

ELECTRICAL AND COMPUTER ENGINEERING DEPARTMENT

Computer Engineering Major
(128 Semester Hours)

10/14/2016 A.W.

REQUIRED COURSES WITHIN THE ENGINEERING COLLEGE

COURSE TITLE NUMBER OFF. HRS. PREREQUISITES

Computer Engineering Core Courses(44 hrs)

Engineering Orientation*a	ENGR 100		0	Admission to the College of Engineering
Introduction to Thermodynamics	CHE 201 or		3	MATH 181 and PHYS 141
Introduction to Thermodynamics	ME 205		3	MATH 181 and PHYS 141
Introduction to Computing and Programming	CS 107		4	Credit or concurrent registration in MATH 180
Introduction to Electrical and Computer Eng.	ECE 115	F,Sp	4	Credit or concurrent registration in MATH 180
Data Structures & Discrete Mathematics I	CS 201		4	Math 180; and grade of C or better in CS 102 or CS 107
Circuit Analysis	ECE 225	F,Sp	4	MATH 220; & grade of C or better in PHYS 142 & a grade of C or better in ECE 115
Introduction to Logic Design	ECE 265	F,Sp	4	MATH 180; and grade of C or better in ECE 115
Computer Organization I	ECE 267	F,Sp	3	CS 107 and credit or concurrent registration in ECE 265
Discrete and Continuous Signals and Systems	ECE 310	F,Sp	3	MATH 220 & cr. or conc. reg. in ECE 225; or cr. or conc. reg. ECE 210 for non-ECE students
Electronics I	ECE 340	F,Sp	4	Grade of C or better in ECE 225
Probability & Random Processes for Engineers	ECE 341	F,Sp	3	Credit or concurrent registration in ECE 310
Computer Organization II	ECE 366	F,Sp	4	ECE 267 and CS 201
Senior Design I	ECE 396	F,Sp	2	ENGL 161 and senior standing
Senior Design II	ECE 397	F,Sp	2	ECE 396
Professional Development Seminar	ECE 499	F,Sp	0	Open only to seniors; & approval of the dept. Must be taken in the student's last semester of study.

Computer Engineering Advanced Core Courses(14-15 hrs)

(Students must complete at least two courses from each of the following two groups of courses)

Group A:

Computer Communication Networks I	ECE 333	F	4	ECE 341 and CS 201
Microprocessor-Based Design	ECE 367	F,Sp	4	ECE 267; and Grade of C or better in ECE 265; or Grade of C or better in CS 366
CAD-Based Digital Design	ECE 368	Sp	4	ECE 366
Operating Systems Concepts and Design	CS 385		3	CS 361; or CS 201 & ECE 367

Group B:

Digital Systems Design	ECE 465	F,Sp	3	Gr. of C or better in PHYS 142; and Gr. of C or better in ECE 265 or Gr. of C or better in CS 366.
Advanced Computer Architecture	ECE 466	F,Sp	3	CS 366 or ECE 366
Introduction to VLSI Design	ECE 467	F	4	ECE 340
Computer Algorithms I	CS 401		3	C or better in MCS 360; or C or better in CS 202

Technical Electives(14 hrs)

(Those courses not used to meet the advanced CE core requirement can be used as technical electives. However, no more than a total of two courses below the 400 level can be used to meet the technical electives requirement. Also, no more than one course from outside the ECE Department can be used to meet the technical electives requirement.)

Fundamentals of Modern Quantum Theory	PHYS 240		3	C or better in MATH 181; and C or better in PHYS 142 or B or better in PHYS 107
Communication Engineering	ECE 311	F,Sp	4	Grade of C or better in ECE 310
Digital Signal Processing I	ECE 317	F,Sp	4	Grade of C or better in ECE 310
Communication Electromagnetics	ECE 322	F,Sp	3	Grade of C or better in ECE 225
Electronics II	ECE 342	F,Sp	4	ECE 340
Solid-State Device Theory	ECE 346	F,Sp	4	MATH 220; grade of C or better in ECE 115, and a grade of C or better in PHYS 142
Integrated Circuit Engineering	ECE 347	F,Sp	3	CHEM 122/123 and grade of C or better in ECE 225
Principles of Automatic Control	ECE 350	F,Sp	4	Math 310 and gr. of C or better in ECE 310
Quasi-Static Electric and Magnetic Fields	ECE 401	Sp	3	ECE 322
Pattern Recognition I	ECE 407	Sp	3	MATH 220
Network Analysis	ECE 410	F	3	Math 310 and gr. of C or better in ECE 310
Introduction to Filter Synthesis	ECE 412	Sp	3	Grade of C or better in ECE 310
Image Analysis and Computer Vision I	ECE 415	F	3	MATH 310; or grade of C or better in ECE 310
Digital Signal Processing II	ECE 417	F	4	ECE 317
Statistical Digital Signal Processing	ECE 418	Sp	3	ECE 317 and ECE 341
Introduction to Antennas and Wireless Propagation	ECE 421	F	3	ECE 225 and ECE 322
Electromagnetic Compatibility	ECE 423	Sp	3	Math 310 and ECE 322
RF and Microwave Guided Propagation	ECE 424	F	4	ECE 225 and ECE 322
Modern Linear Optics	ECE 427	F	3	ECE 310 and ECE 322
Analog Communication Circuits	ECE 431	F	4	ECE 311 and ECE 340
Digital Communications	ECE 432	F	3	Math 310, ECE 311 and ECE 341

