Major Map: BS Electrical & Computer 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 or the catalog at www.umkc.edu/catalog **Please note this Program of Study is pending final approval of the CSEE 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 ***2nd Language Requirement: Not Required*** ***Free Elective Hours: None***

Critical Course or Benchmark ◆	**Course Subject, Number, Title and Academic Plan Benchmarks** **Bold=UMKC General Education Core Requirement** *Prerequisites are Required **Co-Requisite Enrollment Required	**Credit Hours**	**Min Recomd Grade**	**Additional Critical Tracking Notes**
◆	Complete 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 **Discourse I requirement**. Without one of these, students will add three credit hours of Discourse I 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.			
	Fall Semester Year 1: 15 hours			
	CHEM 211: General Chemistry I **AND** CHEM 211L: General Chemistry I Lab	5	C	
	E&C-ENGR 130: Engineering Graphics	3	C	
◆	Math 210: Calculus I[2]	4	C	**Math Entrance Test Requirement**[2]
	Discourse I: DISC 100 - Reasoning and Values[1] (Speech and Writing)	0	C-	
	Anchor I: Reasoning and Values[1] - Click for Options	3	C-	**SCE 101 preferred**
◆	Complete 15 term credit hours Earn minimum 2.000 term UM GPA			
	Spring Semester Year 1: 15 hours			
◆	Math 220: Calculus II	4	C	
◆	**Focus B: Scientific Reasoning & Quantitation Analysis**[1] **- PHYS 240, Physics for Science & Engineering I**	5	C	**PHYS 240 required for degree**
	Discourse II: DISC 200 - Culture and Diversity[1] (Speech and Writing)	3	C	
	Anchor II: Culture and Diversity[1] **- Click for Options**	3	C	
◆	Complete 15 term credit hours Earn minimum 2.000 term GPA Earn minimum 2.000 cumulative UM GPA.			
	Summer Semester Year 2: 0 hours			
◆	Complete 30 cumulative credit hours Earn minimum 2.000 term GPA Earn minimum 2.000 cumulative UM GPA Complete Anchor I **AND** Discourse I			May use summer semester ensure completion of 30 hours per academic year or to lighten fall and spring course loads.
	Fall Semester Year 2: 16 hours			
◆	E&C-ENGR 216: Engineering Computation	4	C	
◆	E&C-ENGR 226: Logic Design**	3	C	
◆	E&C-ENGR 227: Logic Design Lab**	1	C	
◆	E&C-ENGR 241: Applied Engineering Analysis I	3	C	
◆	**Focus Elective: PHYS 250: Physics for Science & Engineering II**[1]	5	C	**PHYS 250 required for degree**
◆	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 [1,4]	3	C-	HISTORY 1100, 1101 or POLS-SCI 210 recommended for **Focus C and Constitution Requirement**.

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◆	E&C-ENGR 228: Introduction to Computer Design**	3	C	
◆	E&C-ENGR 229: Introduction Computer Design Lab**	1	C	
◆	E&C-ENGR 250: Engineering Mechanics/Thermodynamics	3	C	
◆	E&C-ENGR 276: Circuit Theory I**	3	C	
◆	E&C-ENGR 277: Circuit Theory I Lab**	1	C	
◆	E&C-ENGR 341R: Applied Engineering Analysis II	3	C	
◆	Complete 17 term credit hours Earn minimum 2.000 term GPA Earn minimum 2.000 cumulative UM GPA			
	Summer Semester Year 3: 0 hours			
◆	Complete of Anchor II **AND** Discourse II Complete 63 cumulative credit hours Complete 16 term credit hours Earn minimum 2.000 term GPA Earn minimum 2.000 cumulative UM GPA			May use summer semester ensure completion of 30 hours per academic year or to lighten fall and winter course loads.
	Fall Semester Year 3: 15 hours			
	Comp-Sci 394R: Applied Probability	3	C	
	E&C-ENGR 376: Circuit Theory II**	2	C	
	E&C-ENGR 377: Circuit Theory II Lab**	1	C	
	E&C-ENGR 380: Signals & Systems**	4	C	
	E&C-ENGR 381: Signals & Systems Lab**	1	C	
	E&C-ENGR 426: Microcomputer Architecture**	3	C	
	E&C-ENGR 427: Microcomputer Architecture Lab**	1	C	
◆	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	4	C	
	E&C-ENGR 330: Electronic Circuits**	3	C	
	E&C-ENGR 331: Electronic Circuits Lab**	1	C	
	E&C-ENGR 420: Advanced Engineering Computation	2	C	
	E&C-ENGR 428R: Embedded Systems	3	C	
	E&C-ENGR 429: Embedded Systems Lab**	1	C	
	E&C-ENGR 466: Power Systems I	3	C	**Assessment Test**[5]
	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]	3	C	
	E&C-ENGR 402: Senior Design I[3]	2	C	**Apply for graduation**
	E&C-ENGR 430: Microelectronic Circuits**	3	C	
	E&C-ENGR 431: Microelectronic Circuits Lab**	1	C	
	E&C-ENGR 4XX: Senior Area Elective[7]	3	C	
	E&C-ENGR 4XX,:Senior Area Elective[7]	3	C	
	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 3: 15 hours			
	E&C-ENGR 4XX: Senior Area Elective[7]	3	C	**UMKC Senior Exit Survey**
	E&C-ENGR 4XX: Senior Area Elective[7]	3	C	**CSEE Degree Completion Survey**
	****Anchor III: Community & Civic Engagement - E&C-ENGR 403WI: Senior Design II (pending approval)**[1]	3	C	**E&C-ENGR 403WI (required for degree)**
	****Discourse III: DISC 300 - Culture and Diversity** (Speech and Writing)[1]	3	C	
	Focus A: Arts and Humanities[1]	3	C-	
	Complete 15 term & 125 cumulative credit hours. Must earn a minimum term, major core, and cumulative UM GPA of 2.000.			
	Total: 125 hours			

[1] 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 for a list of GenEd courses.

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

[3]RooWriter Test must be taken following the successful completion of Discourse 2, but must be taken the semester before enrolling in E&C-ENGR 402WI. http://cas.umkc.edu/writingcenter/StudentResources/WEPT.asp

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[4] Constitution requirement may be satisfied by taking either HIST 1100 or HIST 1101 or POLSC 210
[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.

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	☐

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 (125 minimum)	Totals Hrs at UMKC (30 hours min)	Major GPA (2.000 min)	UMKC GPA (2.000 min)

Academic Advisor: _____ **Date:** _____

Faculty Advisor: _____ **Date:** _____