

**Department of Electrical and Computer Engineering
Electrical Engineering Curriculum**

September 2017

Summary of Degree Requirements

128 Hours Total

A. Required Classes	62 Hours
B. Probability and Statistics	3 Hours
C. Technical Electives	32 Hours
3 Advanced Core courses	9-10 Hours
more ECE electives (3 lab classes, at least one hardware lab)	4-12 Hours
Non-ECE Tech Electives	6 Hours
D. Liberal Edu./General Education	18 Hours
E. Free Electives	12 Hours
Total	128 Hours

Minimum GPA requirements: **2.00 Cumulative**
 2.00 ECE classes
 2.00 Semester GPA

Probation and Drop Rules

Probation Rule	Why you are on probation	To avoid being dropped	Drop Rule
	Semester GPA < 1.0 drop, no probation (except Freshmen, 1 st semester)	Not possible	17
1A	Semester GPA < 2.0 Cumulative GPA > 2.0	Sem. GPA > 2.0 next semester	17
1B	1.75 < Cumulative GPA < 2.0	Sem. GPA > 2.25 next semester	17
1C	Cumulative GPA < 1.75	Sem. GPA > 2.33 next semester	17
1 E, 1G or 1H	Dean's Prerogative "almost dropped, last chance"	Sem. GPA > (value) next semester	18
1T	ECE GPA (TGPA) < 2.0	Bring TGPA > 2.0 next semester	18
1P	Departmental probation	Meet specified conditions	18

Junior Eligibility Rule

2.25 Rule	This is not a probation rule. However, you may not register for ECE 313, 329, 385, 440, etc.	Retake 2.25 Rule courses to bring their average over 2.25.	None
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Electrical Engineering Work Sheet

(See requirement details on following pages)

September 2017

This Semester	Hrs	Next Semester	Hrs
Total		Total	

A. Required Classes
Checklist on next pages

B. Probability and Statistics
Choose ECE 313 or STAT 410

How Many Hours Do I Have Left?					
Total Hours Required per Category					
A	B	C	D	E	Total
63	3	32	18	12	128
Hours Left (after current semester): (See DARS degree audit online)					
Next Semester Hours per Category					
New Totals Left per Category					

C. Tech Electives	ECE	3 of 5	Labs	Non-ECE hours	Total Hours
Courses					
Your Total Needed	20 hrs	3 courses	2 - 3 courses	6 hours	32 hours

D. Liberal Education/General Education Requirements							
List your courses here:	Campus-Wide Requirements						College of Eng.
	Comp II (course)	Soc. Sci. (hours)	Hum. (hours)	Western (course)	Non-Western (course)	Language (course)	Soc. Sci., Hum or Liberal Ed. Lists (hours)
Your Totals Required	1 crs	6 hrs	6 hrs	1 crs	1 crs.	3 crs*	18 hrs

E. Free Electives
6 hours must be taken for a grade.
Rules for credit: almost anything

(*) Students must take 3 semesters of one college-level foreign language or 3 years of one high school-level foreign language. Approval needed to count for SSH hours (COE).

ELECTRICAL ENGINEERING CURRICULUM

Note: These rules do not apply to the Computer Engineering Curriculum

February 2018

A. Required Courses (63 hours)

Core Courses Counted for the 2.25 Rule

(You need a 2.25 GPA in the courses through ECE 210 to register for third year ECE courses.)

Physics

PHYS	211	4 hours	_____
PHYS	212	4 hours	_____
PHYS	213	2 hours	_____
PHYS	214	2 hours	_____

Math

MATH	221	4 hours	_____
MATH	231	3 hours	_____
MATH	241	4 hours	_____
MATH	286	4 hours	_____

ECE

ECE	110	3 hours	_____
ECE	120	4 hours	_____
ECE	220	4 hours	_____
ECE	210	4 hours	_____

Chemistry and Rhetoric Courses and Eng 100

Chem	102/103	4 hours	_____
Rhet	105	4 hours	_____
Eng	100	0 hours	_____

Upperclass ECE Courses

ECE	329	3 hours	_____
ECE	385	3 hours	_____
ECE	340	3 hours	_____
ECE	445*	4 hours	_____

* Alternative ECE 496/499

B. Probability and Statistics (3 hours)

ECE 313 or Stat 410 /Math 464

3 hours _____

ELECTRICAL ENGINEERING CURRICULUM

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February 2018

C. Technical Electives (32 hours) These courses are chosen from the Departmentally Approved List of Technical Electives that includes courses in ECE, other engineering fields, the sciences and mathematics. They give each student freedom to define a technical course of study in electrical engineering of considerable breadth and focus. The Advanced Core ECE Electives (the 3 out of 5's) introduce major specialty areas of electrical engineering. Choices should be made with care, planning, and consultation with an advisor.

