

Four-Year Graduation Plan - Courses and Critical Benchmarks

The following is a sample course of study. It is the Student's responsibility to ensure that all program requirements are met. This guide is not a substitute for academic advisement. For more information see the University Catalog at [umkc.edu/catalog](http://umkc.edu/catalog)

*Your path to graduation may vary slightly based on factors such as college credit you earned while in high school, transfer work from other institutions of higher learning and placement in Mathematics. You are responsible for checking prerequisites to any courses. Critical Courses and minimum recommended grades (as noted below) provide feedback regarding major fit and help indicate likelihood of successful completion of chosen academic program and degree.*

First Math	<b>MATH 266: Accelerated Calculus I</b>	Foreign Language Requirement	No	Free Elective Hours	No Free Electives
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Please note:

Completing ENGLISH 110 (English Comp I) or COMM-ST 110 (Speech) or equivalents; SAT verbal 690; ACT English 30 or AP English Language/composite score of 4.2 will waive the **DISC 100 requirement**.

Students must have successfully passed (with a "B" or better) Pre-calculus or a combination of a College Algebra and Trigonometry or have taken four (4) units of high school mathematics including trigonometry in high school to be prepared for major math sequence. **Students who do not place into MATH 266: Accelerated Calculus I may have to complete preparatory math coursework, adding to the total credit hours required for their degree.**

Critical Course or Benchmark	Course Subject, Number, and Title and Academic Plan Benchmarks Bold = UMKC General Education Core Requirement *Prerequisite May Be Required **Co-Requisite Enrollment Required	Min Recom Grade	Credit Hours (CH)	Notes
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Fall Semester Year 1: 18 hours

◆	CHEM 211: General Chemistry I <b>AND</b> CHEM 211L: General Chemistry I Lab	C	5	<b><sup>2</sup>ALEKS Math Placement Exam Required</b>  If DISC 100 waived MEC- ENGR 130 can be done  Focus A may be taken Senior Year.
◆	MATH 266: Accelerated Calculus I <sup>2</sup>	C	4	
◆	<b>**DISC 100: Reasoning and Values</b> (Speech and Writing) <sup>GE</sup> (Co-requisite Anchor I)	C	3	
◆	<b>**Anchor I: Reasoning and Values</b> <sup>GE, 1</sup> (Co-requisite DISC 100) - ANCH 150: Computing, Engineering & Society recommended.	C	3	
	<b>Focus A: Arts &amp; Humanities</b> <sup>GE</sup> <a href="#">Click for options</a>	C	3	
◆	Completion of 18 term credit hours. Must earn minimum 2.000 term and cumulative UM GPA.			

Spring Semester Year 1: 17 hours

◆	MATH 268: Accelerated Calculus II (MATH 266)	C	3	<b>PHYS 240 required for degree</b>
◆	<b>Focus B: Scientific Reasoning and Quantitative Analysis</b> <sup>GE</sup> PHYS 240: Physics for Science & Engineering I (Pre/co-requisite MATH 266)	C	5	
◆	MEC-ENGR 130 Engineering Graphics	C	3	
◆	<b>DISC 200: Culture and Diversity</b> <sup>GE</sup> (Speech and Writing) (DISC 100, Co-requisite Anchor II)	C	3	

# UMKC Major Map: Bachelor of Science in Mechanical Engineering

## First-Time College Students

Catalog Year: 2016 - 2017

◆	<b>**Anchor II: Culture and Diversity</b> <sup>GE, 1</sup> (Anchor I, Co-requisite DISC 200) ANCH 203: The Technology Enterprise recommended.	C	3
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◆	Completion of 17 term and 35 cumulative credit hours toward degree requirements. Must earn minimum 2.000 term and cumulative UM GPA.
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### Summer Semester Year 2: 0 hours if all previous courses completed

				May use summer semester to lighten fall and winter course loads.
◆	Earn minimum 2.000 term GPA Earn minimum 2.000 cumulative UM GPA Complete Anchor I and DISC 100			

### Fall Semester Year 2: 18 hours

◆	MEC-ENGR 270 Engineering Analysis I (MATH 268)	C	4	<b>PHYS 250 required for degree</b>  Complete RooWriter Assessment
◆	CIV-ENGR 275 Engineering Statistics (PHYSICS 240)	C	3	
◆	MEC-ENGR 219 Computer Programming for Engineers (MATH 266)	C	3	
◆	PHYSICS 250 Physics for Science & Engineering II ( <b>Focus Elective</b> ) <sup>GE</sup> (PHYSICS 240, Pre/co-requisite MATH 268)	C	5	
	<b>Focus C - Human Values &amp; Ethical Reasoning</b> AND MO Constitution Requirement - HISTORY 101, HISTORY 102, OR POL-SCI 210	C	3	

