



## Major Map: BS Mechanical Engineering

Catalog Year: 2013-2014

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 you may go to our website at [www.sce.umkc.edu](http://www.sce.umkc.edu) or the catalog at [www.umkc.edu/catalog](http://www.umkc.edu/catalog)

**Please note this Program of Study is pending final approval of the CME faculty.**

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.

**First Mathematics: Calculus I**

**2<sup>nd</sup> Language Requirement: Not Required**

**Free Elective Hours: None**

Bench Mark/ Critical Course	Course Subject, Number, Title and Academic Plan Benchmarks <b>Bold=UMKC General Education Core Requirement</b> *Prerequisites are Required **Co-Requisite Enrollment Required	Credit Hours	Min. Recommended Grade	Additional Critical Tracking Notes
Completion of English 110 (English Comp I ) or ComSt 110 (Speech) or equivalents; SAT verbal 690; ACT English 30 or AP English Language/composite score of 4.2 will waive the <b>Discourse I requirement</b> .				
◆	Students must have successfully passed (with a "C" 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.			
Fall Semester Year 1: 15 hours				
	CHEM 211: General Chemistry I <b>AND</b> CHEM 211L: General Chemistry I Lab	4 1	C	
◆	MATH 210: Calculus I <sup>2</sup>	4	C	<b>Math Entrance Test Requirement<sup>2</sup></b>
	<b>**Discourse I: DISC 100 - Reasoning and Values<sup>1</sup></b> (Speech and Writing)	3	C	
	<b>**Anchor I: Reasoning and Values<sup>1</sup></b> <b>SCE 101 Computing, Engineering &amp; Society</b>	3	C	
◆	Complete of 15 term credit hours. Earn minimum 2.000 term GPA Earn minimum 2.000 cumulative UM GPA			
Spring Semester Year 1: 18 hours				
◆	MATH 220: Calculus II	4	C	
◆	<b>Focus B: Scientific Reasoning &amp; Quantitation Analysis<sup>1</sup></b> <b>PHYSICS 240: Physics for Science &amp; Engineering I</b>	5	C	<b>PHYS 240 required for degree</b>
	MEC-ENGR 130: Engineering Graphics	3	C	
	<b>**Discourse II: DISC 200 - Culture and Diversity<sup>1</sup></b> (Speech and Writing)	3	C	
	<b>**Anchor II: Culture and Diversity</b> <b>CE 2XX Engineering &amp; Money (New)</b>	3	C	<b>Pending Approval</b>
◆	Complete Discourse I and Anchor I Complete of 18 term and 33 cumulative credit hours toward degree requirements Earn minimum 2.000 term GPA Earn minimum 2.000 cumulative UM GPA			
Summer Semester Year 2: 0 hours				
◆				May use summer semester ensure completion of 30 hours or to lighten fall and winter course loads.
Fall Semester Year 2: 15 hours				
◆	<b>**MEC-ENGR 270: Engineering Analysis I or MATH 250 Calculus III</b>	4	C	
◆	<b>**CIV-ENGR 275: Engineering Statics</b>	3	C	
◆	MEC-ENGR 219: Computer Programming for Engineers	3	C	
◆	<b>Focus Elective - PHYSICS 250: Physics for Science &amp; Engineering II<sup>1</sup></b>	5	C	<b>PHYS 250 required for degree</b>
◆	Complete of 15 term credit hours Earn minimum 2.000 term GPA Earn minimum 2.000 cumulative UM GPA			
Spring Semester Year 2: 16 hours				
	<b>**MEC-ENGR 272: Engineering Analysis II or MATH 345 Ordinary Diff Equations</b>	4	C	
◆	<b>**MEC-ENGR 272: Electric Circuits</b>	3	C	
◆	CIV-ENGR 276: Strength of Materials	3	C	