Consult online the advising materials for all the sub-disciplines of electrical engineering: **Bioengineering and Acoustics; Circuits; Computer Engineering; Communications Systems; Control Systems; Electromagnetics; Physical Electronics; Power and Energy Systems; Signal Processing; Space Science and Remote Sensing; Recommendations for a General Program in EE.**

Descriptions are available at: <https://ece.illinois.edu/academics/ugrad/subdisciplines/>

Distribution Requirements:

32 hours to include at least:	Selected from the Departmentally Approved <u>List of Technical Electives</u>
(i) 6 hours	Non-ECE courses
(ii) 20 hours	ECE courses
a. 3 out of 5 courses 4 hours 4 hours 3 hours 3 hours 3 hours 3 hours	Selected from the following list of Advanced Core ECE electives: ECE 391—Computer Systems Engineering or CS 225—Data Structure ECE 310—Digital Signal Processing ECE 330—Power Circuits & Electromechanics ECE 342—Electronic Circuits ECE 350—Lines, Fields, and Waves
b. Three (3) courses; at least one hardware lab	ECE labs Identified in the <u>List of Technical Electives</u> and table on the following page

Tech Elective hours: Note that 20 ECE hours + 6 non-ECE does not equal 32. Choose the remaining 6 hours from the entire List.

ECE hours: 3 out of 5 hours and lab hours count towards the ECE elective total.

Restrictions and Notes:

- 1) ECE/PHIL 316, Engineering Ethics, is a Campus Humanities course which meets the Comp II requirement. It does not count as an ECE Elective.
- 2) Some sections of ECE 199, 398, and 498 may not have technical content. These sections will not count as ECE electives.
- 3) Required ECE courses (e.g., ECE 329) do not count.
- 4) Courses for non-majors (e.g., ECE 205) do not count except by permission.

(Continued on the next page)

- 5) Students may use independent study courses as ECE elective hours: ECE 397 (Electrical and Computer Engineering Problems), ECE 396 (Honors Project)

Non-ECE tech elective hours:

ENG 491, Interdisciplinary Design Projects, approved sections. For ECE credit, go to 2120 ECEB.

However, no student may take more than 4 hours special problems with the same instructor, nor count more than a total of 6 hours towards graduation as a technical elective or a required advanced ECE course or lab, regardless of the department in which they are taken.

- 6) ECE 297 may be repeated once for a total of 2 hours of ECE tech electives, but it does not count as part of the 6 hours of independent study allowed for tech electives.
- 7) Courses cross-listed with ECE courses are counted as ECE courses. Cross-listed means that courses in different departments are the same. GE 421 Intro to Robotics is the “same as” ECE 470, so it counts as an ECE tech elective. In CS 241 it says “Credit is not given for both CS 241 and ECE 391.” They are not the same course; you won’t get any credit for CS 241.

ECE Elective Laboratories: Every student must take at least 3 laboratories (at least one of which must be a hardware lab) besides the required laboratories. The hours are counted as ECE elective hours. See the list below.

Hardware Labs			Software Labs		
1 hr	ECE 343	Electronic Circuits Lab	1 hr	ECE 311	Digital Signal Processing Lab
4	ECE 391	Computer Systems Engineering	1 hr	ECE 314	Probability in Engineering Lab
2 - 3	ECE 395	Advanced Digital Projects Lab	3 hrs	ECE 398	Making Sense of Big Data
3	ECE 402	Electronic Music Synthesis	4 hrs	ECE 411	Computer Organization and
4	ECE 411	Computer Organization &			
3	ECE 412	Microcomputer Lab			
2	ECE 415	Biomedical Instrumentation Lab			
2	ECE 420	Embedded DSP Lab			
4	ECE 431	Electric Machinery			
3	ECE 435	Computer Networking Lab			
3	ECE 437	Sensors and Instrumentation			
3	ECE 438	Communication Networks			
3	ECE 439	Wireless Networks			
4	ECE 444	IC Device Theory &			
3	ECE 447	Active Microwave Circuit			
3	ECE 451	Adv Microwave Measurements			
4	ECE 453	Wireless Communication			
4	ECE 456	Global Nav Satellite Systems			
3	ECE 460	Optical Imaging			
2	ECE 463	Digital Communications Lab			
1 hr	ECE 466	Optical Communications Lab			
3	ECE 468	Optical Remote Sensing			
2	ECE 469	Power Electronics Lab			
4	ECE 470	Introduction to Robotics			
4	ECE 486	Control Systems			
3	ECE 495	Photonic Device Lab			