◆	Completion of 18 term credit hours. Must earn minimum 2.000 term and cumulative UM GPA. Complete RooWriter Assessment
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### Spring Semester Year 2: 16 hours

◆	MEC-ENGR 272 Engineering Analysis II (MEC-ENGR 270)	C	4
◆	MEC-ENGR 220 Electric Circuits (MEC-ENGR 219, PHYSICS 250, Pre/co-requisite MEC-ENGR 272)	C	3
◆	CIV-ENGR 276 Strength of Materials (CIV-ENGR 275)	C	3
◆	MEC-ENGR 299 Engineering Thermodynamics (MATH 268, PHYSICS 240)	C	3
◆	MEC-ENGR 285 Engineering Dynamics (CIV-ENGR 275)	C	3

◆	Complete 16 term and 69 cumulative credit hours toward degree requirements Must earn a minimum 2.000 term and cumulative UM GPA.
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### Summer Semester Year 3: 0 hours if all previous courses completed

	CIMM 101: Machine Shop Safety (not offered at UMKC, offered at Metropolitan Community College-Kansas City, <a href="#">Click for details</a> )		1
	Two additional Applied Skills Hours if CIV-ENGR 401SV not already completed at UMKC. CIMM 102, CIMM 103, or WELD 100 Offered at Metropolitan Community College <a href="#">Click for details</a>		2
◆			



Complete 3 hours technical electives before start of junior year.

**Fall Semester Year 3: 16 hours**

CIV-ENGR 319 Engineering Computation and Statistics (MEC ENGR 219, MATH 220)	C	3	Complete the <a href="#">RooWriter Writing Assessment</a> .
MEC-ENGR 324 Engineering Materials with lab (CHEM 211/211L, MEC ENGR 299, CIV ENGR 276, Machine Shop Safety)	C	4	
MEC-ENGR 356 Mechanical Component Design (Co-requisites: CIV ENGR 351 <b>and</b> MEC ENGR 324)	C	3	
CIV-ENGR 351 Fluid Mechanics (MEC ENGR 285, MEC ENGR 272 or MATH 345))	C	3	
MEC-ENGR 360 Thermal System Design (MEC ENGR 270 or MATH 250, MEC ENGR 299, Pre/co-requisite CIV ENGR 351)	C	3	



Complete RooWriter Writing Assessment  
Completion of 16 term credit hours. Must earn minimum 2.000 term and cumulative UM GPA.

**Spring Semester Year 3: 17 hours**

MEC-ENGR 306 Computer Aided Engineering (MEC ENGR 272 or MATH 345, MEC ENGR 285)	C	3	<b>Apply for graduation Assessment Test<sup>5</sup></b>
MEC-ENGR 399 Heat and Mass Transfer CIV ENGR 351, MEC ENGR 272 or MATH 345, Pre/co-requisite MEC ENGR 306)	C	3	
MEC-ENGR 352WI, Instrumentation and Measurements Lab (MEC ENGR 299, MEC ENGR 220, CIV ENGR 351)	C	5	
MEC-ENGR 380 Manufacturing Methods (MEC ENGR 324)	C	3	
MEC-ENGR 385 System Dynamics (MEC ENGR 272 or MATH 345, MEC ENGR 285)	C	3	



Completion of 17 term and 97 cumulative credit hours towards degree requirements. Must earn a minimum 2.000 term and cumulative UM GPA.

**Fall Semester Year 4: 15 hours**

<b>Anchor III: Civic and Community Engagement</b> <sup>GE</sup> (Anchor II, Co-requisite DISC 300)	C	3	<b><i>All junior level classes must be completed before any senior level classes can be taken in the degree program.</i></b>
<b>DISC 300: Civic and Community Engagement</b> <sup>GE</sup> (Speech and Writing) (DISC 200, Co-requisite Anchor III)	C	3	
MEC-ENGR 415 Feedback Control Systems (MEC ENGR 385)	C	3	
MEC-ENGR 4XX Technical Elective	C	3	
MEC-ENGR 4XX Technical Elective	C	3	



Completion of 15 term credit hours.

Must earn a minimum 2.000 term and minimum 2.000 cumulative UM GPA.

