

# EE 2020

Date: \_\_\_\_\_

\_\_\_\_\_, \_\_\_\_\_  
Last Name

\_\_\_\_\_  
First Name

## Curriculum Worksheet for the Electrical Engineering Class of 2020

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
Fall [18-19cr]	Spring [15-16cr]	Fall [18-19cr]	Spring [18-19cr]	Fall [15cr]	Spring [15cr]	Fall [13-15cr]	Spring [13-15cr]
<a href="#">ENGIN 112</a> Intro. to ECE [3 cr] [Note 1]	<a href="#">ECE 122</a> Intro. Programming for ECE [4 cr]	<a href="#">ECE 211</a> Circuit Analysis I [4 cr]	<a href="#">ECE 212</a> Circuit Analysis II [4 cr]	<a href="#">ECE 313</a> Signals & Systems [4 cr]	<a href="#">ECE 314</a> Intro. Prob. & Random Procs. [4 cr]	<a href="#">ECE 415</a> Senior Design Project I [3 cr] (GenEd-IE)	<a href="#">ECE 416</a> Senior Design Project II [3 cr]
<a href="#">PHYSICS 151</a> Gen. Physics I – Mechanics [4 cr]	<a href="#">PHYSICS 152</a> Gen. Physics II – Thermo., E&M [4 cr]	<a href="#">ECE 221</a> Intro. Digital & Computer Systems [4 cr]	<a href="#">ECE 232</a> Hardware Organization & Design [4 cr]	<a href="#">ECE 323</a> Electronics I [4 cr]	<a href="#">ECE 324</a> Electronics II [3 cr]	<a href="#">EE Elective</a> [3 or 4 cr] [Notes 6 & 7]	<a href="#">EE Elective</a> [3 or 4 cr] [Notes 6 & 7]
<a href="#">MATH 131</a> Calculus I [4 cr]	<a href="#">MATH 132</a> Calculus II [4 cr]	<a href="#">ECE 242</a> Data Structures & Algorithms (w/Java) [4 cr]	<a href="#">MATH 235</a> Linear Algebra [3 cr]	<a href="#">ECE 353</a> Computer Systems Lab I [3 cr]	<a href="#">ECE 333</a> Fields & Waves [4 cr]	<a href="#">EE Elective</a> [3 or 4 cr] [Notes 6 & 7]	<a href="#">EE Elective</a> [3 or 4 cr] [Notes 6 & 7]
<a href="#">Social World Elective</a> [4 cr] [Note 2]	<a href="#">Biological Sciences Elective</a> [3 or 4 cr] [Note 4]	<a href="#">MATH 331</a> Differential Equations [3 cr]	<a href="#">MATH 233</a> Multivariate Calculus [3 cr]	<a href="#">ECE 344</a> Semiconductor Devices & Materials [4 cr]	<a href="#">ECE 303</a> Junior Seminar [1 cr]	<a href="#">Social World Elective</a> [4 cr] [Note 2]	<a href="#">Social World Elective</a> [4 cr] [Note 2]
<a href="#">ENGLWRIT 112</a> College Writing [3 cr]		<a href="#">Social World Elective</a> [4 cr] [Note 2]	<a href="#">Science Elective</a> [3 or 4 cr] [Notes 5 & 6]		<a href="#">ENGIN 351</a> Writing in Engineering [3 cr]		
<a href="#">ENGIN 191</a> Freshman Seminar [1 cr] [Note 3]						5-yr B.S. / M.S. Graduate Course [3 or 4 cr] (Cannot be used for B.S. degree) [Note 8]	5-yr B.S. / M.S. Graduate Course [3 or 4 cr] (Cannot be used for B.S. degree) [Note 8]

*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 August 2016

# EE 2020

— Notes for the Electrical Engineering Curriculum for the class of 2020 —

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 drop 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 / Diversity Requirements

Choose four Social World Electives (**four** credits each) consisting of:

1. One Literature or Arts 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

Also, choose two courses to meet the Social & Cultural Diversity requirement: one course focusing on United States diversity (U, ALU, ATU, HSU, IU, SBG, or SIU) and one course focusing on Global diversity (G, ALG, ATG, HSG, IG, SBG, or SIG). Most students satisfy the Diversity requirement with two of their four Social World electives. In other words, with careful planning, four courses may be used to satisfy all six graduation requirements

## Note 3 • Freshman Seminar

All engineering students are required to enroll in a 1-credit Freshman Seminar in their first semester.

## Note 4 • Biological Sciences Elective

The Biological Sciences Elective can be fulfilled with any course that satisfies the University’s Biological Sciences (BS) General Education requirement.

## Note 5 • Science Elective

The Science Elective is required for all CSE and EE majors. There are currently five approved courses, as listed below.

- BIO 110: Intro. Biology for Science Majors (2nd sem) 4 cr
- BIO 151: Intro. Biology I (both sem) 4 cr
- CHEM 111: Gen. Chemistry for Science Majors (both sem) 4 cr
- CHEM 121H: Hon. Gen. Chem. for Science Maj. (1st sem) 4 cr
- PHYSICS 287: Physics III – Waves & Thermo. (1st sem) 3 cr

## Note 6 • Alternative Electives

To propose a different course to satisfy either the Science Elective or EE Elective, fill out the Alternative Elective Request Form, and take it to the Undergraduate Programs Office. The form is online at: <http://ece.umass.edu/undergraduate-students/forms-documents>.

## Note 7 • EE Electives

Choose four EE Electives. The electives must include at least two 500-level courses (or above) that may **not** be used to satisfy the requirements for any other major. Each is 3 credits unless otherwise indicated.

- ECE 354: Computer Systems Lab II (2nd sem) 4 cr
- ECE 373: Software Intensive Engineering (1st sem) 4 cr
- ECE 374: Computer Networks & the Internet (2nd 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 584: Microwave Engineering I (1st sem) 4 cr
- ECE 585: Microwave Engineering II (2nd sem)

Consult SPIRE to check course offerings and availability.

## Note 8 • 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>.