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◆	MEC-ENGR 299: Engineering Thermodynamics	3	C	
◆	MEC-ENGR 285: Engineering Dynamics	3	C	
◆	Complete Discourse II and Anchor II Complete 16 term and 64 cumulative credit hours toward degree requirements Earn minimum 2.000 term GPA Earn minimum 2.000 cumulative UM GPA			
Summer Semester Year 3: 0 hours				
				May use summer semester ensure completion of 31 hours per academic year or to lighten fall and winter course loads.
Fall Semester Year 3: 16 hours				
	CIV-ENGR 319: Engineering Computation and Statistics	3	C	<b>Apply for graduation</b>
	MEC-ENGR 324: Engineering Materials with lab	4	C	
	MEC-ENGR 3XX: Mechanical Component Design (New)	3	C	<b>Pending Approval</b>
	**CIV-ENGR 351: Fluid Mechanics	3	C	
	**MEC-ENGR 360: Thermal System Design	3	C	
◆	Complete RooWriter Writing Assessment Must complete 16 term credit hours and minimum 2.000 term & minimum cumulative UM GPA.			
Spring Semester Year 3: 17 hours				
	**MEC-ENGR 306: Computer Aided Engineering	3	C	
	**MEC-ENGR 399: Heat and Mass Transfer	3	C	
	MEC-ENGR 352: Instrumentation and Measurements Lab (New)	5	C	<b>Pending Approval</b>
	MEC-ENGR 380: Manufacturing Methods	3	C	
	MEC-ENGR 385: System Dynamics	3	C	<b>Assessment Test<sup>5</sup></b>
	Completion of 17 term and 97 cumulative credit hours towards degree requirements. Must earn a minimum 2.000 term & cumulative UM GPA.			
Fall Semester Year 4: 15 hours				
	<b>ANCHOR III: Civic and Community Engagement</b> MEC-ENGR 4XX: Capstone	3	C	<b>Pending Approval</b>
	<b>Discourse III: DISC 300 Civic and Community Engagement</b>	3	C	
	MEC-ENGR 415: Feedback Control Systems	3	C	
	MEC-ENGR 4XX: Technical Elective or ME ESD Requirement (ME 451 or 440)	3	C	
	<b>Focus C: Values and Ethical Reasoning</b>	3	C	
	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 496: Mechanical Design Synthesis	3	C	<b>UMKC Senior Exit Survey</b>
	MEC-ENGR 4XX: Technical Elective	3	C	<b>ME ENGR Dept Sr Exit Degree Completion Survey</b>
	MEC-ENGR 4XX: Technical Elective or ME ESD Requirement (ME 451 or 440)	3	C	
	MEC-ENGR 4XX: Technical Elective	3	C	
	<b>Focus A: Arts and Humanities<sup>1</sup></b>	3	C	
	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.			
Total: 125 hours				

<sup>1</sup> All students must take or establish credit for the following General Education Course Requirements: Discourse 1, Discourse 2, Discourse 3, Anchor 1, Anchor 2, Anchor 3, Focus A, Focus B, Focus C, and Focus D for a total of 30 credit hours of GenEd. Go to [www.umkc.edu/core/courses](http://www.umkc.edu/core/courses) for a list of GenEd courses.

<sup>2</sup> Enrollment restricted. Students must pass the online Math Entrance Test prior to enrolling <http://cas.umkc.edu/math/>

<sup>3</sup> RooWriter Test must be taken following the successful completion of Discourse 2 and is a requirement in order to graduate.

<http://cas.umkc.edu/writingcenter/StudentResources/WEPT.asp>

<sup>4</sup> Constitution requirement may be satisfied by taking either HIST 1100 or HIST 1101 or POLSC 210

<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).

### Non-course requirements

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

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Three Applied Skills classes are required before start of Junior year in program. Machine Shop Safety is required and then choose two from the listing:

- Machine Shop Safety (Required)
- Manual Mill  Manual Lathe  Welding (Choose two)



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The School reserves the right to make changes in courses, degree requirements, 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.

### Graduation Requirements Summary:

Total Hours (127 minimum)	Totals Hrs at UMKC (30 hours min)	Major GPA (2.000 min)	UMKC GPA (2.000 min)

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

Faculty/Advisor: \_\_\_\_\_ Date: \_\_\_\_\_