Spring Semester Year 4: 15 hours

MEC-ENGR 496WI Mechanical Design Synthesis (MEC ENGR 380, MEC ENGR 356 MEC ENGR 492)	C	3	UMKC Senior Exit Survey ME ENGR Dept Sr Exit Degree Completion Survey
MEC-ENGR 4XX Design Elective <sup>4</sup> (MEC-ENGR 440, 451, 468, or 457)	C	3	
MEC-ENGR 4XX Technical Elective	C	3	
MEC-ENGR 4XX Technical Elective	C	3	

Complete 15 term and 127 cumulative credit hours.  
Must earn a minimum term 2.000 term, major core and cumulative UM GPA of 2.000.

Graduation Requirements Summary

Total Hours (120 minimum)	Total Hours at UMKC (30 hours min)	Major GPA	UMKC GPA
133	30	2.000	2.000

Other Information

<sup>GE</sup> All students must take or establish credit for the following General Education Core Requirements: DISC 100, DISC 200, DISC 300, Anchor I, Anchor II, Anchor III, Focus A, Focus B, Focus C, and Focus Elective for a total of 30 credit hours. Go to [www.umkc.edu/core/courses](http://www.umkc.edu/core/courses) for a list of GenEd courses.

<sup>1</sup>The Civil & Mechanical Engineering Department recommends the following course for Anchor I: ANCH 150 Computing, Engineering, & Society and for Anchor II ANCH 203 The Technology Enterprise.

<sup>2</sup>Enrollment restricted. Students must pass the online Math Entrance Test prior to enrolling (<http://cas.umkc.edu/math/>) or show prerequisite requirement has been met. Go to <http://www.umkc.edu/mathplacement/> for more information.

<sup>3</sup>RooWriter Assessment must be taken following the successful completion of DISC 200 and is a requirement in order to graduate (<https://www.umkc.edu/RooWriter/>).

<sup>4</sup>One Engineering Systems Design course required. MEC-ENGR 440 Heating & Air Conditioning, 451 Power Plant Design, 468 Introduction to Nuclear Engineering, or 457 Mechatronic System Design fulfill this requirement.

<sup>5</sup>All UMKC students must take the ETS-PP or MAPP Assessment Test after completing 70 credit hours and before applying for graduation ([www.umkc.edu/testingcenter](http://www.umkc.edu/testingcenter)). Engineering students take the Fundamentals of Engineering exam in lieu of the Major Field Exam (<http://pr.mo.gov/engineerinterns.asp> and [www.ncees.org](http://www.ncees.org))

<sup>6</sup>Three Applied Skills hours are required before start of Junior year in program. All courses must be taken at Metropolitan Community College-Kansas City (mccck.edu) except CIV-ENGR 401SV Surveying, offered at UMKC in the fall semester.

- CIMM 101: Machine Shop Safety - 1 hr (Required by everyone)

Choose two of the following:

- CIMM 102: Basic Mill Operation - 1 hr
- CIMM 103: Basic Lathe Operation - 1 hr
- WELD 100: Introduction to Welding/Cutting Processes - 1 hr
- CIV-ENGR 401SV: Surveying (UMKC, Fall only) - 1 hr

**Non-course requirements**

**Met**

- RooWriter Test
- ETS-PP or Measure of Academic Proficiency and Progress (MAPP)
- UMKC Senior Exit Survey
- ME Engr Dept Sr Exit Degree Completion Surve

Policy

The School reserves the right to make changes in courses and course schedules without notice. Students are expected to

maintain a quality of achievement significantly above minimum UMKC standards for degree work. Individual student progress will be monitored throughout the program. Satisfactory progress is required of all students for retention in the program. Students are expected to maintain academic standards, perform satisfactorily in courses, refrain from academic dishonesty, comply with the established University requirements, and refrain from unethical or unprofessional behavior or behaviors that obstruct the training process or threaten the welfare of the student or others. Other circumstances involving student behavior will be addressed by the faculty on an individual basis.

### Advising Contact Information

Jo Ann Day, Academic Adviser  
816-235-1461  
dayjo@umkc.edu  
<http://sce.umkc.edu/>

**Academic Advisor:** \_\_\_\_\_ **Date** \_\_\_\_\_

**Faculty Advisor:** \_\_\_\_\_ **Date** \_\_\_\_\_

### Career Opportunities

UMKC Career Services Resources: <http://www.career.umkc.edu/>  
O\*Net OnLine: <http://www.onetonline.org/find/>