

CSE 14-18

Date: _____

_____, _____
Last Name

First Name

Curriculum Worksheet for the Computer Systems Engineering Classes of 2014 through 2018

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
Fall [15cr]	Spring [16cr]	Fall [18-19cr]	Spring [19cr]	Fall [15cr]	Spring [15cr]	Fall [12-14cr]	Spring [13-15cr]
ENGIN 112 Intro. to ECE [3 cr] [Note 1]	CMPSCI 121 Intro. Problem Solving w/Comp (Java) [4 cr]	ECE 211 Circuit Analysis I [4 cr]	ECE 212 Circuit Analysis II [4 cr]	ECE 313 Signals & Systems [4 cr]	ECE 314 Intro. Prob. & Random Procs. [4 cr]	ECE 415 Senior Design Project I [3 cr] (GenEd-IE)	ECE 416 Senior Design Project II [3 cr]
PHYSICS 151 Gen. Physics I – Mechanics [4 cr]	PHYSICS 152 Gen. Physics II – Thermo., E&M [4 cr]	ECE 242 Data Structures & Algorithms (w/Java) [4 cr]	ECE 232 Hardware Organization & Design [4 cr]	ECE 323 Electronics I [4 cr]	ECE 374 Computer Networks & the Internet [3 cr]	CSE Elective [3 or 4 cr] [Note 6]	CSE Elective [3 or 4 cr] [Note 6]
MATH 131 Calculus I [4 cr]	MATH 132 Calculus II [4 cr]	MATH 331 Differential Equations [3 cr]	MATH 235 Linear Algebra [3 cr]	ECE 353 Computer Systems Lab I [3 cr]	ECE 354 Computer Systems Lab II [4 cr]	CSE Elective [3 or 4 cr] [Note 6]	CSE Elective [3 or 4 cr] [Note 6]
Social World Elective [4 cr] [Note 2]	ENGLWRIT 112 College Writing [3cr]	Social World Elective [4 cr] [Note 2]	CMPSCI 250 Intro. Computaton [4 cr]	ECE 373 Software Intensive Engineering [4 cr]	ECE 303 Junior Seminar [1 cr]	Social World Elective [4 cr] [Note 2]	Social World Elective [4 cr] [Note 2]
		Thematic Elective [3 or 4 cr] [Note 3]	BIOLOGY 110 [4 cr] [Note 5]		ENGIN 351 Writing in Engineering [3 cr]		
		(Take ECE 221 , Digital Systems, unless ENGIN 112 was taken in Fall 2014 or earlier. [4 cr] [Note 4])				5-yr B.S. / M.S. Graduate Course [3 or 4 cr] (Cannot be used for B.S. degree) [Note 7]	5-yr B.S. / M.S. Graduate Course [3 or 4 cr] (Cannot be used for B.S. degree) [Note 7]

The curriculum notes can be found on the reverse side of this worksheet.

UNIVERSITY OF MASSACHUSETTS AMHERST • DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

<http://ece.umass.edu/>

Updated March 2015

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— Notes for the Computer Systems Engineering Curriculum for the classes of 2014 through 2018 —

The abbreviations “ECE” and “E&C-ENG” are equivalent. They are both abbreviations of “Electrical and Computer Engineering”. “ECE” tends to be used in departmental publications and “E&C-ENG” is used on SPIRE and on official schedules and transcripts.

It is important that the Undergraduate Catalog posted on SPIRE (<https://spire.umass.edu>) be consulted for course descriptions and course requisites. It is the student’s responsibility to refrain from enrolling in any course for which she or he does not have all of the published requisites.

Note 1 • ENGIN 112, Intro. to ECE

In the Fall semester, choose one of the following:

- ENGIN 110: Intro. to Chemical Engineering I
- ENGIN 111: Intro. to Civil & Environmental Engineering I
- >> ENGIN 112: Intro. to Electrical & Computer Engineering I
- ENGIN 113: Intro. to Mechanical & Industrial Engineering I

A grade of C or better in one of the ENGIN 11x courses is required for all engineering majors. ENGIN 112 is strongly recommended for CSE and EE majors.

Note 2 • Social World Electives

Choose four Social World electives (four credits each) consisting of:

1. One Literature or Art elective: AL or AT
2. One Historical Studies elective: HS
3. One Social and Behavioral elective: SB
4. One more elective: AL, AT, SB, I or SI

One of the four Social World electives must carry the G (Global diversity) designation, and another must carry the U (U.S. diversity) designation.

