UMKC Major Map: Bachelor of Science in Electrical and Computing Engineering

First-Time College Students **Catalog Year: 2014 - 2015**

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 you may go to our website at www.sce.umkc.edu or the catalog at www.umkc.edu/catalog **Please note this Program of Study is pending final approval of the Anchor III course.**

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	*MATH 210: Calculus I*	Foreign Language Requirement	*No*	Free Elective Hours	*No Free Electives*

Please note:

Complete 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**. Without one of these, students will add three credit hours of DISC 100 to their curriculum.

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.

Critical Course or Bench-mark	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
Fall Semester Year 1: 15-19 hours				
	CHEM 211: General Chemistry I **AND** CHEM 211L: General Chemistry I Lab	C	5	**ALEKS Math Placement Exam Required** [2]
	E&C-ENGR 130: Engineering Graphics	C	3	
◆	MATH 210: Calculus I[2] or MATH 120: Precalculus[2]	C C	4 5	
	****DISC 100: Reasoning and Values** [1]	C-	3	
	****Anchor I: Reasoning and Values**[1] - SCE 101 preferred	C	3	
◆	Complete 15 term credit hours Earn minimum 2.000 term UM GPA			
Spring Semester Year 1: 15 hours				
◆	MATH 210: Calculus I[2] or MATH 220: Calculus II	C	4	PHYSICS 240 required for degree
	Focus B: Scientific Reasoning and Quantitative Analysis [1] PHYSICS 240: Physics for Science & Engineering I	C	5	
	****DISC 200: Culture and Diversity** [1]	C	3	
	****Anchor II: Culture and Diversity**[1] - SCE 201 preferred	C	3	
◆	Complete 15 term credit hours Earn minimum 2.000 term GPA Earn minimum 2.000 cumulative UM GPA.			

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Summer Semester Year 2: 0 hours if all previous courses completed

				May use summer semester to ensure completion of 30 hours per academic year or to lighten fall and spring course loads.
◆	Complete MATH 210 Complete 30 cumulative credit hours Earn minimum 2.000 term GPA Earn minimum 2.000 cumulative UM GPA **Complete Anchor I AND DISC 100**			

Fall Semester Year 2: 16 hours

◆	E&C-ENGR 216: Engineering Computation	C	4	PHYSICS 250 required for degree
◆	E&C-ENGR 226: Logic Design**	C	3	
◆	E&C-ENGR 227: Logic Design Lab**	C	1	
	E&C-ENGR 241: Applied Engineering Analysis I	C	3	
	Focus Elective: [1] PHYSICS 250: Physics for Science & Engineering II	C	5	
◆	Complete MATH 220 AND PHYS 240 Complete 16 term credit hours Earn minimum 2.000 term GPA Earn minimum 2.000 cumulative UM GPA			

Spring Semester Year 2: 17 hours

	Focus C- Human Values & Ethical Reasoning - Click for options [1]	C-	3	HISTORY 101, 102, or POLS-SCI 210 recommended for **Focus C and Constitution Requirement**.
◆	E&C-ENGR 228: Introduction to Computer Design**	C	3	
◆	E&C-ENGR 229: Introduction Computer Design Lab**	C	1	
◆	E&C-ENGR 250: Engineering Mechanics/Thermodynamics	C	3	
	E&C-ENGR 276: Circuit Theory I**	C	3	
	E&C-ENGR 277: Circuit Theory I Lab**	C	1	
	E&C-ENGR 341R: Applied Engineering Analysis II	C	3	
◆	Complete E&C-ENGR 241 AND PHYSICS 25**0** Complete 17 term credit hours Earn minimum 2.000 term GPA Earn minimum 2.000 cumulative UM GPA			

Summer Semester Year 3: 0 hours if all previous courses completed

				May use summer semester to ensure completion of 30 hours per academic year or to lighten fall and spring course loads.
◆	Complete E&C-ENGR 276/E&C-ENGR 277 AND E&C-ENGR 341R Complete Anchor II AND DISC 200 Complete 63 cumulative credit hours Complete 16 term credit hours			

	Earn minimum 2.000 term GPA Earn minimum 2.000 cumulative UM GPA			

Fall Semester Year 3: 15 hours

	COMP-SCI 394R: Applied Probability	C	3	Complete the RooWriter Writing Assessment.
	E&C-ENGR 376: Circuit Theory II**	C	2	
	E&C-ENGR 377: Circuit Theory II Lab**	C	1	
	E&C-ENGR 380: Signals & Systems**	C	4	
	E&C-ENGR 381: Signals & Systems Lab**	C	1	
	E&C-ENGR 426: Microcomputer Architecture**	C	3	
	E&C-ENGR 427: Microcomputer Architecture Lab**	C	1	
◆	Complete RooWriter Writing Assessment Must complete 15 term & 78 cumulative credit hours and minimum 2.000 term & cumulative UM GPA.			