TECHNICAL ELECTIVES CONTINUED

TECHNICAL ELECTIVES CONTINUED

Multimedia Systems	ECE 434	F	3	ECE 310
Computer Communication Networks II	ECE 436	Sp	3	ECE 333
Wireless Communications	ECE 437	F	3	ECE 311 and ECE 341
Power Semiconductor Devices & Integ. Circuits	ECE 442	Sp	4	ECE 342 and ECE 346
Analysis & Design of Power Electronic Circuits	ECE 445	F	4	ECE 342; and grade of C or better in ECE 310
Transistors	ECE 448	Sp	3	ECE 346
Microdevices and Micromachining Technology	ECE 449	Sp	4	ECE 347; or consent of the instructor
Control Engineering	ECE 451	F	3	ECE 350
Robotics: Algorithms and Control	ECE 452	Sp	3	CS 201; & gr. of C or bett. in ECE 210 or gr. of C or bett. in ECE 225
Electromechanical Energy Conversion	ECE 458	F	3	Grade of C or better in ECE 225
Analog and Mixed-Signal VLSI Design	ECE 468	Sp	4	ECE 467
Computer Systems Design	ECE 469	Sp	3	CS 366; or ECE 366 and ECE 368
Compiler Design	CS 473		3	Gr. of C or bett. in CS 301 or in MCS 441; &Gr. of C or bett. in CS 202 or in MCS 360; &Gr. of C or bett. in CS 266.
Networked Operating Systems Programming	CS 485		4	CS 385
Coding and Cryptography	MCS 425		3	Gr. of C or bett. in MATH 215; &Gr. of C or bett. in MATH 310 or Gr. of C or bett. in MATH 320; or consent of the instructor

NONENGINEERING AND GENERAL EDUCATION REQUIREMENTS(48 hrs)

COURSE TITLE	NUMBER	HRS.	PREREQUISITES
General Chemistry I Lecture*c	CHEM 122	4	Grade of C or better in CHEM 101 or adequate performance on the UIC Chemistry placement examination; and concurrent registration or Grade of C or better in CHEM 123
General Chemistry I Laboratory*b,*c	CHEM 123	1	Gr. of C or better in CHEM 101; & concurrent registration or Gr. of C or better in CHEM 122
Academic Writing I:WAPC	ENGL 160	3	Performance on Dept. Placement Test
Academic Writing II:WIR	ENGL 161	3	ENGL 160 or the equivalent
Exploring World Cultures course*a		3	
Understanding the Creative Arts course*a		3	
Understanding the Past course*a		3	
Understanding the Individual and Society course*a		3	
Understanding US Society course*a		3	
Calculus I*b	MATH 180	4	C or better in MATH 121 or app. perf. on the dept. pl. test
Calculus II*b	MATH 181	4	C or better in MATH 180
Calculus III*b	MATH 210	3	C or better in MATH 181
Introduction to Differential Equations I	MATH 220	3	C or better in MATH 210
General Physics I (Mechanics)*b	PHYS 141	4	C or better or concurrent registration in MATH 180; or approval of the dept; and C or better in PHYS 100 or adequate performance on the departmental placement test.
General Physics II (Electricity and Magnetism)*b	PHYS 142	4	Grade of C or better in PHYS 141 and grade of C or better or concurrent registration in MATH 181

*a-Consult General Education section of the catalog for approved courses in this category ; *b-Course approved for the Analyzing the Natural World General Education category, *c-General Education credit is given for successful completion of both CHEM 122 and CHEM 123.

Additional Mathematics Course (6 hrs)

(Students must complete at least two of the following courses.)