Note 3 • Thematic Elective

A Thematic Elective is required for all CSE and EE majors. There are four approved Thematic Elective subject areas: (1) Biology and Chemistry; (2) Physics and Astronomy; (3) Mathematics; and (4) Engineering Management. (Note: This fourth track is only for students who intend to complete the Engineering Management minor.) The official Thematic Electives Document can be viewed and/or downloaded at <http://ece.umass.edu/undergraduate-students/forms-documents>.

Note 4 • ECE 221, Digital Systems

Starting in Fall 2015, ENGIN 112 will no longer focus on digital design. As such, the course will no longer serve as the prerequisite for ECE 232 (Hardware Organization & Design). Instead, the new prerequisite for ECE 232 will be ECE 221, Intro. to Digital and Computer Systems (or simply, Digital Systems). Thus, students who have not earned a C or better in ENGIN 112 in Fall 2014 or earlier are advised to enroll in ECE 221 as soon as possible.

In order to keep the academic load below 20 credits, a student enrolling in ECE 221 might need to postpone either the Thematic Elective or the Social World Elective.

Students who have earned a grade of C or better in ENGIN 110, 111 or 113 before Fall 2015 are allowed to use the ENGIN 11x course to fulfill the Thematic Elective.

Students who have not earned a grade of C or better in ENGIN 110, 111, 112, or 113 are advised to enroll in both ENGIN 112 and ECE 221 as soon as possible.

Note 5 • Biology

CSE and EE students must pass either BIOLOGY 110 or BIOLOGY 151. BIOLOGY 151 is the appropriate choice for students who plan to pursue further studies in Biology, Biochemistry or Bioengineering.

Students may not use BIOLOGY 110 or BIOLOGY 151 to fulfill their Thematic elective.

Note 5 • CSE Electives

Choose four CSE electives. The electives must include at least two 500-level courses (or above) that may not be used to fill the requirements for any other major.

- ECE 324: Electronics II (2nd sem)
- ECE 333: Fields and Waves I (2nd sem) 4 cr
- ECE 344: Semiconductor Devices and Materials (1st sem)
- ECE 544: Trustworthy Computing (1st sem)
- ECE 558: Intro. to VLSI Design (1st sem) 4 cr
- ECE 559: VLSI Design Project (2nd sem)
- ECE 563: Intro. to Comm. & Signal Processing (1st sem)
- ECE 564: Communication Systems (2nd sem) 4 cr
- ECE 565: Digital Signal Processing (2nd sem) 4 cr
- ECE 568: Introduction to Computer Architecture (1st sem)
- ECE 570: System Software Design (2nd sem)
- ECE 571: Microelectronic Fabrication (2nd sem) 4 cr
- ECE 572: Optoelectronics (1st sem)
- ECE 575: Intro. to Analog IC Design (1st sem)
- ECE 580: Feedback Control Systems (1st sem) 4 cr
- ECE 581: Digital Control of Feedback Systems (TBD)
- ECE 584: Microwave Engineering I (1st sem) 4 cr
- ECE 585: Microwave Engineering II (2nd sem)

All ECE 597 Special Topics courses and all 600-level ECE courses (except ECE 696) are allowed as well.

The following courses are approved as CSE electives, but enrollment in them is not guaranteed. Priority is given to CMPSCI students.

- CMPSCI 311: Introduction to Algorithms (both sem) 4 cr
- CMPSCI 377: Operating Systems (1st sem) 4 cr
- CMPSCI 383: Artificial Intelligence (1st sem)
- CMPSCI 403: Introduction to Robotics (1st sem)
- CMPSCI 410: Compiler Techniques (1st sem)
- CMPSCI 445: Information Systems (2nd sem)
- CMPSCI 446: Search Engines (2nd sem)
- CMPSCI 474: Image Synthesis (2nd sem)
- CMPSCI 501: Formal Language Theory (2nd sem)
- CMPSCI 513: Logic in Computer Science (2nd sem)
- CMPSCI 520: Software Engin: Synthesis and Development (2nd sem)
- CMPSCI 521: Software Engin: Analysis and Evaluation (1st sem)
- CMPSCI 529: Software Engin: Project Management (both sem)
- CMPSCI 585: Introduction to Natural Language Processing (1st sem)

Consult SPIRE to check course offerings and availability.

Note 6 • Five-Year B.S. / M.S. in ECE

The Department of Electrical and Computer Engineering offers a five-year program through which students can obtain a Bachelor of Science degree in Electrical or Computer Systems Engineering as well as a Master of Science degree in Electrical and Computer Engineering within a five-year time frame. During the senior year, two graduate-level courses are taken that are later transferred into the M.S. program. More information is posted at <http://ece.umass.edu/ece/five-year-program>.