Spring Semester Year 3: 17 hours

	E&C-ENGR 302: Electromagnetics Waves & Fields	C	4	**Assessment Test**[5]
	E&C-ENGR 330: Electronic Circuits**	C	3	
	E&C-ENGR 331: Electronic Circuits Lab**	C	1	
	E&C-ENGR 420: Advanced Engineering Computation	C	2	
	E&C-ENGR 428R: Embedded Systems	C	3	
	E&C-ENGR 429: Embedded Systems Lab**	C	1	
	E&C-ENGR 466: Power Systems I	C	3	
◆	Complete 17 term and 95 cumulative credit hours at the end of spring semester year 3. Must earn a minimum 2.000 term & cumulative UM GPA.			

Fall Semester Year 4: 15 hours

	E&C-ENGR 358: Intro Control Systems or E&C-ENGR 474: Intro Communication Systems [6]	C	3	**Apply for graduation**
	E&C-ENGR 402: Senior Design I[3]	C	2	
	E&C-ENGR 430: Microelectronic Circuits**	C	3	
	E&C-ENGR 431: Microelectronic Circuits Lab**	C	1	
	E&C-ENGR 4XX: Senior Area Elective [7]	C	3	
	E&C-ENGR 4XX,:Senior Area Elective[7]	C	3	
◆	Completion of 15 term credit hours and 110 cumulative credit hours at the end of fall semester year 4. Must earn a minimum 2.000 term GPA.			

Spring Semester Year 4: 15 hours

	E&C-ENGR 4XX: Senior Area Elective[7]	C	3	**UMKC Senior Exit Survey**
	E&C-ENGR 4XX: Senior Area Elective[7]	C	3	**CSEE Degree Completion Survey**
	****Anchor III: Civic and Community Engagement**[1] E&C-ENGR 401WI: Senior Design II (pending approval)	C	3	

	****DISC 300 - Community and Civic Engagement**	C	3	**E&C-ENGR 403WI (required for degree)**
	Focus A: Arts and Humanities- Click for options [1]	C-	3	

Complete 15 term & 125 cumulative credit hours. Must earn a minimum 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
125	30	2.000	2.000

Other Information

Non-course requirements **Met**
RooWriter Writing Assessment
ETS-PP or Measure of Academic Proficiency and Progress (MAPP)
UMKC Senior Exit Survey
CSEE Degree Completion Survey

[1] All students must take and/or establish credit for the following General Education Course Requirements: DISC 100, DISC 200, DISC 300, Anchor 1, Anchor 2, Anchor 3, Focus A, Focus B, Focus C and Focus Elective for a total of 30 credit hours of General Education. See General Education Requirements list for appropriate courses. Go to **www.umkc.edu/core/courses**
[2]Enrollment restricted. Students must pass the online ALEKS Math Placement Exam or provide transcripts showing prerequisites satisfied prior to enrolling
Web site for more information: http://dev.umkc.edu/mathplacement/default.cfm
[3]RooWriter Test must be taken following the successful completion of DISC 200, but must be taken the semester before enrolling in E&C-ENGR 402WI. https://www.umkc.edu/RooWriter/logon.aspx
[5]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) 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).
[6] Students need to take either E&C-ENGR 358 or E&C-ENGR 474, but can take both.
[7]Three of the four senior electives must be from E&C-ENGR courses. If the fourth course is not an E&C-ENGR course, it must be approved by faculty advisor first. Other courses, such as special topics courses, can also be used for Senior Electives.

Policy

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.

Advising Contact Information

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http://sce.umkc.edu/contact/index.cfm

Academic Advisor: _____ **Date** _____

Faculty Advisor: _____ **Date** _____

Career Opportunities

UMKC Career Services Resources: http://www.career.umkc.edu/?q=node/87
O*Net OnLine: http://www.onetonline.org/find/