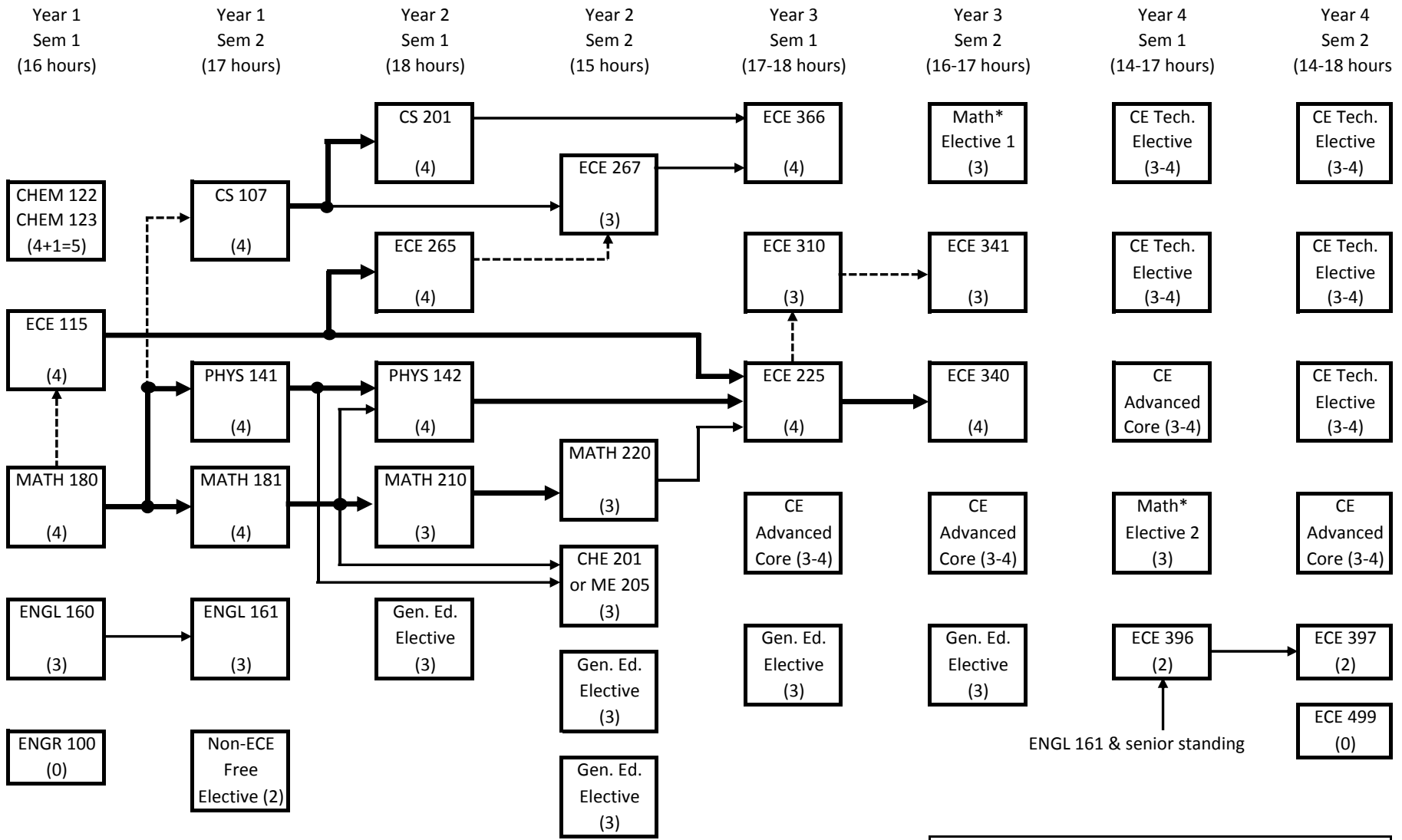
Applied Linear Algebra	MATH 310	3	C or better in MATH 210
Advanced Calculus I	MATH 410	3	C or better in MATH 210
Complex Analysis with Applications	MATH 417	3	C or better in MATH 210
Applied Partial Differential Equations	MATH 481	3	C or better in MATH 220
Numerical Analysis	MCS 471	3	Gr. of C or bett. in MCS 275 or Gr of C or bett. in CS 102 or Gr. of C or bett. in CS 108 or consent of instructor.

FREE ELECTIVES(2 hrs)

Students must select* courses from outside the ECE Department.

(*Students preparing for the Fundamentals of Engineering Examination, which leads to becoming a Licensed Professional Engineer, are advised to use these hours to take the course CME 201, Statics; and one course from the following courses: CME 203, Strength of Materials; CME 260, Properties of Materials; ME 211, Fluid Mechanics I.)

UIC Computer Engineering Curriculum - Suggested Schedule of Courses



→ Prerequisite course
 → Grade ≥C required in prerequisite
 - - - Co-requisite course

*Select **two** courses from: MATH 310, 410, 417, 481 & MCS 471

CE Advanced Core Courses:
 Group A: ECE 333 (4), 367 (4), 368 (4) and CS 385 (3)
 Group B: ECE 465 (3), 466 (3), 467 (4) and CS 401 (3)
 (Must take at least two courses from each group)