM 287 (SPE 310).

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† *Students must complete both EGR 101 and EGR 103 to fulfill the UK Core Arts and Creativity requirement. Transfer students may satisfy the UK Core Arts and Creativity requirement by taking EGR 215.*

¶ *To be selected from UK Core courses in consultation with the academic advisor.*

***Graduation Composition and Communication Requirement (GCCR) course.*

****Mathematics Elective – choose one course from approved list.*

††Technical Electives – choose 9 hours from approved list.

$ Online courses do not transfer. Chemistry labs must be in person.

Mechanical Engineering • 2

Mathematics Elective	Hours
	...3
MA 321 Introduction to Numerical Methods	...3
MA 322 Matrix Algebra and Its Applications	..3
MA 416G Introduction to Optimization	3
	3
MA 433G Introduction to Complex Variables	...3
	3
	3
Subtotal: Mathematics Elective	**3**

Technical Electives	Hours
ME 380 Topics in Mechanical Engineering (Variable Topics)	3
ME 395 Independent Work in Mechanical Engineering	
	3
ME 417 Sheet Metal Forming	3
	3
ME 501 Mechanical Design with Finite Element Methods	3
	3
	3
	3
	3
	3
	3
	3
ME 513 Mechanical Vibrations	3
	3
	3
	3
	3
ME 527 Applied Mathematics in the Natural Sciences I	3
	3
	3
	3
	3
	3
ME 549 Power Generation	3
	3
	3
ME/MFS/CME/MSE 556 Introduction to Composite Materials	3
ME 560 Engineering Optics	3
	3
ME 565 Scale Modeling in Engineering	3
	3
	3
	3
	3
	3
ME 599 Topics in Mechanical Engineering (Subtitle required)	3
	3

Non-ME Technical Electives	
	3
	3
	3
	3
	3
	3
	3
	3
	3
	3
	3
	3
	3
	3
	3
	3
EGR 542 Electric Power Generation Technologies	3
	3
	3
	3
MFS/MNG 520 Industrial Automation and Control	3
	3
	3
	3
MSE 201 Materials Science	3
MSE/CME 552 Automotive Plastics	3

**A minimum of 6 credit hours (two courses) must have an ME prefix or be cross-listed as an ME course. A maximum of 3 credit hours (one course) may be chosen from technical electives with prefixes other than ME. Exceptions only with the approval of the Director of Undergraduate Studies.*

Mining Engineering

College of Engineering

Freshman Year

First Semester **Hours**

.....4
.....3
§ †.....
.....
.....4

Second Semester

.....3
§ † .....
.....4
.....4

or

$.....
.....3

Sophomore Year

First Semester **Hours**

.....4
.....3
.....4
.....3
.....4

Second Semester

.....3
.....3
.....3
.....3
.....
.....
.....

Junior Year

First Semester **Hours**

.....3
.....
.....3
.....3
.....3
.....3

Second Semester

.....4
.....3
.....3
.....3
.....4

Senior Year

First Semester **Hours**

.....3
.....3
.....3
.....
.....3

Second Semester

.....3
.....3
.....3
.....3
.....3

Courses are required for Engineering Standing. A cumulative UK GPA of at least 2.5 and successful completion of all pre-major courses. Successful completion of the following courses with at least a 2.5 GPA: CIS 110/WRD 110, CHE 105, MA 113, MA 114, MA 213, and PHY 231. If a course is repeated, the best grade will be used for calculation of GPA in the above listed courses.

Students taking ENG 101 (ENG 101) and ENG 102 (ENG 102) should also complete COM 181 (SPE 200), COM 252 (SPE 103), COM 281, or COM 287 (SPE 310).

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† *Students must complete both EGR 101 and EGR 103 to fulfill the UK Core Arts and Creativity requirement. Transfer students may satisfy the UK Core Arts and Creativity requirement by taking EGR 215.*

¶ *Students only required to take one lab. Consult with advisor.*

[1]The Minerals Processing Technical Elective is to be chosen between MNG 575, Coal Preparation Design, and MNG 580, Mineral Processing Plant Design.

∞ *Graduation Composition and Communication Requirement (GCCR) course.*

††*MNG 335 satisfies the Statistical Inferential Reasoning requirement in the UK Core.*

***Courses recommended as technical electives are listed below. These courses must be chosen with the approval of the student's advisor to ensure that the curriculum includes sufficient engineering design content.*

***Technical Electives:** Students are required to select their technical elective from the departmental courses listed below:*

$ Online courses do not transfer. Chemistry labs must be in person.

– CONTINUED –

Mining Engineering Å2

MNG 555 Advanced Geomechanics I
MNG 561 Mine Construction Engineering I
MNG 575 Coal Preparation Design
MNG 580 Mineral Processing Plant Design
MNG 585 Applied Surface Chemistry
MNG 599 Topic in Mining Engineering